



NON-BINDING ENGLISH TRANSLATION OF THE GERMAN ORIGINAL
VERSION FOR CONVENIENCE PURPOSES ONLY

Auditor's report

Audit of the control and profit and loss absorption agreement

between

ADVA Optical Networking SE
Meiningen

and

ADTRAN Holdings, Inc.
Wilmington, Delaware

oakl

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Parameter	Value													
Basic interest rate (after personal taxes)	1,10%													
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Market risk premium (after personal taxes)	5,75%													
Equity costs of the indebted enterprise (after personal taxes, sustainable)	7,01%													
Sustainable growth rate (after personal taxes)	1,30%													
Enterprise value														
Enterprise value (as of 30 November 2022) € 894.2 million	D.V.6.c)	90												
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Adequacy of settlement and compensation														
- Prorated enterprise value of € 17.21 per no-par-value share - Stock market price as possible lower limit of the cash compensation of € 33.27 per no-par-value share - Cash compensation per no-par-value share of € 17.21 adequate	D.V.8.a)	96												
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For computational reasons, rounding differences of +/- one unit (€, %, etc.) may occur in the tables.

List of abbreviations and symbols

€	EUR
\$	US dollar
%	Percent
§	Section
&	and
5G	Mobile communications standard (fifth generation)
loc. cit.	<i>loco citato</i> , meaning "in the place cited"
ADTRAN	ADTRAN, Inc., Wilmington, Delaware, USA
ADTRAN Group	ADTRAN, Inc. together with the companies dependent on it in the terms of § 17 AktG
ADTRAN Holdings	ADTRAN Holdings, Inc., Wilmington, Delaware, USA (formerly "Acorn HoldCo, Inc.")
ADTRAN Holdings Group	ADTRAN Holdings, Inc. together with the companies dependent on it in the terms of § 17 AktG, which are the companies of the ADTRAN Group and the ADVA Group
ADVA	ADVA Optical Networking SE individually or together with the companies dependent on it in the terms of § 17 AktG, if no distinction is required
ADVA SE	ADVA Optical Networking SE, Meiningen
ADVA share(s)	No-par-value bearer share(s) of ADVA Optical Networking SE with a notional value of € 1.00 each in the share capital
ADVA Group	ADVA Optical Networking SE, together with the companies dependent on it in the terms of § 17 AktG
AG	Joint stock corporation; <i>Die Aktiengesellschaft</i> (magazine)
AktG	Corporation Act
AKU	Working Group on Enterprise Valuation of the German Independent Auditors' Institute (predecessor of the Expert Committee on Enterprise Valuation and Business Administration of the German Independent Auditors' Institute)
APAC	Asia Pacific (Asia-Pacific Economic Area)
Article	Article
Outside shareholders	All other shareholders of ADVA Optical Networking SE (i.e. with the exception of ADTRAN Holdings, Inc.)
BaFin	German Federal Financial Supervisory Authority, Bonn and Frankfurt
BB	<i>BetriebsBerater</i> (Journal)
BeckRS	Electronic decision database in beck-online (for journalistic use, Verlag C.H.BECK)
Controlled company and company subject to profit and loss absorption obligations	ADVA Optical Networking SE
Beta raw	Beta factor computed based on historical data
Beta unlevered	Beta factor for an unlevered enterprise

Beta factor	Systematic risk (market risk) according to the Capital Asset Pricing Model
Valuation Expert	PVT Financial Advisors SE, Munich
Valuation Object	ADVA Optical Networking SE
Valuation date	Date of the general shareholders' meeting of ADVA Optical Networking SE to resolve on the conclusion of a control and profit and loss absorption agreement with ADTRAN Holdings, Inc. (30 November 2022)
CPLAA	Control and profit and loss absorption agreement
BGB	Civil Code
BGH	Federal Supreme Court, Karlsruhe
BGHZ	Collection of decisions of the Federal Supreme Court in civil cases (journal)
Byte	Smallest unit of information in IT
Bid-ask spread	Bid-ask spread
BVerfG	Federal Constitutional Court, Karlsruhe
BVerfGE	Collection of decisions of the Federal Constitutional Court (journal)
BvR	File number of a constitutional complaint to the Federal Constitutional Court
c.p.	<i>Ceteris paribus</i> (under otherwise equal conditions)
CAGR	Compound annual growth rate (geometric average of the annual growth rate)
CAPEX	Capital Expenditure (Gross) Investments
CAPM	Capital asset pricing model (capital market model based on portfolio theory)
CDAX	Composite DAX (Germany's broadest share index)
CF	<i>Corporate Finance</i> (magazine)
CFB	<i>Corporate Finance Biz</i> (magazine)
Corp.	Corporation (US or Canadian legal form; comparable to an AG)
CSP	Communication Service Provider (communication service provider with own communication infrastructure and transmission via fixed network, cable network, mobile network, radio links or satellites)
D.C.	District of Columbia
DAX	German share index of the 40 largest stocks listed on the Frankfurt Stock Exchange
DCI	Data Center Interconnect (interconnection of two or more data centers for data transmission)
Detailed planning phase	Financial years 2022 to 2026
DVFA	DVFA German Association for Financial Analysis and Asset Management e.V., Frankfurt am Main
DVFA recommendations	"Best Practice Recommendations for Enterprise Valuation" of the Working Group "Corporate Transactions and Valuation" of DVFA Deutsche Vereinigung für Finanzanalyse und Asset Management e.V., Frankfurt am Main
e.V.	Registered association
EBIT	Earnings before interest and taxes, also known as the "operating result"
EBITDA	Earnings before interest, taxes, depreciation and amortization of goodwill

EBT	Earnings before taxes
Edge	Decentralized data processing at the edge of a network (edge computing)
EC	European Community
EMEA	Europe, Middle East and Africa (economic region of Europe, Arabia (Middle East) and Africa)
Initial term	Fixed term of the Agreement until the end of the second financial year of ADVA SE starting after the entry of the Agreement in the commercial register
EU	European Union
EUR	Euro (international currency code according to ISO 4217)
ECB	European Central Bank, Frankfurt am Main
R&D	Research and development
f.	Next (page)
FAUB	Expert Committee for Enterprise Valuation and Business Administration of the German Independent Auditors' Institute (Institut der Wirtschaftsprüfer in Deutschland e.V.)
ff.	Following (Pages)
Subsequent term	Each additional term by way of which the Agreement is automatically renewed for a further two financial years of ADVA SE after the expiry of the initial term and each subsequent term
Continuation phase	Financial years from 2031 (also: perpetual annuity phase)
FTE	Full time equivalent
FTTN	Fiber To the Node
Gbyte/s	Gigabyte per second (1 Gigabyte = 10 ⁹ bytes)
Company	ADVA Optical Networking SE
GewSt	Trade tax
GewStG	Trade Tax Act
If applicable	If applicable
GmbH	<i>Gesellschaft mit beschränkter Haftung</i> (limited liability company)
Expert Opinion	Expert opinion on the determination of the value of the equity of ADVA Optical Networking SE in connection with the planned control and profit and loss absorption agreement as of 30 November 2022
Controlling company entitled to absorb profits	ADTRAN Holdings, Inc.
HFA	Main Expert Committee of the German Independent Auditors' Institute
Commercial Code	Commercial Code
HRB	Commercial Register Division B
Ed.	Editor
ICP	Internet Content Provider
IDW	German Independent Auditors' Institute, Düsseldorf
IDW S 1	IDW Standard: Principles for the performance of enterprise valuations (IDW S 1, 2008 version) of 2 April 2008
IDW-FN	<i>IDW Fachnachrichten</i> (journal; today, <i>IDW Life</i>)

IDW Life	Member magazine of the German Independent Auditors' Institute
IFRS	International Financial Reporting Standards
Inc.	Incorporated (Anglo-Saxon corporate form, comparable to a German joint stock corporation or AG)
IoT	Internet of Things (network of physical objects)
ISIN	International Securities Identification Number
ISO	International Organization for Standardization
IT	Information technology
IMF	International Monetary Fund, Washington D.C., USA
Chap.	Chapter
KES	Capital gains tax
KFS/BW 1	Expert opinion on enterprise valuation (Austria)
Convergence phase	Financial years 2027 to 2030
KSt	Corporate income tax
KStG	Corporate Tax Act
District Court	District Court
lit.	Littera (Latin for letter)
LLC	Limited Liability Company (US legal form in which the characteristics of a corporation are combined with those of a partnership)
Ltd.	Limited company (English corporate form, comparable to a GmbH)
M&A	Mergers & Acquisitions
Mbyte/s	Megabyte per second (1 megabyte = 10 ⁶ bytes)
MDAX	German share index of the 50 largest companies below the DAX
Majority shareholder	ADTRAN Holdings, Inc.
MSCI World	Global stock index
MüKoAktG	Munich Commentary on the German Stock Corporation Act (AktG), 5th Edition, Volume 5 (§§ 278-328 AktG, SpruchG), Munich 2020, Volume 7 (European Stock Corporation Law), Munich 2021
n.a.	Not available or information not meaningful
NFV	Network Functions Virtualization (network architecture concept with IT virtualization technologies)
No.	Number
OEM	Original Equipment Manufacturer
OLG	Higher Regional Court
OLS	Open Line System (open optical transmission system)
p.a.	Per annum (per year)
Peer	comparable enterprises
Peer group	Group of comparable (listed) companies
Perpetual Annuity Phase	Financial years from 2031 (also: Continuation phase)
plc	Public limited Company (Anglo-Saxon legal form; comparable to a German AG (joint stock corporation))

PVT	PVT Financial Advisors SE, Munich
REXP	REX Performance Index (German Bond Index in its performance index form)
ROCE	Return on capital employed (ROCE)
Marginal No.	Marginal number
S&P Global	S&P Global Market Intelligence LLC (formerly S&P Global Capital IQ), a business of S&P Global Inc., New York, New York USA
p.	Page
SDAX	German share index of the 70 largest companies below the MDAX
SDN	Software Defined Networking (separation of software and hardware in a network)
SE	Societas Europaea (European Company)
SE Regulation	Council Regulation (EC) No 2157/2001 on the Statute for a European company (SE) (SE Regulation), published in the Official Journal of the EC, L 294/1, on 8 October 2001, last amended by Regulation (EC) No 517/ 2013 of 13 May 2013, published in the Official Journal of the EC, L 158/1, on 13 May 2013
Solidarity surcharge	Solidarity surcharge
SpruchG	Act on the judicial review proceedings about the exclusion of minority shareholders in corporate law (<i>Spruchverfahrensgesetz</i>)
SWOT	Strengths, weaknesses, opportunities and threats; a strategic planning tool developed by Harvard Business School.
TAM	Total Addressable Market (segmentation of the total market used by ADVA for a market comparison, which includes the products and services offered by ADVA)
Tbyte/s	Terabyte per second (1 terabyte = 10^{12} bytes)
TecDAX	German share index of 30 stocks with a focus on technology
t test	Statistical hypothesis test
TV	Terminal value (phase of the perpetual annuity)
<i>Inter alia</i>	Among other things
US	United States of America
USA	United States of America
USD	US dollar (international currency code according to ISO 4217)
Agreement	Control and Profit and Loss Absorption Agreement between ADVA Optical Networking SE and ADTRAN Holdings, Inc. (draft of 18 October 2022)
Agreement Report	Joint Report of the Board of Directors of ADTRAN Holdings, Inc. and of the Management Board of ADVA Optical Networking SE pursuant to § 293a AktG on the control and profit and loss absorption agreement between ADTRAN Holdings, Inc. and ADVA Optical Networking SE - 18 October 2022
Contracting Parties	ADTRAN Holdings, Inc and ADVA Optical Networking SE
cf.	conferatur (compare)
Pre-acquisition prices	Prices paid by a majority shareholder for shares in the company being valued
WDM	Wavelength Division Multiplexing (method for combining several signals on laser beams with different infrared wavelengths for transmission via fiber optic media)

WIFI	Wireless Fidelity (wireless network)
WM	<i>Wertpapier Mitteilungen</i> (Journal)
WPg	<i>Die Wirtschaftsprüfung</i> (journal)
WPH	Independent Auditor's Manual
WpÜG-AngVO	Securities Acquisition and Takeover Act Offer Ordinance
Ytong Decision	Ruling of the Federal Surpreme Court of 21 July 2003 (Case II ZB 17/01)
e.g.	<i>exempli gratia</i>
ZIP	Journal for commercial law and insolvency practice

A. Engagement and performance of audit

ADTRAN Holdings, Inc., Wilmington, Delaware, USA,¹ as controlling company and

ADVA Optical Networking SE, Meiningen,²

as the controlled company, entered into a control and profit and loss absorption agreement in the terms of § 291(1), Sentence 1 AktG.³ On 18 October 2022, a final draft⁴ was provided, on which we have based our audit.

ADVA SE has been managed as a European company⁵ since 2012. Pursuant to the reference provision in Article 9(1)c) ii) of the SE Regulation, a German SE is governed by general German stock corporation law, unless other provisions take precedence.⁶ An SE governed by German law is subject to German corporate group law, which is applicable in the same way as in the case of a German AG.⁷ This includes, in particular, the provisions on the contractual group (§§ 291 ff. AktG).⁸

Pursuant to § 293 (1) AktG, the effectiveness of the Agreement is subject to the approval of the shareholders of ADVA SE in general meeting.⁹ The approval resolution is to be adopted at an extraordinary general meeting of shareholders scheduled for 30 November 2022.

To secure the outside shareholders, a profit and loss absorption agreement must provide for adequate compensation for outside shareholders by way of a recurring cash payment (compensation payment) based on the interests in the share capital.¹⁰ A control or profit and loss absorption agreement must also contain an obligation on the part of the other party to the agreement to acquire the shares of an outside shareholder at the latter's request in return for appropriate compensation specified in the agreement.¹¹

The Agreement is to be audited by one or more expert auditors, particularly with regard to the adequacy of the compensation and settlement.¹²

By resolution dated 22 July 2022,¹³ we were selected and appointed (person in charge: Wolfram Wagner, Independent Auditor) by the Higher Regional Court¹⁴ of Meiningen - Commercial Division - as auditor for the audit of the intended agreement.¹⁵ We had previously confirmed to the Court that there were no legal grounds for exclusion. We can therefore confirm that we have complied with the regulations on independence.¹⁶ The contracting parties then commissioned us to review the Agreement.

¹ "ADTRAN Holdings", "Controlling Company" or "Majority Shareholder"; together with the companies dependent on it in the terms of § 17 AktG, "ADTRAN Holdings Group"

² "ADVA SE", "Controlled Company" or "Company"; together with the companies dependent on it in the terms of § 17 of the German Stock Corporation Act "ADVA Group"; also "ADVA" if the above distinction is not appropriate; together with ADTRAN Holdings the "Contracting Parties".

³ "CPLAA" (generally).

⁴ "Agreement" (specifically); see Annex 2.

⁵ "Societas Europaea" ("SE").

⁶ Cf. MüKoAktG, Schäfer, Article 9 SE Regulation, Marginal Nos. 2 and 15 ff. We do not cite this reference standard separately in each case in this report, but refer directly to the provisions applicable to German joint stock corporations.

⁷ Cf. MüKoAktG, Ego, Annex to Article 9 SE Regulation, Marginal No. 25.

⁸ Cf. MüKoAktG, Ego, Annex to Article 9 SE Regulation, Marginal No. 27.

⁹ "GSM".

¹⁰ § 304(1), Sentence 1 AktG.

¹¹ § 305(1) AktG.

¹² §§ 293b(1) and 293e(1), Sentence 2 AktG.

¹³ Case. 3-05 O 15/22; cf. Annex 1.

¹⁴ "District Court"

¹⁵ §§ 293c(1) and 293d AktG.

¹⁶ Analogous application of § 321(4a) of the Commercial Code.

The appointment order does not contain any requirements for the performance of the audit or report on the audit. Insofar as certain issues are often typically discussed judicial review proceedings following structural measures in corporate law, we will take up these issues at an appropriate point.

The compensation payment and cash settlement to be granted to the outside shareholders are to be derived from the enterprise value of ADVA, unless a higher lower limit is to be observed. The parties to the Agreement have commissioned PVT Financial Advisory SE, Munich¹⁷ to determine the value of the equity of ADVA SE as of 30 November 2022 and to assist them in determining appropriate compensation pursuant to § 304 AktG and an appropriate settlement pursuant to § 305 AktG per no-par-value share of ADVA SE.¹⁸

PVT submitted an "Expert Opinion on the Determination of the Value of the Equity of ADVA Optical Networking SE in Connection with the Planned Control and Profit and Loss Absorption Agreement as of 30 November 2022"¹⁹ on 18 October 2022. The Contracting Parties adopt PVT's comments in their entirety.

The document "Joint Report of the Board of Directors of ADTRAN Holdings, Inc. and of the Management Board of ADVA Optical Networking SE pursuant to § 293a AktG on the Control and Profit and Loss Absorption Agreement between ADTRAN Holdings, Inc. and ADVA Optical Networking SE - 18 October 2022"²⁰ contains the full version of the Expert Opinion as Annex 4.

The subject of our audit is the Agreement²¹ and in particular the adequacy of the proposed compensation and the proposed settlement.²² The Agreement and in particular the compensation and settlement are explained and justified in more detail in the Agreement Report and the Expert Opinion. The Agreement Report and the Agreement as well as the Expert Opinion were available to us in several draft versions during the course of our audit.

We commenced our audit following the upstream audit of our independence and impartiality and the ensuing noting of our court appointment on 22 July 2022.

In view of the imminent health risks posed by the COVID 19 pandemic and the generally changing business travel practices as a result, we refrained from conducting parts of the audit on site at ADVA SE. Instead of the "management meetings" which were previously usually held in person and which are necessary to complete an audit on the basis of the documents submitted, we held the management meetings from our office in Düsseldorf and/or the "home offices" of the employees in the form of video conferences.

In the course of the audit, we held numerous telephone or video conferences and bilateral telephone conversations with employees of the ADTRAN Holdings Group, in particular the ADVA Group, and representatives of the Valuation Expert. As part of these discussions, the Company's Chief Financial Officer explained to us ADVA SE's business model and strategy as well as the market and competitive environment and the Company's opportunities and risks in a video conference held on 18 August 2022. On 26

¹⁷ "PVT" or "Valuation Expert"

¹⁸ "ADVA Share".

¹⁹ "Expert Opinion".

²⁰ "Agreement Report".

²¹ § 293b(1) AktG.

²² § 293e(1), Sentence 2 AktG

August 2022, we also had the opportunity to discuss the Company's estimates with the Chief Financial Officer and other ADVA SE employees responsible for preparing them.

In view of the large number of documents made available, the Valuation Expert set up a virtual data room to ensure the necessary confidentiality and efficient performance of the valuation and audit work, and provided us a portal for data exchange as of 26 July 2022. In addition, we exchanged some documents and working papers with the project participants via e-mail.

In particular, the following documents were submitted to us for our audit:

- Agreement Report of 18 October 2022 including the Agreement attached as its Annex 2, a copy of which is attached hereto (final draft of 18 October 2022)
- Articles of Association (version dated 8 July 2022) of ADTRAN Holdings
- Articles of Association (version of 14 January 2022) and Commercial Register excerpt (retrieved on 27 July 2022) of ADVA SE
- Minutes of the meetings of the Supervisory Board of ADVA SE for the years 2020 and 2021 and for the period until 6 July 2022 and resolution of the Supervisory Board by circulation on 21 September 2022 on the projection for the current financial year presented by the Management Board at the meeting on 26 July 2022 and the estimates for the financial years 2023 to 2026 updated on this basis in September 2022
- Reports on the audit of the consolidated financial statements and the consolidated management reports of ADVA SE prepared in accordance with International Financial Reporting Standards,²³ as applicable in the European Union,²⁴ and the supplementary requirements of German commercial law in accordance with § 315a(1) of the Commercial Code for the financial years 2019 to 2021 including the accompanying consolidated financial statements and consolidated management report²⁵ which bear an unqualified auditor's opinion and have been attached as annexes
- Reports on the audit of the annual financial statements and management reports²⁶ of ADVA SE prepared in accordance with the German Commercial Code for financial years 2019 to 2021, including the annual financial statements and management report issued an unqualified auditor's opinion as an annex
- ADVA SE's integrated Group planning prepared in accordance with IFRS, which includes a projection for financial year 2022 and a plan updated on this basis for the financial years 2023 to 2026, and which also contains information for completed financial years for comparison purposes
- Breakdowns of the synergies included in the estimates and the total expected synergies
- Expert Opinion
- Excerpts from the working papers of the Valuation Expert and the valuation model used to derive the value²⁷
- Information on the market and competitive environment of ADVA SE
- Letter from the Federal Financial Supervisory Authority, Bonn and Frankfurt am Main,²⁸ dated 8 August 2022 on the weighted three-month average price pursuant to § 5 WpÜG-AngVO for the ADVA share until 5 July 2022

In addition, we made use of other publicly available information, particularly capital market data. When determining capital market data, we relied primarily on the data provided by the financial information

²³ "IFRS"

²⁴ "EU"

²⁵ The management report of ADVA SE which is published in the annual report is a combined report for standalone and group financial statement

²⁶ Cf. Footnote 25.

²⁷ We have included the valuation model and other models (in particular for deriving the capital market data) as a "value copy" in our files. For the purposes of the audit, the Valuation Expert also provided us with read-only virtual access to its original models.

²⁸ "BaFin"

service provider S&P Global Market Intelligence LLC (formerly S&P Global Capital IQ), a business of S&P Global Inc, New York, NY USA.²⁹

Our audit results are essentially based on the audit of documents of ADVA SE, on information provided by the persons appointed to provide information, as well as on the Expert Opinion and supplementary information provided by the Valuation Expert. In addition to the information obtained in this way, we have made our own investigations and calculations.

All explanations and documentation requested by us was readily provided.

We initiated our audit work before PVT completed the valuation work (18 October 2022). This procedure is customary within the framework of adequacy tests and is recognized by high court rulings.³⁰ It is justified by the need to deliver a final audit opinion promptly after completion of the valuation work. There were no diverging opinions between the Valuation Expert and ourselves. Audit findings were incorporated into the valuation model.

Today, the Management Boards of ADVA SE and the Board of Directors of ADTRAN Holdings submitted to us a declaration of general representativeness in compliance with professional standards, confirming in writing that the explanations and information relevant to the audit of the Agreement have been provided completely and accurately.

If, in the period between the conclusion of our audit (22 October 2022) and the planned date of the resolution of the shareholders in general meeting of ADVA SE on the conclusion of the Agreement (30 November 2022) there should be material changes compared with the assumptions made when the Expert Opinion or this Audit Report was signed, such changes would have to be taken into account in determining the adequate compensation and settlement. In this regard, we will obtain declarations updating the letters of general representativeness on the day of the general meeting at which ADVA SE shareholders adopt the resolution and we will issue a declaration as of the reporting date on the adequacy of the compensation and settlement.

For the performance of our engagement, we have taken into account the opinion of the Main Expert Committee³¹ of the German Independent Auditors' Institute³² in Düsseldorf, HFA 6/1988 "Concerning merger audits in accordance with § 340b(4) AktG"³³ in analogous application³⁴ and the IDW standard, Principles for the performance of enterprise valuations (IDW S 1, 2008) of 2 April 2008³⁵ in direct application.

The IDW S 1 is not a legal norm and is therefore not binding for courts in particular. However, the recommendations contained in it are an essential source of information for courts in their examination of the adequacy of compensation payments and settlements in order to be able to judge whether the respective

²⁹ "S&P Global"

³⁰ Cf. Federal Supreme Court, Ruling of 18 September 2006, Case II ZR 225/04, BB 2006, pp. 2543 ff.

³¹ "HFA"

³² "IDW"

³³ "HFA 6/1988".

³⁴ Opinion HFA 6/1988 was rescinded in 2013, but continues to apply accordingly with regard to the statements contained therein on requirements for the performance and reporting of audits.

³⁵ "IDW S 1"

procedure as to how an enterprise value has been fundamentally analytically determined is flawless methodologically in each specific case.³⁶

The Management Board of ADVA SE is responsible for the due content of the Agreement Report. Verification of this is not one of the tasks of the auditor of the Agreement.

We further expressly note that we have not performed any audit of the accounting, the consolidated financial statements, the consolidated management reports, the annual financial statements and management reports or the management of the companies involved. Such audits likewise did not form part of our audit. The compliance of the audited financial statements presented with the relevant legal requirements has been confirmed unrestrictedly by the auditor. With regard to the completeness of the financial statements and compliance with accounting principles, we therefore assume that the documents submitted to us are correct.

We have documented the nature and scope of our audit procedures in our working papers.

Pursuant to § 293e AktG, we submit the following report on the findings of our audit.

This Audit Report has been prepared solely for the purposes set out above. These include the provision of the Audit Report in the run up to the extraordinary general shareholders' meeting of ADVA SE³⁷ to resolve on the conclusion of the Agreement and the submission of the Report to the competent court.³⁸

Our Audit Report may only be passed on in full, with a written declaration of the purpose of the underlying engagement, subject to our express written consent and the restrictions on disclosure and liability conditions underlying the engagement, and then only to third parties provided the respective third party has previously agreed in writing to the General Terms and Conditions of Engagement, supplemented by an individual liability agreement and a binding confidentiality obligation towards us.

The execution of the engagement and our responsibility, also in relation to third parties, shall be governed by the "General Terms and Conditions of Engagement for Independent Auditors and Independent Auditing Companies" as amended on 1 January 2017 and attached as Annex 3. § 293d(2) AktG as related to § 323 HGB apply to our responsibility towards the Contracting Parties and their shareholders.

³⁶ Cf. Federal Supreme Court, Ruling of 29 September 2015, Case II ZB 23/14, AG 2016, pp. 135 ff.

³⁷ Including its publication on the websites of the Company and for other publications, outlays and measures in connection with the preparation and conduct of the extraordinary general shareholders' meeting.

³⁸ Also in court proceedings following the general meeting at which the shareholders adopt the relevant resolution, for example.

B. Subject, type and scope of audit of the Agreement

The subject, type and scope of the audit of the Agreement are derived from §§ 293b (1) and 293e (1), Sentence 2 AktG. Pursuant to § 293b (1) AktG, the subject of our audit is the Agreement. Pursuant to § 293e (1), Sentence 2 AktG, the audit focuses on the assessment of the adequacy of compensation (§ 304 AktG) and settlement (§ 305 AktG). Details on the content of the report on our audit of the Agreement are set out in § 293e (1) AktG.

Accordingly, as a rule, we have examined in the formal part of our audit whether the Agreement accurately contains all the legally prescribed components and thus complies with the provisions of law. Second, as a rule, we have examined the material part of our audit to determine whether the proposed compensation and settlement can be regarded as adequate with due regard to the circumstances of the Valuation Object as of the Valuation Date. We have not undertaken any further legal examination, nor have we examined the expediency of the Agreement. The completeness and accuracy of the Agreement Report likewise did not form part of the subject of the audit of the Agreement.

In its opinion HFA 6/1988, the HFA established essential principles for delimiting the tasks between the management board and the merger auditor and, in particular, specified the methods to be used to determine adequacy. According to prevailing opinion, the recommendations made in HFA 6/1988 are also applicable to the audit of the Agreement in accordance with § 293e AktG and in principle continue to apply even after the standard was repealed. We have therefore based our audit on them analogously.

The substantive audit extends to the issue of whether the methods used to calculate the compensation and settlement correspond to the generally accepted principles for the performance of enterprise valuations, whether the data on which they are based are professionally derived and whether the future estimates appear plausible. It is not the auditor's task to perform the enterprise valuation required to derive the compensation and indemnity.

The expert auditor must report in writing on the result of the audit.³⁹ The audit report must be concluded with a statement as to whether the proposed compensation and proposed indemnity are adequate.⁴⁰

³⁹ § 293e(1), Sentence 1 AktG

⁴⁰ § 293e(1), Sentence 2 AktG

The report is also to include an indication of⁴¹

- the methods used to determine the compensation and settlement;
- the reasons why the use of these methods is appropriate;
- the compensation or settlement that would result from the application of different methods, if more than one has been applied; at the same time, the weight given to the different methods in determining the proposed compensation or prescribed settlement and the values on which it is based and the particular difficulties encountered in the valuation.

Our Audit Report reproduces the result of our audit of the adequacy of the proposed compensation and proposed settlement and, in this context, provides a comprehensive and detailed description of the audit procedure and the audit results. With respect to the detailed figures and the grounds for the calculation of earnings and value components, we refer to the detailed information in the Expert Opinion, which is attached to the Agreement Report as an annex, in order to avoid repetition.

In this respect, though the addressees of this Report are put into a position to be able to comprehend the adequacy of the compensation and the settlement on the basis of our Audit Report alone, they may also avail themselves of the Report on the Agreement, in particular the Expert Opinion attached thereto, for more detailed information if required.

⁴¹ § 293e(1), Sentence 3 AktG

C. Formal audit of the control and profit and loss absorption agreement

The minimum content of a CPLAA required under corporate law results from §§ 291 ff. AktG. The audit of the completeness and accuracy of the Agreement therefore relates to the general information on the Contracting Parties, the determination of the subject matter of the agreement, the commencement and duration of the agreement and the agreements on compensation and settlement.

Name and registered office of the companies involved

The name and registered office of the companies involved are stated in the Agreement and correspond to the respective Articles of Association. For ADVA SE, we have inspected the identical entry in the commercial register.⁴²

Management (§ 1 of the Agreement)

ADVA SE subordinates the management of its company to ADTRAN Holdings.⁴³ Accordingly, ADTRAN Holdings is entitled to give general and specific instructions to the Management Board of ADVA SE with respect to the management of the company.⁴⁴ This right of instruction does not extend to the modification, maintenance or cessation of the Agreement.⁴⁵

The Management Board of ADVA SE is obliged to follow the instructions of ADTRAN Holdings in accordance with § 1(1) of the Agreement and in conformance with § 308 AktG.⁴⁶

For reasons of legal certainty, the Agreement stipulates that instructions must be in text form or, if given verbally, must be confirmed in text form immediately if the Management Board of ADVA SE so requests.⁴⁷

The subordination of the management of the company is constitutive for a control agreement. The relevant provisions of the Agreement are in line with the legal requirements.⁴⁸ For purposes of clarity, we note that the law does not stipulate any restrictions in relation to the registered office of the controlling enterprise. As in the present case, the controlling enterprise can also be an enterprise that does not have its registered office in Germany.

Transfer of profits (§ 2 of the Agreement)

ADVA SE agrees to transfer all its profits to ADTRAN Holdings.⁴⁹ This provision is constitutive for a profit and loss absorption agreement.⁵⁰

The maximum amount to be transferred - subject to the creation or reversal of reserves - is⁵¹ the maximum amount permitted pursuant to § 301 AktG as amended.⁵² Under current law, this is at most the net income arising without the profit transfer, less any loss carried forward from the previous year, less the

⁴² According to the information provided to us, a comparable extract from a company register is not available in the United States.

⁴³ Cf. § 1(1), Sentence 1 of the Agreement.

⁴⁴ Cf. § 1(1), Sentences 2 and 3 of the Agreement.

⁴⁵ Cf. § 1(3) of the Agreement.

⁴⁶ Cf. § 1(2) of the Agreement.

⁴⁷ Cf. § 1(4) of the Agreement.

⁴⁸ § 291(1), Sentence 1 and §§ 299 and 308 AktG.

⁴⁹ Cf. § 2(1), Sentence 1 of the Agreement.

⁵⁰ § 291(1), 2nd Alternative AktG.

⁵¹ Cf. § 2(2) of the Agreement.

⁵² Cf. § 2(1), Sentence 2 of the Agreement.

amount to be allocated to the statutory reserves in accordance with § 300 AktG and the amount blocked from distribution in accordance with § 268(8) HGB.⁵³

ADVA SE may transfer amounts from the net profit to other earnings reserves with the written or textual consent of ADTRAN Holdings in accordance with § 126b BGB, provided this is permissible under commercial law and financially justified upon a prudent commercial assessment.⁵⁴ Reserves formed in this way can be reversed again at the request of ADTRAN Holdings and either used to offset a net loss or transferred as profit.⁵⁵ Other reserves or a profit carry forward from the period prior to the commencement of the Agreement may not be used either to transfer profits or to offset a net loss.⁵⁶

The obligation to transfer profits exists for the first time for the financial year beginning on 1 January 2023 or the later financial year in which the Agreement takes effect upon entry in the commercial register of ADVA SE and extends to the entire profit of the then current financial year of ADVA SE.⁵⁷ It is due in each case upon adoption of the annual financial statements for the respective financial year of ADVA SE.⁵⁸

The provisions on the profit transfer are in line with the legal requirements⁵⁹ and the relevant legal rulings. By linking to the currently valid version of § 301 AktG, it is ensured that the provisions on the profit transfer will be permissible at all times.

Assumption of losses (Article 3 of the Agreement)

The provision of § 302 AktG is to be applied in its entirety in the currently valid version.⁶⁰ According to the currently valid version of § 302(1) AktG, ADTRAN Holdings is obliged to assume losses by compensating for any net loss otherwise incurred during the term of the Agreement, unless such loss is compensated by withdrawing from other earnings reserves contributions that were allocated to them during the term of the Agreement.

The obligation to assume losses exists for the first time for the financial year beginning on 1 January 2023 or the later financial year in which the Agreement takes effect upon entry in the commercial register of ADVA SE and extends to the entire net loss of the then current financial year of ADVA SE.⁶¹ The obligation to compensate losses through ADTRAN Holdings is due at the end of each financial year of ADVA SE.⁶² In the event the contract ceases during the year, the loss compensation must be determined on the basis of a cutoff date balance sheet.⁶³

By linking to the statutory provisions in their currently valid version, it is ensured that the provisions on the assumption of losses will be permissible at all times.

⁵³ § 301, Sentence 1 AktG.

⁵⁴ Cf. § 2(2), Sentence 1 of the Agreement.

⁵⁵ Cf. § 2(2), Sentence 2 of the Agreement.

⁵⁶ Cf. § 2(2), Sentence 3 of the Agreement.

⁵⁷ Cf. § 2(3), Sentence 1 as related to § 7(2) of the Agreement

⁵⁸ Cf. § 2(3), Sentence 2 of the Agreement.

⁵⁹ § 300(1) as related to § 150(2) and § 301 AktG.

⁶⁰ Cf. § 3(1) of the Agreement.

⁶¹ Cf. § 3(2), Sentence 1 as related to § 7(2) of the Agreement.

⁶² Cf. § 3(2), Sentence 2 of the Agreement.

⁶³ Cf. § 3(3) of the Agreement.

Compensation payment (§ 4 of the Agreement)

ADTRAN Holdings undertakes to pay the outside shareholders of ADVA SE an annually recurring cash payment ("Compensation Payment") for the duration of the Agreement as appropriate compensation.⁶⁴

For each full financial year of ADVA SE, the Compensation Payment shall amount to € 0.59 (gross) ("Gross Compensation Amount") for each no-par-value bearer share of ADVA SE with a notional value in the share capital of € 1.00 less any amount for corporate income tax and the solidarity surcharge at the tax rate applicable for such taxes for the respective financial year ("Net Compensation Amount"). This deduction is to be made only on that part of the Gross Settlement Amount that relates to profits subject to German corporate income tax.⁶⁵

According to the circumstances at the time of the conclusion of the Agreement (18 October 2022), € 0.07 is to be deducted from the Gross Settlement Amount for corporate income tax (15.0%) and the solidarity surcharge (5.5% of the corporate income tax).⁶⁶ This results in a Net Settlement Amount of € 0.52 per ADVA SE share. It is agreed that any withholding taxes (e.g. corporate income tax plus the solidarity surcharge) will be withheld from the Net Settlement Amount in accordance with the provisions of law.⁶⁷

The granting of a fixed compensation payment is in line with the provisions of law.⁶⁸

With regard to the determination of the amount of the Compensation Payment and our audit of its adequacy, we refer to our comments on the substantive audit of the Agreement.⁶⁹

Nevertheless, we would like to point out at this point that the above amounts are based on the circumstances at the time of signing of the Agreement Report (18 October 2022). The circumstances on the day of the general meeting at which the shareholders of ADVA SE adopt the resolution (30 November 2022) are decisive for the amount of the compensation payment. We will issue a cut-off date statement on that date determining what amounts are deemed appropriate with knowledge as of (30 November 2022).

Based on today's estimates, it is possible that the base interest rate will increase in the meantime. Similarly, the annuity interest rate may likewise increase. Finally, it cannot be ruled out that a change in capital market conditions in the meantime may also make it appropriate to apply a different market risk premium.

To account for these uncertainties, the Valuation Expert has made calculations for various scenarios in which he has left the other parameters of the valuation unchanged (c.p.).⁷⁰ These scenarios are presented in the Expert Opinion and quantify the effects on the appropriate compensation payment (c.p.). The contracting parties will agree on any necessary adjustments in the calculation of the compensation amount. In the final draft version of the Agreement, the amounts stated therein will be adjusted accordingly.

⁶⁴ Cf. § 4(1) of the Agreement.

⁶⁵ Cf. § 4(2), Sentence 1 of the Agreement.

⁶⁶ In strictly mathematical terms, a rounded amount results for corporate income tax including the solidarity surcharge of € 0.08 per ADVA share.

⁶⁷ Cf. Article 4(2), Sentence 4 of the Agreement.

⁶⁸ § 304(1), Sentence 1 and § 304(2), Sentence 1 AktG.

⁶⁹ See Section D, especially Section D.II, and Section D.V.8.b)D.V.8.b).

⁷⁰ *Ceteris paribus* (under otherwise equal conditions); cf. Section D.V.8.b).

The Compensation Payment is due on the third bank working day after the annual general shareholders' meeting of ADVA SE for each financial year just closed, but no later than 8 months after the end of the respective financial year.⁷¹ This provision is customary and appropriate, since the Compensation Payment as a replacement for the previous dividend claim is thus generally due at the same time as the dividend claim to be removed would otherwise have been due.

The Compensation Payment will be granted for the first time for that financial year of ADVA SE in which the Agreement becomes effective by entry in the commercial register of ADVA SE.⁷²

It is to be reduced on a prorated basis in the event of the formation of a stub period for ADVA SE or in the event of the cessation of the Agreement in the course of a financial year of ADVA SE.⁷³

The provisions on how to proceed in the case of capital increases from company funds or through cash or non-cash contributions⁷⁴ are confirmed by the prevailing view in the legal literature.

If the Compensation Payment is increased by a non-appealable decision in judicial review proceedings, the shareholders who have already been compensated may also request a corresponding addition to the compensation they have already received, provided this is stipulated by law.⁷⁵ This corresponds to the statutory provision in § 13, Sentence 2 SpruchG. Such a claim to supplementation will likewise arise in the case of a court-recorded settlement to terminate a judicial review proceeding or in the case of a settlement in written proceedings in accordance with § 11(4) SpruchG, to the extent provided by law.

Settlement (§ 5 of the Agreement)

ADTRAN Holdings undertakes, at the request of any outside shareholder of ADVA SE, to sell their ADVA SE shares in exchange for cash compensation of € 17.21 per ADVA share.⁷⁶

As ADTRAN Holdings is domiciled in the USA, the settlement to be granted in accordance with § 305 AktG is to be granted as cash compensation.⁷⁷

With regard to the determination of the amount of the cash compensation and the audit of its adequacy, we refer to our comments on the substantive audit of the Agreement.⁷⁸

The obligation of ADTRAN Holdings to acquire the ADVA SE shares is limited in time.⁷⁹ In practice, a limitation of the settlement offer is also common practice. The provisions⁸⁰ in this regard are in line with the provisions of law.⁸¹

The provisions on how to proceed in the case of capital increases from company funds or through cash or non-cash contributions⁸² are confirmed by the prevailing view in the legal literature.

⁷¹ Cf. § 4(3) of the Agreement.

⁷² Cf. § 4(4) as related to § 7(2) of the Agreement.

⁷³ Cf. § 4(5) of the Agreement.

⁷⁴ Cf. § 4(6) of the Agreement.

⁷⁵ Cf. § 4(7) of the Agreement.

⁷⁶ Cf. § 5(1) of the Agreement.

⁷⁷ § 305(2), Sentence 3 AktG.

⁷⁸ See Section D, especially Section D.1 and Section D.V.8.a).

⁷⁹ Cf. § 5(2), Sentence 1 of the Agreement.

⁸⁰ Cf. § 5(2), Sentences 2 and 3 of the Agreement.

⁸¹ § 305(4) AktG.

⁸² Cf. § 5(3) of the Agreement.

The transfer of ADVA SE shares in exchange for compensation is free of charge for ADVA SE's outside shareholders.⁸³ There are no legal requirements here.

If the settlement is increased by a non-appealable decision in judicial review proceedings, the shareholders who have already been compensated may also request a corresponding addition to the compensation they have already received, provided this is stipulated by law.⁸⁴ This corresponds to the statutory provision in § 13, Sentence 2 SpruchG. Such a claim to supplementation will likewise arise in the case of a court-recorded settlement to terminate a judicial review proceeding or in the case of a settlement in written proceedings in accordance with § 11(4) SpruchG, to the extent provided by law.

A temporary right of disposal in the event of termination of the Agreement⁸⁵ ensures that outside shareholders who did not accept the cash compensation offer and remained in the company will not suffer any detriment from the termination. In this case, the cash compensation offer in the amount of € 17.21⁸⁶ per ADVA share would become reanimated. In this respect, shareholders are granted additional protection that goes beyond that required by law.

Interest is not regulated in the Agreement, but neither is it required. Accordingly, the provision of law applies, according to which the settlement is subject to interest at an annual rate of 5 percentage points above the respective base interest rate in accordance with § 247 BGB after the end of the day on which the Agreement has become effective, whereby the assertion of further damages is not excluded.⁸⁷

Right to information (§ 6 of the Agreement)

ADTRAN Holdings is granted information rights and ADVA SE is subject to information obligations.⁸⁸

The general opinion is that the right of the controlling company to information is part of the group management power resulting from § 308(1) AktG. The clarifying provisions are not objectionable.

Effective date and term (§ 7 of the Agreement)

In accordance with the provisions of law⁸⁹, the Agreement requires the approval of the shareholders of ADVA SE in general meeting to be effective.⁹⁰

It is drafted in written form in accordance with the legal requirements.⁹¹

In accordance with the provisions of law,⁹² the Agreement is first to become effective when its existence has been entered into the commercial register of ADVA SE, though at the earliest at the start of the financial year of ADVA SE commencing on 1 January 2023.⁹³

⁸³ Cf. § 5(4) of the Agreement.

⁸⁴ Cf. § 5(5) of the Agreement.

⁸⁵ Cf. § 5(6) of the Agreement.

⁸⁶ In the event of an increase in a judicial review proceeding or through a settlement to avert or end judicial review proceedings, the increased amount would apply when the right of disposal is exercised (cf. § 5(6) of the Agreement).

⁸⁷ § 305(3), Sentence 3 AktG.

⁸⁸ Cf. § 6 of the Agreement.

⁸⁹ § 293(1) AktG.

⁹⁰ Cf. § 7(1) of the Agreement.

⁹¹ § 293(3) AktG.

⁹² § 294(2) AktG.

⁹³ Cf. § 7(2) of the Agreement.

The Agreement is concluded for a fixed term of two financial years of ADVA SE ("Initial Term"). Upon expiration of the initial term and each subsequent term, the Agreement is automatically to renew for two additional financial years of ADVA SE (each a "Subsequent Term"), unless terminated in writing⁹⁴ by either party upon six months' notice prior to the expiration of the Subsequent Term.⁹⁵ The Agreement may be terminated by either party without notice for good cause.⁹⁶

There are no legal requirements regarding the term of a CPLAA. The legal requirements regarding termination for good cause⁹⁷ have been observed.⁹⁸

In the event of a cessation of the Agreement, ADVA SE's creditors are to be provided with security in accordance with § 303 AktG.⁹⁹

Final provisions (§ 8 of the Agreement)

The final provisions are in accordance with standard contractual practice and are not objectionable.

Audit result

The Agreement accurately contains all provisions set out in §§ 291 ff. AktG and thus complies with the provisions of law.

⁹⁴ Cf. § 7(8) of the Agreement.

⁹⁵ Cf. § 7(3) of the Agreement.

⁹⁶ Cf. § 7(4) of the Agreement.

⁹⁷ § 297(1) AktG.

⁹⁸ Cf. § 7, Paragraphs 4 to 6 of the Agreement.

⁹⁹ Cf. § 7(7) of the Agreement.

D. Substantive audit of the control and profit and loss absorption agreement

I. Methods for determining an appropriate settlement

In the case of structural measures under stock corporation and the law on transformation of companies (e.g. squeeze-out, conclusion of a control and profit and loss absorption agreement), minority or outside shareholders must be granted appropriate compensation (settlement or compensation payment).

According to business administration theory, legal rulings¹⁰⁰ on structural measures in corporate law and the law of transformation of companies, and valuation practice, the value of an enterprise forms the appropriate basis for determining compensation. The value of the enterprise as a whole is decisive. This is in line with the postulate developed by the courts that compensation should be paid at the full value of the investment.

No specific method for estimating the enterprise value is prescribed by law. However, the method used must be recognized in economics and in common use in practice.¹⁰¹ According to the findings of business administration and the legal rulings on structural measures under stock corporation and the law on the transformation of companies, the estimate of the "full real" value is generally made with the aid of a fundamental enterprise valuation.

In the case of companies whose shares are traded on stock exchanges, it is also conceivable to derive the enterprise value on the basis of the market capitalization derived from the share price. However, there may be weighty arguments against a value determination derived from the stock exchange price, since the stock exchange price depends on numerous special factors, such as the size and breadth of the market, random trading volumes as well as speculative and other non-value-related influences.

One conceivable consideration of the stock market value is based on the assumption that market participants accurately assess the company's earnings power on the basis of the information and information options made available to them and that the market assessment is reflected in the stock market price of the shares. To verify this assumption, it is always necessary to carry out a fundamental enterprise valuation and thereby determine a benchmark for comparison.

When converting the total enterprise value calculated to a share, any special features of the respective valuation object¹⁰² may have to be taken into account by allocating the enterprise value in a way that differs from the proportional allocation.

According to the rulings of the Federal Constitutional Court¹⁰³ and the Federal Supreme Court¹⁰⁴, the stock market price as the divestment price is basically the lower limit of a settlement to be granted if it reflects the market value of the share. Whether the market price of the share actually reflects the market value must be examined on a case-by-case basis. This is not the case in the absence of marketability or

¹⁰⁰ See in particular Federal Constitutional Court ("BVerfG"), Order of 27 April 1999, Case 1 BvR 1613/94, BVerfGE 100, pp. 289 ff. and Federal Supreme Court of Justice ("BGH"), Order of March 12, 2001, Case II ZB 15/00, BGHZ 147, pp. 108 ff.

¹⁰¹ Cf. Federal Supreme Court, Ruling of 12 January 2016, Case II ZB 25/14, AG 2017, pp. 790 ff.

¹⁰² E.g. different share classes

¹⁰³ Federal Constitutional Court, Ruling of 27 April 1999, Case 1 BvR 1613/94, BVerfGE 100, pp. 289 ff.

¹⁰⁴ CF. Federal Supreme Court, Ruling of 12 March 2001, Case II ZB 15/00, *loc. cit.*

manipulation of the stock exchange price. Whenever the stock market price is used, it must always be based on a suitable average price.

The compensation due in the event of a squeeze-out may also result from the present value of the compensation payments to be made under an enterprise agreement existing at the time of the squeeze-out of the minority shareholders. Since the compensation claim only replaces the prospect of dividends, but not the share in the asset substance, this present value regularly only represents the minimum value of the settlement.¹⁰⁵

There is no constitutional entitlement to the consideration of prices paid by a majority shareholder to other shareholders for shares in the company to be valued ("pre-acquisition prices") when calculating the cash compensation.¹⁰⁶

II. Methods for determining an appropriate compensation payment

Pursuant to § 304(1), Sentence 1 AktG, a profit and loss absorption agreement must provide for adequate compensation for outside shareholders by way of a recurring cash payment (compensation payment) based on the shares in the share capital. Pursuant to § 304(1), Sentence 2 AktG, a control agreement must guarantee the outside shareholders a certain annual share in profits in accordance with the amount determined for the compensation payment as adequate compensation in cases where the company is not also obliged to transfer its entire profit.¹⁰⁷

As a rule,¹⁰⁸ in accordance with § 304(2), Sentence 1 AktG, at least the annual payment of the amount that could probably be distributed to the individual share as an average profit share on the basis of the company's previous earnings situation and its future earnings prospects, taking into account appropriate depreciation and allowances, but without forming other earnings reserves, is to be guaranteed as a compensation payment.

According to the legal rulings of the Federal Supreme Court,¹⁰⁹ compensation by annuity is derived from the enterprise value as of the valuation date.

In accordance with § 304 (2), Sentence 1 AktG, the starting point for determining the compensation is generally the earnings value.¹¹⁰ The earnings value reflects the expected payments between companies and company owners discounted as of the valuation date. By annuitizing the earnings value, it is ensured that the payments expected in different amounts for specific periods will be converted into an "average profit share". The use of the earnings value does not prevent the "average profit share" from being determined without the formation of other earnings reserves. It is true that reinvested earnings are regularly applied when determining an objective enterprise value. However, these strengthen the earnings base of later years, so that the retention of profits does not reduce the average distributable profit share.

¹⁰⁵ Cf. Federal Supreme Court, Ruling of 15 September 2020, Case II ZB 6/20, AG 2020, pp. 949 ff. ("Wella").

¹⁰⁶ Cf. Federal Supreme Court, Ruling of 27 April 1999, *loc. cit.*

¹⁰⁷ § 304(1), Sentence 2 AktG.

¹⁰⁸ Unless use is made of the option available in certain cases in accordance with § 304(2), Sentence 2 AktG to derive the compensation payment from the exchange ratio of the contracting parties.

¹⁰⁹ Cf. Federal Supreme Court, Ruling of 21 July 2003, Case II ZB 17/01, ZIP 2003, pp. 1745 ff., "Ytong Decision".

¹¹⁰ Cf. MüKoAktG, van Rossum, § 304, Marginal No. 77. In a more recent decision (decision of 26 April 2021, Case 21 W 139/19, <https://www.rv.hessenrecht.hessen.de/bshe/document/LARE210000896>), the Higher Regional Court of Frankfurt am Main derived the enterprise value from an average stock exchange price and the compensation payment was likewise derived on this basis.

With the Ytong Decision, the Federal Supreme Court ruled that the outside shareholders are to be guaranteed the expected distributable average gross profit share per share less the (distribution-related) corporate income tax payable by the company on this amount at the respective tax rate as (fixed) compensation.¹¹¹ In the opinion of the Federal Supreme Court, profit before corporate income tax is to be regarded as "earned profit". Adjustments to the corporate income tax will accordingly result in adjustments to the compensation payment to be made after corporate income tax. In the opinion of the Federal Supreme Court, this approach does not violate the cut-off date principle because, when determining the compensation, the average distributable gross profit must be derived as a fixed figure from the objectified value of the company. Only the organizational, financial and legal structures of the company existing on the valuation date are relevant for this, but not the corporate income tax rate itself.

In the literature, these legal rulings have been criticized to the effect that a change in taxation after the valuation date is only to be taken into account with regard to the corporate income tax rate. There is no systematic reason to consider German corporate income tax methodologically differently from trade tax or foreign income taxes. In addition, changes in the determination of the assessment basis for corporate income tax would also have to be taken into account.

In the Ytong Decision, the Federal Supreme Court also found that the separately valued assets¹¹² are not to be taken into account when determining the compensation and that the enterprise value is to be annuitized at the full risk-adjusted discount rate.

Parts of this Decision are not applicable beyond the specific case decided, which was subject to the imputation system in force until 31 December 2000.

This applies in particular to the determination of the annuitization rate. The decision of the Federal Supreme Court does not take into account that the (fixed) compensation payments during the term of contract are subject to lower risk than (uncertain) dividend payments. The risk for the external shareholder before the conclusion of an inter-company agreement is quantified in the discount rate. In view of a lower risk after the conclusion of the inter-company agreement, the annuitization rate must therefore be lower than the discount rate.

In order to quantify the risk to be taken into account in the annuitization rate, it must first be taken into account that the risk situation of the outside shareholder during the term of the inter-company agreement is determined by the creditworthiness of the contracting party obliged to pay the compensation. In addition, it must be taken into account that there is also a regular risk that the agreement will be terminated. In this case, the shareholder again has to bear the full risk of uncertain dividend payments after termination of the agreement, especially since the company's earnings power may be reduced during the term of the contract - also as a result of measures detrimental to the controlled company.

In valuation practice, the annuitization rate is therefore regularly calculated as the average of the present value-equivalent risk-adjusted discount rate on which the company valuation is based and the quasi-risk-free base interest rate. However, in cases where the aforementioned risk of termination of the agreement

¹¹¹ Cf. Federal Supreme Court, Ruling of 21 July 2003, *loc. cit.*

¹¹² In particular, the assets not required for operations.

no longer applies because the agreement provides that the outside shareholders are entitled to offer their shares to the other contracting party for contractually agreed compensation even after the expiry of an original time limit, it is appropriate to base the determination of the annuitization rate exclusively on the creditworthiness of the contracting party obliged to pay the compensation or a third party liable for it.

In the meantime, the prevailing view is that it is not appropriate to completely disregard separate assets when determining the compensation.¹¹³ At the very least, values for separate assets for states of affairs that could also have been taken into account in the earnings value of the assets required for operations, but which have been recognized separately for reasons of presentation, are mandatory. Since non-operating assets can also contribute to the company's profit, in valuation practice, separate assets are regularly included in the enterprise value to be annuitized.

III. Valuation principles and methods

Legally, no specific valuation method is prescribed.

The value of an enterprise regularly results from the benefit that the enterprise can provide in the future, in particular due to its substantive assets, its innovative strength, its products and position on the market, its internal organization and its management. Provided that only financial targets are pursued, the value of a company is derived from its ability to generate financial surpluses for the company's owners through the interaction of all factors influencing its profitability.

In business administration, legal rulings and valuation practice, generally accepted valuation principles have developed that are applied to the valuation of enterprises. These are reflected in IDW S 1 in particular.

In accordance with the principles of IDW S 1, the fundamental enterprise value is to be determined in line with German legal rulings and long-standing valuation practice for valuation occasions under company law as a value independent of the individual value perceptions of the parties concerned (objectified enterprise value) and with direct consideration of the taxation of the shareholders.¹¹⁴ The objective enterprise value normally represents a typified and intersubjectively verifiable value for future success from the point of view of a domestic shareholder with unlimited tax liability if the enterprise is continued according to an unchanged concept.

1. Value of future success

The value of future success corresponds to the present value of the net income of the company's owners associated with the ownership of the company.¹¹⁵ The future success value can be determined using the earnings value method or a discounted cash flow method.¹¹⁶ Both methods are basically equivalent and lead to identical results with the same valuation assumptions and simplifications, especially with regard to financing, as they are based on the same investment theory (net present value calculation).¹¹⁷

¹¹³ Cf. MüKoAktG, van Rossum, § 304, Marginal No. 91.

¹¹⁴ Cf. IDW S 1, Marginal No. 29.

¹¹⁵ Cf. IDW S 1, Marginal No. 4.

¹¹⁶ Cf. IDW S 1, Marginal No. 7.

¹¹⁷ Cf. IDW S 1, Marginal No. 101.

The earnings value is calculated as the present value, discounted at the discount rate, of the future financial surpluses accruing to the enterprise owners. These surpluses are derived from the future earnings surpluses from operating assets and the financial results from the sale of non-operating assets or the valuations of other separately valued assets.¹¹⁸

Proper application of the net present value calculation presupposes that the numerator (shareholder income) and denominator (discount rate) of the valuation equation must be equivalent in terms of uncertainty, breadth and temporal structure (principle of equivalence). The central principle of risk equivalence may be taken into account either with the security equivalence method or the risk surcharge method. Since the quantification of security equivalents, particularly with regard to a typification of shareholders, has not yet been convincingly resolved to date, the risk surcharge method has established itself, at least in the determination of objective enterprise values, in science, legal rulings and valuation practice.¹¹⁹

With regard to the problem of a clear demarcation, the risk surcharge method is not supposed to distinguish between enterprise-specific and general risks, but is supposed to consider all risk exclusively in the discount rate. The numerator in the valuation equation must therefore always include values expected for the financial surpluses or income of the shareholders.¹²⁰

The forecast of future financial surpluses represents the core problem of any enterprise valuation.¹²¹ The earnings power proven in the past generally serves as a starting point for plausibility assessments.¹²² Within the framework of an objective evaluation, only those surpluses are to be taken into account which result from measures already initiated on the valuation date and/or from a sufficiently documented and concrete business concept.¹²³ If the earnings prospects are different in the future for reasons related to the enterprise and/or due to changed market and competitive conditions, recognisable differences must be taken into account.

Within the framework of forecasting future financial surpluses, it must be assessed whether and, if so, to what extent synergy effects are to be taken into account. Synergy effects are defined as changes in financial surpluses resulting from the economic integration of two or more companies and differing from the sum of the isolated surpluses. IDW S 1 distinguishes between real and virtual synergies.

Real synergies concern changes that can be realized as a result of the measure giving rise to the valuation. Virtual synergy effects can also be realized without the valuation occasion. Only the virtual synergies are to be taken into account in an objective valuation if the synergy-producing measures have already been initiated or documented in the enterprise concept and only if they relate to the valuation object.¹²⁴

In the valuation of enterprises that are the parent company of a corporate group, the financial surpluses can be determined using various methods.¹²⁵ The appropriate method in each specific case results from

¹¹⁸ Cf. IDW S 1, Section 7.2.

¹¹⁹ Cf. e.g. IDW, WPH Edition, *Bewertung und Transaktionsberatung*, Düsseldorf 2018, Chapter A, Marginal Nos. 210 ff.

¹²⁰ Cf. e.g. IDW, WPH Edition, *Bewertung und Transaktionsberatung*, loc. cit., Chapter A, Marginal No. 332.

¹²¹ Cf. IDW S 1, Marginal No. 68.

¹²² Cf. IDW S 1, Marginal No. 72.

¹²³ Cf. IDW S 1, Marginal No. 32.

¹²⁴ Cf. IDW S 1, Marginal No. 33 f.

¹²⁵ Step-by-step by including the results in the investment result of each participating company or simultaneously by summation and consolidation. In addition, the valuation of corporate groups can also be carried out by adding the values of each group company, with due regard to the shareholding structure ("sum-of-the-parts").

the planning and management approach of the corporate group, taking into account the question of whether a presentation of the assets of individual group companies is meaningful, desirable or necessary.

The objective enterprise value is determined on the basis of the distribution of those financial surpluses that are actually available for distribution after taking into account the enterprise concept¹²⁶ documented on the valuation date and legal restrictions (e.g. regulatory requirements).¹²⁷

If the planning distinguishes two phases, the first phase¹²⁸ divides the surplus into distributions and reinvested funds, including their appropriation, from the estimates themselves. If there are no plans for the use of reinvested amounts and the investment planning does not provide for any concrete use, an appropriate premise for the use of funds must be established. If the increases in value conditioned by reinvestment are subject to a capital gains tax, this must be taken into account in the valuation.¹²⁹

For the second phase,¹³⁰ it is to be assumed that the distribution behaviour of the company to be valued is equivalent to that of the alternative investment. For the reinvestment of reinvested funds of the second phase, it is assumed that this can be represented either by an investment at the discount rate before income taxes of the company, which is neutral in terms of net present value, or by a notional direct allocation of the reinvestments to the shareholders.¹³¹

The value of an enterprise is determined by the amount of freely available net inflows to the investor. These net inflows must be determined in accordance with the IDW's recommendations, with due regard to the enterprise's income taxes and the owners' income taxes resulting from ownership of the enterprise.¹³² Due to the relevance of personal income taxes to value, it is necessary to classify the tax circumstances of shareholders in relation to specific occasions when determining objective enterprise values.¹³³

In accordance with many years of valuation practice and German legal rulings, in the case of corporate and contractual valuation occasions, the (direct) classification is based on the tax situation of a domestic natural person with unlimited tax liability who is not significantly involved. Within the framework of determining the classification, appropriate assumptions regarding the personal taxation of the net inflows must be made based on the valuation object or an alternative investment.

In the withholding tax system applicable in Germany from 2009 onwards, income of a preclassified shareholder from dividends and capital gains as a consequence of increases in value (price gains) as well as his or her interest income are subject to a uniform nominal tax rate of 26.375%.¹³⁴ For distributed profits, the resulting effective tax burden is derived directly from a deduction of the nominal tax liability.

Based on the interest effect, the effective tax liability of capital gains on reinvested earnings depends on the personal holding period of the shareholder. In the opinion of IDW's expert committee for business valuation and business administration,¹³⁵ it is appropriate to assume long holding periods and a

¹²⁶ Including the planning of distributions

¹²⁷ Cf. IDW S 1, Marginal No. 35.

¹²⁸ The "detailed forecast phase"

¹²⁹ Cf. IDW S 1, Marginal No. 36.

¹³⁰ The so-called "phase of the perpetual annuity"

¹³¹ Cf. IDW S 1, Marginal No. 37.

¹³² Cf. IDW S 1, Marginal No. 28 ff.

¹³³ Cf. IDW S 1, Marginal No. 43 ff.

¹³⁴ Income tax including the solidarity surcharge; church tax is not taken into account.

¹³⁵ "FAUB"

correspondingly low effective tax liability on reinvested earnings when estimating the effective personal tax rate for capital gains.

The IDW expert committee recommends assuming an effective tax liability of half the nominal tax rate.¹³⁶ Accordingly, a tax rate of 13.1875% is currently to be applied as the effective tax liability on capital gains on reinvested earnings.

The discount rate to be used to derive the present value represents the return on the most adequate alternative investment possible to the investment in the enterprise being valued.¹³⁷ This rate of return can be broken down according to the capital asset pricing model¹³⁸ into a risk-free rate (base interest rate) and a risk premium demanded by shareholders in exchange for the assumption of entrepreneurial risk.

In order to record growth effects in the form of steadily growing financial surpluses after the end of the detailed forecast phase, the discount rate is reduced by a growth discount.

In the case of a valuation with direct consideration of income taxes, income tax effects at the shareholder level must also be taken into account in the discount rate in accordance with the equivalence principle.

Any assets that may not be required for the operation of the business must in principle be taken into separate account in the enterprise valuation in addition to the earnings value of the assets required for operations. This encompasses those assets that can be freely sold without affecting the actual corporate purpose of the enterprise. Consideration as a special asset also comes into consideration for other states of affairs that cannot be depicted or can only be incompletely depicted in the earnings valuation.

2. Liquidation value and net asset value

Pursuant to IDW S 1, the lower limit for the enterprise value is the liquidation value if the present value of the financial surpluses that would result from the liquidation of the enterprise as a whole exceeds the earnings value when assuming that the enterprise will continue as a going concern.

The net asset value is the reconstruction or replacement value of all assets and liabilities in the enterprise. Since the net asset value is generally not directly related to future financial surpluses, it generally has no independent significance in computing the enterprise value.

3. Simplified pricing

Comparative analyses based on public capital market data or on transactions can be undertaken to check the plausibility of enterprise valuations based on internal business data. According to IDW S 1, such simplified pricing cannot replace a "fundamental analytical" enterprise valuation.¹³⁹

The plausibility of an enterprise value is assessed according to this method on the basis of a multiple of a success or portfolio variable or an industry-specific key figure determined by means of a multiplier.

¹³⁶ For valuation dates as of 1 January 2009; cf. FAUB, IDW-FN 2007, pp. 443 ff.

¹³⁷ Cf. e.g. IDW, WPH Edition, *Bewertung und Transaktionsberatung*, loc. cit., Chapter A, Marginal No. 331.

¹³⁸ "CAPM"

¹³⁹ Cf. IDW S 1, Marginal No. 143 f.

Suitable multipliers are derived either from capital market data of comparable listed enterprises¹⁴⁰ or from comparable transactions.

The values determined on the basis of multipliers can normally only provide a first rough indication. On the one hand, some multipliers do not take sufficient account of enterprise-specific earnings and cost structures. On the other hand, the forecast periods of the analysts' estimates for the peers are often not long enough to adequately take into account the changes expected for the valuation object in the distant future based on internal data. Finally, other special features of the valuation object, such as loss carryforwards and non-operating assets, can also limit the meaningfulness of multiplier valuations.

In the case of multipliers derived based on transaction prices, it should also be noted that purchase prices actually paid are determined by the interests of the transaction partners. They take into account, for example, subjective expectations, particularly regarding the synergy effects that can be achieved. In addition, the specific form of the agreements and their influence on the agreed purchase price are generally not known. In this respect, this approach is normally less meaningful for the plausibility check of an objective enterprise value compared to multiples derived from stock market prices.

The ratios computed through comparative analyses can therefore only be transferred to the valuation object to a limited extent. However, a multiplier valuation usually nonetheless makes it possible to subject the valuation result to a final overall assessment by comparing it with the computed range.

4. Purchase prices and market prices paid

Actual prices paid for companies and shares in companies can be used to assess the plausibility of enterprise values and share values, provided they are comparable to the object of the valuation and are sufficiently recent. However, they are no substitute for an enterprise valuation.¹⁴¹

Pre-acquisition prices paid by a major shareholder in factual and temporal connection with a structural measure are generally irrelevant to the assessment of the appropriate compensation. In exceptional cases, these may be used by courts in estimating the value of the enterprise.¹⁴²

In the opinion of the FAUB,¹⁴³ the value of a company or shares in a company must be fundamentally distinguished from stock market prices and from a market capitalization determined on the basis of stock market prices.

For legal reasons, the stock market price as the price of the share can at least be used as a lower limit for the assessment of a compensation payment. In this respect, a divestment price is relevant. This is the price at which an individual share - not a block of shares or even the enterprise as a whole - could have been sold on the market, abstracting from the structural measure. For the purpose of determining the lower limit of a settlement by a stock market price, it is only relevant whether a sale was actually possible at this price.

¹⁴⁰ "Peers"; together the "peer group".

¹⁴¹ Cf. IDW S 1, Marginal No. 13.

¹⁴² Cf. Federal Supreme Court, Ruling of 13 September 2021, Case 21 W 38/15, AG 2022, pp. 83 ff.

¹⁴³ Cf. below WPg 2021, pp. 958 ff.

While the extent of information efficiency and the associated appropriate pricing or "accurate" valuation by the market is not decisive in determining the lower limit of a settlement, from an economic point of view the enterprise value can only be derived from stock market prices if the relevant information and allocation are strictly efficient.

In reality, according to the FAUB, no such strict information efficiency exists. Accordingly, in particular in the case of so-called "dominated valuation events", it is not possible from an economic point of view to draw conclusions directly from the stock market prices as to the enterprise value.

However, to the extent stock market prices are available for company shares, these must be used to assess the plausibility of the values determined using recognized economic methods. Special influences which may have had an effect on the formation of stock exchange prices must be carefully analyzed and presented.¹⁴⁴

IV. Audit procedures

The representatives of the ADVA Holdings Group, particularly ADVA SE and the Valuation Expert, presented the following topics verbally and in writing:

- Business activities of the ADVA Group including the market and competitive environment
- Operating results achieved in the past and planned for the future¹⁴⁵
- Determination of financial result and corporate taxes
- Derivation of sustainable earnings
- Valuation approach and status of ongoing valuation work

With the aid of the documents provided and the supplementary verbal information, we have checked the plausibility, consistency and arithmetical correctness of the planning approaches and traced the valuation methodically and in terms of content.

In addition, we carried out our own supplementary investigations and calculations, in particular with regard to the components of the discount rate.

Our audit focused on the following issues:

- Plausibility of the estimates submitted by the Company
- Appropriate transfer of the estimates to the valuation model
- Appropriate derivation of net revenues in the detailed forecast phase¹⁴⁶, including a projection¹⁴⁷
- Sound justification of the sustainable income and net revenues
- Appropriate derivation of the discount rate
- Appropriate and generally appropriate application of the valuation methodology
- Identification and, if necessary, appropriate inclusion of state of affairs to be separately assessed, such as assets not required for operations

¹⁴⁴ Cf. IDW S 1, Marginal No. 15.

¹⁴⁵ Also "EBIT" (Earnings Before Interest and Taxes).

¹⁴⁶ Financial years 2022 to 2026.

¹⁴⁷ Financial years 2027 to 2030.

- Assessment of other valuation methods and benchmarks for the purpose of plausibility testing of the earnings value in accordance with IDW S 1
- Derivation of the compensation from the enterprise value, in particular the annuity rate used for this purpose

In addition to these substantive focal points, our audit also focused on the significance in value-related terms of individual components of earnings and net income.

For the plausibility check of the estimates, we have applied the "IDW Practice Guideline: Assessment of Corporate Planning in Valuation, Restructuring, Due Diligence and Fairness Opinion (IDW Practice Guideline 2/2017)". Standards for plausibility are accordingly:

- The mathematical and formal plausibility
- The material, internal plausibility
- The material, external plausibility

The analysis of historical data provides a basis for checking the internal substantive plausibility of the estimates. We have satisfied ourselves that any material non-recurring or unplannable effects on earnings in the past that are likely to occur in the future have not been extrapolated in the determination of the estimates as such and that they are presented accurately in the Expert Opinion. For this purpose, we have analyzed the financial statements and audit reports for the comparative period under review in the past,¹⁴⁸ using further classifications and explanations.

In order to be able to assess the quality of ADVA's planning system, we first had the planning process explained to us and verified whether it complies with the principles of proper planning. In addition, we obtained an explanation of how ADVA prepared the updated estimates on which the valuation is based.

The quality of the planning system can also be assessed in particular on the basis of a retrospective analysis of the estimates in the past. In valuation practice, the focus is usually only on the budget for the following year, since the accuracy of estimates generally decreases with an increasing planning horizon.

Accordingly, the Valuation Expert has verified the adherence to planning on the basis of a comparison of the revenue actually achieved in financial years 2019 to 2021, the respective EBIT, the EBT¹⁴⁹ and the (actual) net result with the respective forecast values (plan). The comparison includes the plans for the first planning year (budget year) prepared as of July up to November of the respective previous year. We have examined whether the Valuation Expert's analyses are proper and whether the conclusions derived from them are comprehensible.

The prospective assessment of specific estimates draws on the actual (adjusted) figures of the past and thus on trends in development of the enterprise (time comparison; material internal plausibility) as well as on actual and forecast values for the relevant markets and competitors (peer comparison; material external plausibility). We have used appropriate comparisons based on key figures and ratios to analyze

¹⁴⁸ Financial years 2019 to 2021.

¹⁴⁹ Earnings Before Taxes.

whether the estimates for financial years 2022 to 2026¹⁵⁰ plausibly reflect the further development of ADVA based on current knowledge.

The estimates presented by ADVA form the basis for the determination of the earnings value by the Valuation Expert. As a result, we examined whether the estimates had been fully and correctly incorporated into the valuation model. We also examined whether the valuation model was methodologically consistent overall.

In contrast to the Company's own estimates, PVT incorporated valuation system modifications into the model used to derive the value.¹⁵¹ We have verified the initial parameters of these modifications, the underlying assumptions and the methodological consistency of the corresponding calculations.

Since the estimated operating result in the last year of the detailed forecast phase (2026) does not correspond, in the opinion of the Valuation Expert, to the average result to be expected on a sustained basis, the Expert estimated the level to be expected on a sustained basis for the average result. By interposing a convergence phase of another four years (2027 to 2030), it normalized the result and, using a growth rate for future company-specific inflation and efficiency expectations, transferred it to the continuation phase (2031 ff.).¹⁵² We subjected the assumptions made and the related calculations to a separate appraisal.

The Company's planning is structured as integrated estimates. The balance sheet estimates presented result in a significant increase in liquidity and equity, since according to the information provided, distributions are not to be made in the future either.

Since the Company's planning thus does not provide for the use of excess liquidity over and above that required for operations, the Valuation Expert has assumed in its model that the excess liquidity will be distributed at the end of each plan year (2022 to 2026). The Valuation Expert assumed market average distribution behavior. To the extent that ADVA's integrated estimates do not provide for concrete use of the results achieved in the context of the internal financing and amounts remain from the result of a financial year even after taking into account the assumed distributions, the Valuation Expert has fictitiously attributed these directly to the shareholders of ADVA SE. We have traced the underlying reasoning and verified the calculations of the resulting personal income taxes and shareholders' resulting net income.

The Valuation Expert determined the discount rate by referring to the return on an alternative investment adequate to the investment in the enterprise being valued. We verified the derivation of the individual components of the discount rate in terms of both method and content and reconciled it with the associated observations from capital market data.

When determining the capitalization rate, the Valuation Expert took into account the fact that the result of determining an enterprise value can only be an estimate. Accordingly, the Expert considers it

¹⁵⁰ 2022 budget and further planning years 2023 up to 2026; as a whole, the "detailed forecast phase"

¹⁵¹ Reclassification of restructuring and transaction-related expenses and adjustment of the balance sheet due to the assumption of an annual distribution of liquidity in excess of operating requirements (reduction of the planned amounts for cash and cash equivalents and retained earnings by the respective distribution).

¹⁵² Also "perpetual annuity phase" or "TV" (terminal value).

appropriate to determine¹⁵³ not a specific value but bandwidths. Since the level of the market risk premium in particular is the subject of controversy and, to that extent, is amenable to a range analysis, the Expert modeled the upper and lower values of a range for the level of the market risk premium after personal taxes and derived a range for the enterprise value from this.

Based on the fact that the cash compensation is to be determined with a single value and that this is regularly to be derived from the enterprise value, we have verified the enterprise value from which the determined cash compensation is derived. In this respect, our comments relate primarily to the amount of the market risk premium corresponding to this enterprise value.

On this basis, the Valuation Expert has applied interest to the earnings value as of the technical valuation date (31 December 2021) on the legal valuation date, the planned date of the general meeting at which the shareholders of ADVA SE are to adopt the corresponding resolution (30 November 2022). We have verified this calculation.

The Valuation Expert has not identified any states of affairs that cannot be included in an earnings value approach or can only be included in an incomplete fashion, in particular assets that are not required for operations. We have verified whether this assessment is correct.

The Valuation Expert did not compute the liquidation value of ADVA SE. We have verified the considerations set out in the Expert Opinion and the resulting conclusion that the going concern value is higher than the liquidation value assuming a break-up.

In addition to the range it determined for the objectified enterprise value according to IDW S 1, the Valuation Expert - following the DVFA recommendations - also determined a range for the enterprise value before personal taxes and including the entire synergy potential in the valuation of ADVA SE. The Expert converted this range for the enterprise value to one ADVA share in each case, and determined further ranges for the value per ADVA share on the basis of multiples and also set these in relation to the prices paid for the ADVA share.

We take up the alternative valuations of the Valuation Expert in our plausibility check of the enterprise value.¹⁵⁴

The Valuation Expert also converted the determined range for the enterprise value in accordance with IDW S 1 to one ADVA SE share and considered the question of whether the stock market price as the fair value of the share represents a possible lower limit of the adequate cash compensation. We have verified the considerations and calculations in this respect.

The Valuation Expert has determined the adequate compensation pursuant to § 304 AktG through the annuitization of the enterprise value. We reconciled the required output variables and verified the mathematical derivation of the compensation.

¹⁵³ In accordance with the "Best Practice Recommendations on Corporate Valuation" of the Working Group "Corporate Transactions and Valuation" of DVFA Deutsche Vereinigung für Finanzanalyse und Asset Management e.V., Frankfurt am Main ("DVFA Recommendations"), and its mandate.

¹⁵⁴ Enterprise value resulting from the defined cash compensation.

The amount of the appropriate cash compensation and compensation payment results from the circumstances as of the valuation date (30 November 2022). On the day of the general meeting at which the shareholders are to resolve on the conclusion of the proposed CPLAA, we will verify what cash compensation and compensation payment are to be regarded as appropriate at that time.

On the one hand, it will be necessary to review whether expectations regarding ADVA's future business development have changed compared to the current state of knowledge. Second, it will be necessary to check whether conditions on the capital market have changed in the meantime.

The analyses of the Valuation Expert, which we have reviewed, have shown that it is not to be expected that a change in capital market conditions will result in appropriate cash compensation that exceeds the proposed cash compensation.

However, the Valuation Expert considers it conceivable that a change in capital market conditions could result in a change in the amount of the appropriate compensation payment. In order to take account of a conceivable development of rising interest rates, the Expert has performed a sensitivity analysis in which the level of the base interest rate and any consequences of a change in the level of the base interest rate are varied at the level of the market risk premium, but all other parameters of the valuation correspond to assumptions that are plausible or appropriate from today's perspective (c.p.).

The amount of the appropriate compensation payment is determined by annuitizing the enterprise value determined c.p. in this sensitivity analysis, whereby a prorated enterprise value that does not reach the lower limit of the cash compensation¹⁵⁵ is not to be used as the basis for calculating the compensation payment, but instead the lower limit of the cash compensation is annuitized.

The Valuation Expert determined how the amount of the reasonable compensation payment would change if the annuitization rate increased in parallel with an increase in the base interest rate.¹⁵⁶ We have examined whether the further results on the amount of the compensation payment c.p. resulting on this basis would be considered appropriate.

¹⁵⁵ Weighted average stock price in the three months prior to the announcement of the intention to enter into a CPLAA.

¹⁵⁶ The basis for the annuity likewise changes, as previously discussed.

V. Audit findings

1. Valuation Object

a) Legal and tax circumstances

ADVA SE has its registered office in Meiningen and is entered in the Commercial Register of the Local Court of Jena under Commercial Register No. B 508155. The business address is: Märzenquelle 1-3, 98617 Meiningen.

The articles of association of ADVA SE were last amended by resolution of the shareholders in general meeting on 3 January 2022. This amendment relates to an increase in share capital through the issue of new shares due to the exchange of subscription rights from stock options. According to the information provided, the issue of further options in the meantime will be taken into account in total at the end of a financial year when the articles of association are amended accordingly.

Pursuant to § 2 of the Articles of Association, the corporate purpose of the Company is defined as follows:

- The corporate purpose of the Company consists in the development, production, marketing and distribution of optical, opto-electronic and electronic devices, software and systems as well as the provision of services in this context. (Paragraph 1)
- The Company may perform all transactions that serve the corporate purpose directly or indirectly. (Paragraph 2)
- The Company is entitled to acquire interests in companies with the same or similar corporate purpose and to act on their behalf. It may establish branches in Germany and abroad. The Company is also authorized to spin off its operations in whole or in part to affiliated companies or to transfer them to affiliated companies. (Paragraph 3)

The financial year of ADVA SE corresponds to the calendar year.

The Company's fully paid-in share capital amounts to € 51,958,800.00 and is divided into 51,958,800 no-par-value bearer shares of the same class with a notional value of € 1.00 per share in the share capital. According to the information in the Agreement Report, ADVA SE does not hold any treasury shares.

The Management Board of ADVA SE is authorized to increase the Company's share capital by up to € 24,965,477.00 (Authorized Capital 2019/I) until 21 May 2024 in return for cash and/or non-cash contributions. In addition, the share capital has been conditionally increased by up to €3,587,561.00¹⁵⁷ (Conditional Capital 2011/I) for the granting of options as of the date of signing of the Agreement Report. At the time of signing the Expert Opinion, 134,700 stock options were still outstanding.

The ADVA shares (ISIN DE0005103006) are admitted to trading on the regulated market with additional post-admission obligations on the Frankfurt Stock Exchange (Prime Standard), where they are traded in the electronic trading system ("XETRA") of Deutsche Börse AG, Frankfurt am Main. The shares are also traded on the over-the-counter markets of the stock exchanges in Berlin, Düsseldorf, Hamburg, Hanover, Munich and Stuttgart as well as via the Tradegate Exchange. ADVA shares were included in the CDAX¹⁵⁸

¹⁵⁷ Status as of the preparation of the Agreement Report: as of 31 December 2021 (as the preparation date of the valuation), Conditional Capital 2011/I amounted to € 4,100,469.00.

¹⁵⁸ Composite DAX (Germany's largest share index)

and SDAX¹⁵⁹ share indices. As part of the acquisition by ADTRAN Holdings, the ADTRAN Holdings share replaced the ADVA share in the SDAX as of 15 July 2022. As of 19 September 2022, the ADTRAN Holdings share is included in the MDAX¹⁶⁰ instead of the SDAX and additionally in the TecDAX.¹⁶¹

According to the Agreement Report, ADTRAN Holdings directly holds 33,957,358 ADVA shares as of 18 October 2022. This corresponds to a share in the outstanding share capital of the Company of around 65.35%. According to the published voting rights, two additional shareholders hold approximately 5.02% and approximately 4.98% of ADVA shares, respectively. According to the information provided, the remaining shares (around 24.65%) are in free float.

In 2022, ADTRAN Holdings acquired a majority stake in ADVA SE.

Prior to this, ADTRAN, Inc., Wilmington, Delaware/USA,¹⁶² ADTRAN Holdings¹⁶³ and a further affiliated company of ADTRAN Holdings had concluded an agreement in principle on the merger of their companies following negotiations with ADVA SE on 30 August 2021. According to the consequences of the merger presented at the time, the annual cost-related synergies achievable from the merger over the course of two years after closing should amount to approximately \$52 million before corporate taxes.

On 30 August 2021, ADTRAN Holdings published its decision to launch a voluntary public tender offer. Shareholders were given the opportunity to exchange one ADVA share for 0.8244 shares of ADTRAN Holdings¹⁶⁴ in accordance with the offer document published on 12 November 2021. Compared to the prices of the shares of ADTRAN on 27 August 2021, the last stock exchange price prior to the publication of the Offer, the consideration represents a premium of approximately 33.2% for the shareholders of ADVA SE. Compared to the average prices in the three and six months prior to 27 August 2021, the premium amounts to approximately 21.9 and 22.8%, respectively.

According to the offer document, based on the complementary nature of the product and service offering, ADVA SE has the potential to enhance the product range of both companies and to consolidate the position of the new group as a fully integrated end-to-end fiber access and transport portfolio within a modern, SDN-controlled¹⁶⁵ infrastructure. Due to the complementary nature of their businesses, at the time the offer document was prepared, the potential was seen to generate annual gross cost synergies of approximately \$52 million through supply chain scaling opportunities, greater purchasing power and streamlined operations. Sales synergies were not quantified.

At the end of the extended further acceptance period on 14 February 2022, the offer was accepted for a total of 33,957,538 ADVA shares, representing approximately 66.01% of the issued share capital at that

¹⁵⁹ German share index of the 70 largest companies below the MDAX.

¹⁶⁰ German share index of the 50 largest companies below the DAX.

¹⁶¹ German stock index of 30 shares with a focus on technology.

¹⁶² "ADTRAN"; a formerly publicly traded company that was the ultimate parent company of the ADTRAN Group at the time and is now - in addition to ADVA SE - a subsidiary of ADTRAN Holdings. The subgroups ADTRAN Group and ADVA Group are combined under ADTRAN Holdings as the ADTRAN Holdings Group.

¹⁶³ At the time trading as Acorn HoldCo, Inc.

¹⁶⁴ In the course of the restructuring under corporate law in connection with the merger, the shareholders of the formerly listed ADTRAN received one share of the previously unlisted ADTRAN Holdings for each share held. The value of one share of ADTRAN is equal to the value of one share of ADTRAN Holdings until the date of the merger.

¹⁶⁵ "Software Defined Networking" (separation of software and hardware in a network).

time. Following the fulfillment of the last condition on 6 July 2022, the exchange offer was completed on 15 July 2022.

ADTRAN Holdings¹⁶⁶ announced on 6 July 2022 that it intends to enter into a CPLAA with ADVA SE as the controlled company and ADTRAN Holdings as the controlling company. The Management Board of ADVA SE decided to enter into negotiations on the conclusion of this agreement and published the start of the negotiations on 6 July 2022 in an ad hoc announcement of the same date.

In this context, the Agreement Report emphasizes that the conclusion of the Agreement is necessary in order to coordinate the interests of ADTRAN Holdings and ADVA SE and thereby to be able to achieve the objectives intended with the merger. Only the conclusion of a CPLAA would enable a comprehensive partnership between ADTRAN Holdings and ADVA SE, which could result in synergy effects for both parties.

ADTRAN Holdings is a publicly traded company and the sole shareholder of ADTRAN and majority shareholder of ADVA SE. As a strict holding company, ADTRAN Holdings does not engage in any operating activities. As a result of the merger, the operating business of the ADTRAN Holdings group will be conducted by both ADTRAN and ADVA and their respective subsidiaries.

ADTRAN is a world leading providers of network and communications platforms, systems and services, with a focus on the broadband access market. ADTRAN Group's products and services are used by a diverse global customer base of network operators, ranging from those with regional or national reach operating as telephone or cable network operators, to alternative network providers such as municipalities or utilities, as well as managed service providers serving small and medium-sized enterprises and decentralized businesses.

The ADTRAN Group operates in the following main segments:

- Network Solutions
- Services & Support

ADTRAN also reports its consolidated revenues in the following categories of products and services:

- Access & Aggregation
- Subscriber Solutions & Experience
- Traditional & Other Products

In financial year 2021, the ADTRAN Group generated revenues in the amount of \$ 563.0 million, of which 88.6% was generated by the Network Solutions segment and 11.4% by the Services & Support segment. In geographical terms, the ADTRAN Group generated the majority of its revenues in the United States (66.5%). Germany accounted for around 11.6% of revenues. With a gross margin in the amount of \$ 344.6 million (38.8% of revenues), an operating loss in the amount of 14.7 million (operating margin -2.6%) and a net loss of \$8.6 million had to be accepted. In the first six months of financial year 2022, an operating profit of \$ 8.1 million was earned with revenue of \$ 326.6 million (operating margin: +2.5%) As of 18

¹⁶⁶ At the time trading as Acorn HoldCo, Inc.

October 2022, the ADTRAN Group has a total of 1,379 full-time employees¹⁶⁷ at locations in 17 different countries.

ADVA SE is not a strict holding company, but also operates itself. As the parent company of the Group, it performs corresponding management and central functions. It is responsible for all key Group-wide functions such as finance and accounting, compliance and risk management, strategic and product-oriented research and development, and global corporate and marketing communications.

In the Group, management decisions are not made on the basis of the results of individual business areas. Therefore, reporting on individual business segments is not required. The services provided by various Group companies have a significant impact on the parent company's earnings. These services include in particular research and development activities as well as sales activities, which are invoiced to the Group parent company.

ADVA SE directly or indirectly holds all shares in 20 fully consolidated subsidiaries, all of which except one are domiciled abroad. It also holds shares in an associated company. The Expert Opinion shows the Group structure as of 30 June 2022. Of the companies listed, the following are material:¹⁶⁸

- ADVA Optical Networking North America, Inc., Norcross/Atlanta, Georgia, USA
- ADVA Optical Networking Ltd, York, United Kingdom, Great Britain and Northern Ireland

The Company has been subject to tax audits for the financial years until 2015. No audit for the ensuing assessment periods from 2016 has yet begun.

Tax loss carryforwards exist at ADVA SE itself (€ 161.5 million), ADVA Optical Networking North America, Inc. (€ 72.4 million) and to a lesser extent at two other subsidiaries. To the extent that loss carryforwards are attributable to the U.S. subsidiary, they can generally only be utilized over a period of 20 years. The loss carryforwards available at the Swiss-based subsidiary would expire after seven years.

The Company has a tax deposit account which amounts to € 303.4 million as of 31 December 2021. According to our calculations, which we have verified without objection, it is only possible to use parts of the tax deposit account for distributions of the profits forecast for the financial years 2022 and 2023, as in the other years a “distributable profit” in the terms of § 27 KStG will arise and distributions will thus be subject to (full) final withholding tax.

b) Financial fundamentals

ba) Business model and strategy

Since the start of its business activities in 1994, ADVA has developed into an international provider of telecommunications equipment, particularly for fiber-optic-based transmission technology, through organic growth and strategic acquisitions. ADVA was also able to draw on the IPO proceeds generated in 1999 to partially finance its growth investments.

¹⁶⁷ Full-time equivalent (“FTE”).

¹⁶⁸ Share of more than 3% of Group revenues.

ADVA develops and provides solutions for network operators worldwide. It focuses on solutions for cloud access and interconnect as well as network synchronization. The focus of the products and services is on optical transmission technology with wavelength division multiplexing technology.¹⁶⁹

ADVA's position in the telecommunications equipment added value chain can be described as follows, according to a presentation by the Company, which also identifies major competitors at each stage of production:¹⁷⁰

- Components: Supply of chips and other technical components used as intermediate products in the manufacture of telecommunications equipment and, to this extent, upstream value-added stage for ADVA (suppliers)
- Systems: ADVA's value creation stage
- Networks: Operation of networks by network operators (private companies, communications service providers¹⁷¹ and Internet content providers¹⁷²) that purchase telecommunications equipment to provide their services and thus a downstream value-added stage for ADVA (customers)

ADVA covers the entire added value creation process in transmission technology in the "Systems" value creation stage with solutions ranging from product development to production and after-sales service.

ADVA continuously invests in the development of innovative solutions. ADVA's network technology enables the creation of a powerful communications infrastructure with secure data transmission. This provides the basis for the digital economy, the (industrial) Internet of Things,¹⁷³ and the digitization of ecosystems.

Fiber-optic-based transmission technology ensures scalable bandwidths for the infrastructure of network operators as well as for data center interconnection¹⁷⁴ of large enterprises and Internet content providers. In the access area of the networks,¹⁷⁵ the technology offered by ADVA with virtualization enables fast and flexible provision of cloud services and new opportunities for creating edge computing solutions.

In addition, ADVA's synchronization technology provides timing information that is of paramount importance in the construction of broadband 5G mobile networks, globally distributed data centers and for energy providers, among others.

ADVA is globally positioned in the market for optical transmission technology with WDM technology, the core segment of the overall optical network market. The subsequent market for Ethernet-based network access solutions¹⁷⁶ is experiencing a new dynamic with the introduction of virtualized network functions. Here, ADVA's solutions can address more and more new growth applications.

As a result of its technical expertise and position as a long-standing partner to its customers, as well as a focus on specific products and services, ADVA is able to reach customers with strong and sustained

¹⁶⁹ "Wavelength Division Multiplexing" ("WDM").

¹⁷⁰ Cf. the graphical representation included in the Expert Opinion.

¹⁷¹ Communication Service Provider ("CSP").

¹⁷² "ICP".

¹⁷³ Internet of Things ("IoT").

¹⁷⁴ Data Center Interconnect ("DCI").

¹⁷⁵ Network edge; area where the data streams from the access lines of the end subscribers converge. Here, data streams are often bundled and functions defined for the end customer.

¹⁷⁶ Ethernet is a protocol for packet-based data transmission.

demand for innovative connectivity solutions. ADVA intends to expand its enterprise DCI business in particular.

ADVA has a global presence with its products and services, with the largest share of revenues¹⁷⁷ generated in Germany (25.5%) and the other countries in the EMEA region¹⁷⁸ (37.7%). In these markets, ADVA can build on an established customer base with a balanced mix of customers of various sizes, including key accounts. In addition, the strategy of also relying on distribution partners contributes to the successes achieved in this region.

The Americas region (27.5%) also accounts for a significant share of revenues, while the Asia-Pacific region (9.3%) has a (comparatively) small share of the ADVA Group's revenues. The Americas region is home to the world's largest Internet content providers with their headquarters. As a result, the Americas region represents a challenging market for communications technology. ADVA's key accounts are located in the Americas region. In the Asia-Pacific region, on the other hand, ADVA can only rely on key accounts to a limited extent. As sustainable and recurring revenues are generated to a lesser extent in this region, business performance is characterized by the more volatile project business.

¹⁷⁷ Figures for the ADVA Group based on ADVA SE's annual report for financial year 2021.

¹⁷⁸ Europe, Middle East and Africa.

ADVA Group's products and services are based on the following three technology pillars, which are combined by means of intelligent network control software:

- Cloud interconnect (fiber-optic-based optical transmission technology; around 70% of revenue)¹⁷⁹
 - Fiber as the optimal physical medium for transporting large amounts of data over long distances, since fiber's bandwidth length product¹⁸⁰ far exceeds values of copper and wireless links
 - Data transmission via fiber optic cable is therefore the undisputed basis of all high-speed networks.
 - WDM multiplies capacity of a fiber optic cable by using more than 100 wavelengths (colors) on each of which a different voice, video, data or backup application is combined, transported and separated again in a special laser beam.
 - ADVA FSP 3000 as a platform with terminals that generate transmission rates of up to 600 Gbit/s per wavelength, and with which capacities of more than 50 Tbit/s per fiber can be supported through the open optical transmission system¹⁸¹ which can be optimized for access, metro and wide area links
 - ADVA Group in cloud interconnect for data centers for private enterprises with a market share of almost 30% worldwide and more than 50% in the EMEA region
- Cloud Access (cloud access technology for the rapid creation of innovative services; approx. 25% of revenue)
 - Ethernet¹⁸² as dominant transmission protocol for modern data networks
 - Technology optimized specifically for network operators (carriers) with applications primarily in the network access area (edge) for connecting mobile communications base stations and enterprise customers to their network and for data transmission in optical wide-area networks
 - Increasing importance of software for automating network operations and virtualization of network functions, which breaks down the tight interlocking between hardware and software,¹⁸³ thereby radically simplifying logistical processes
 - ADVA FSP 150 product family and Ensemble software architecture (Ensemble Connector as network operating system, Ensemble Activator as operating system for "bare-metal switches"¹⁸⁴
- Network synchronization (precise synchronization of communication networks; approx. 5% of revenues)
 - Stable frequency and time information of fundamental importance for the transmission of digital signals
 - Comprehensive product portfolio from ADVA under the Oscilloquartz brand

ADVA's three technology pillars are fundamental to the rapidly advancing digitization of ecosystems worldwide. Optical transmission technology with WDM delivers scalable transmission capacity needed to handle bandwidth growth. Cloud access solutions allow new communications services, including edge computing solutions, to be deployed flexibly and quickly. Network synchronization ensures maximum performance in the network.

On the sales side, ADVA uses both its own sales organization and sales partners. Direct sales give ADVA the opportunity to focus more on specific customer requirements through direct contact with network operator customers. Broad-based direct sales are particularly important both in the Internet industry and for large, strategically important network operators. The direct approach to customers is supported by

¹⁷⁹ Figures for the ADVA Group based on ADVA SE's annual report for financial year 2021.

¹⁸⁰ Size of the bandwidth to be transmitted multiplied by the distance to be bridged.

¹⁸¹ Open Line System ("OLS").

¹⁸² As "Fast Ethernet" or "Gigabit Ethernet" with data rates of up to 400Gbyte/s.

¹⁸³ Network Functions Virtualization ("NFV").

¹⁸⁴ Allow separation of hardware and software in the network area.

the marketing team. ADVA has also participated in marketing alliances. Sales via partners include cooperation with globally operating system integrators, OEM partners¹⁸⁵ and “value-added resellers”.

ADVA's strategic goals relate in particular to growth and profitability, innovation, operational excellence, individual employee development and customer experience. The achievement of targets is regularly reviewed using the following key performance indicators:

- Revenue
- Pro forma operating result
- Net debt or cash and cash equivalents
- net promoter score

To achieve the goals at the level of the enterprise as a whole, a framework has been set with the “Business Transformation Strategy”, which is essentially based on the following three pillars:

- Disproportionate growth in private and security networks outside the traditional network infrastructure as well as expansion into new industries outside the telecommunications sector
- Disproportionate growth in software and services
- Opening up of new markets and optimizing costs by integrating parts of the supply chain

ADVA will continue to invest selectively in the development of technologies and products as well as in other revenue-generating measures. In the past, ADVA has realized these investments partly through corporate acquisitions. The estimates presented do not include specific acquisitions. According to the information provided to us, no major acquisitions are foreseeable.

In addition to further developing its own business model, ADVA has taken a strategic step by merging with ADTRAN, which it believes will permanently change the competitive landscape of the industry. The merger is expected to create a global market leader for scalable communications technology. The merger would combine residential fiber access solutions (fiber-to-the-home) and ADTRAN's local loop business with ADVA's data center interconnection solutions for large enterprises, business connectivity (business Ethernet or fiber-to-the-building), metro WDM, and network synchronization.

Together, the partners in the merger could address new requirements, particularly with regard to the convergence of network solutions at the network edge. The combined company would offer a product portfolio to provide homes, businesses and 5G infrastructure with scalable and secure fiber connectivity, paired with cloud-managed WiFi connectivity.

¹⁸⁵ Original Equipment Manufacturer.

bb) Macroeconomic situation and outlook

In our opinion, the Valuation Expert's accurate statements on the macroeconomic development focus on the countries and regions that are important for ADVA (EU, in particular Germany, as well as the U.S.) and can be summarized and supplemented as follows:

According to forecasts recently published in October 2022 by the International Monetary Fund, Washington, D.C., USA,¹⁸⁶ for the years up to 2027, real GDP growth¹⁸⁷ is expected to return to normal at the global level as of 2024 after global GDP slumped at a rate of -3.0% in 2020 as a result of the COVID-19 pandemic. This slump had largely recovered in 2021 with growth of 6.0%. The expectations for 2022 and 2023 will be influenced by the currently adverse factors. As of 2024, growth rates (3.2% to 3.4%) are broadly in line with those observed before the pandemic and the other crisis-ridden developments. The economic outlook is affected in the short to medium term by a global shortage of semiconductors.

The consequences of Russia's invasion of the Ukraine, in particular the associated accelerated increase in energy prices, as well as frequent production stoppages in China and bottlenecks in global supply chains have caused the IMF to sharply reduce the growth expectations for 2022 and 2023 compared to the forecast published in April.

In the EU, the slump in 2020 was much greater at -5.6%. The recovery in 2021, with growth of 5.4%, was unable to compensate for this slump. According to the current expectations, it should still be possible to achieve a certain catch-up effect in 2022 (growth rate +3.2%). These recovery effects will not continue in 2023. Based on the current state of knowledge, growth in 2023 will fall to 0.7%, as the macroeconomic effects associated with the further course of the Ukraine crisis will put a particular strain on the European economies. As of 2024, the growth rates will again normalize, returning to 1.7% in the further course of the forecast.

Following a prolonged phase of economic recovery, growth rates in Germany had already slowed significantly in 2018 and 2019. The turnaround that was emerging in early 2020 was abruptly interrupted by the measures taken after the COVID 19 pandemic outbreak. The decline in economic output in Germany in 2020 (-4.6%) could by no means be offset by the recovery in 2021 (+2.6%). As a result of the current crisis-ridden developments, the short-term growth expectations of the IMF are being reduced compared to the forecast in April 2022. For 2022, only low growth rates are still expected (+1.5%). In 2023, a recession is foreseeable (reduction in economic performance by 0.3%). As of 2024, the growth rates should normalize again, returning to 1.13% in the further course of the forecast.

In the U.S., growth had already slowed in 2019 before the U.S. economy slumped as a result of the 2020 pandemic (growth rate -3.4%). This slump could be largely offset in 2021 with growth of 5.7%.

As a consequence, of the current crisis-ridden developments, the short-term growth expectations of the IMF are being sharply reduced compared to the forecast in April 2022. For the period from 2022 to 2024, sharply lower growth rates (of between 1.0 and 1.6%) are expected. In the ensuing years as well (growth

¹⁸⁶ "IMF"

¹⁸⁷ "GDP"

rates between 1.8 and 2.1%), it is expected that the growth observed in the past will no longer be attainable.

Global inflation¹⁸⁸ has increased in the historical period under consideration. Following a slight decline in 2020 as a result of the pandemic, global inflation had already risen significantly in 2021 and, according to current IMF forecasts, is expected to rise to 8.8% throughout 2022 and thus to a level that had not been observed for an extended period of time. In the following years, price increases are expected to slow and inflation to fall in the medium term to 3.3%.

The individual markets under review (EU, Germany, USA) show a similar trend - at a fundamentally lower level - with inflation in these markets already having increased significantly more in 2021 than on a global basis. In the medium term, inflation in these markets is expected to normalize at 2.0%. This rate otherwise is also in line with the European Central Bank's inflation target (2.0%).

In our view, it can be summarized that ADVA has benefited from a fundamentally stable macroeconomic environment in the relevant markets over a number of years. This stability can no longer be observed since 2020. In our view, the macroeconomic environment in the coming years is significantly less favorable than in the years up to 2019. In addition, uncertainties have increased significantly. Moreover, the USD exchange rate has recently sharply increased compared to most other currencies, which is having an additional adverse effect (at least in the short term) as a consequence of the large share of purchases invoiced for ADVA in USD.

¹⁸⁸ Measured by the change in the consumer price index compared to the respective previous year

bc) Market and competitive environment and market position

ADVA's products and services are allocable to the IT market. Of this market, ADVA serves the telecommunications network equipment sub-segment. In its analysis of these markets, the Valuation Expert refers to the studies from 2021 and 2022 mentioned in the Expert Opinion. What all the studies have in common is that they do not take into account recent developments which, from a macroeconomic perspective, generally suggest lower growth. More recent studies reflecting current expectations are not yet available.

The IT market comprises services and hardware used by companies to create, manage and provide information and to support other business functions. Global IT spending is expected to grow at a compound annual growth rate¹⁸⁹ of 5.6% from 2021 to 2026. In general, it is expected that individually held hardware and software will be increasingly replaced by cloud solutions.

The telecommunications network equipment sub-segment of the global IT market is expected to grow by 4.4% p.a. to \$24.0 billion during this period. The Valuation Expert correctly states that the supply chain for telecommunications networks has become very unstable. The greatest challenges at present lie in particular in the global shortage of semiconductors and rising purchase prices. However, the network equipment industry has proven to be less susceptible than other industries to recessionary trends.

The Valuation Expert further breaks down the developments expected at the global level and also presents them for relevant regional markets or technologies. In regional terms, the majority of the ADVA Group's revenues are generated in Europe (especially Germany) and the Americas (especially the United States).

For the U.S. and the five largest Western European economies combined, the IT hardware market is expected to grow at an average annual rate of 2.5% to \$293.5 billion from 2021 to 2024. Notable market growth is forecast for the USA (3.9% p.a.), while slightly positive or even negative growth rates are expected in the European markets under review.

For IT services and software, these country markets combined are expected to grow at an average annual rate of 6.8% to \$1,171.7 billion from 2021 to 2024. Growth expectations for the individual countries under review differ only slightly.

The products and services offered by ADVA address only three smaller market segments within the global IT market. By technology, ADVA differentiates between the Cloud Interconnect, Cloud Access and Network Synchronization submarkets, for which ADVA offers hardware products and related software and services.¹⁹⁰ For the purpose of benchmarking its own development, ADVA has therefore defined the "addressable market."¹⁹¹ The TAM is expected to increase at an average annual rate of 4.5% from \$10.8 billion to \$13.4 billion over the period 2021 to 2026.

In the EMEA region, ADVA's most important sales market, growth is expected to average 3.5% to \$4.3 billion. The Americas region represents the largest submarket of the TAM, but is significantly less

¹⁸⁹ Compound Annual Growth Rate ("CAGR"); the rates of change stated below are to be understood as CAGR unless otherwise indicated.

¹⁹⁰ Cf. Section D.V.1.ba).

¹⁹¹ Total Addressable Market ("TAM").

important for ADVA than the EMEA region. In the Americas, the relevant market is expected to grow by an average of 3.1% p.a. to \$5.4 billion. The Asia-Pacific region is of secondary importance for ADVA. In this region, the relevant market is expected to increase by an average of 8.1% p.a. to \$3.7 billion.

A breakdown by technology shows that the market for cloud interconnect is by far the largest relevant submarket. The Valuation Expert therefore presents the market developments for this technology again subdivided into metro connections and backbone connections. In the case of metro connections, the transport of connections takes place over significantly shorter ("metropolitan") routes than in the case of backbone connections.

The largest submarket, cloud interconnect (Metro), is expected to grow at an average annual rate of 3.7% to \$6.5 billion from 2021 to 2026. Cloud interconnect (backbone) is expected to grow by an average of 5.4% p.a. to \$5.7 billion. Growth expectations for the other two submarkets are put at 4.0% and 5.0% respectively, although these markets are considerably less important, together accounting for less than one-tenth of the TAM.

The following developments are significant and sustainable growth drivers in ADVA's addressable market:

- In general, digitization and thus increasing demand for cloud-based solutions and the underlying communication networks
- Rapid and accelerating adoption of digital processes across all industries
- Creation and use of artificial intelligence
- Consumption of high-definition video via mobile and fixed networks
- Investments in network expansion due to increased use of home office, home schooling and video conferencing
- Government stimulus and funding programs

ADVA's addressable market can also be subdivided by target groups. No market forecasts are available in this dimension. Target groups have different needs and demand different solutions.

For private companies, the focus when coupling their data centers is on the reliability and efficiency of the IT structures, with data transmission and protection against data loss being the most important requirements.

Internet content providers are asking for data center interconnection products and services that improve network performance while optimizing costs. They are increasingly moving toward equipping fiber-optic lines with their own transmission technology.

For communications service providers - in view of the pressure to expand their network infrastructure, especially due to the increasing bandwidth requirements of private households - the focus is on the requirements for network availability, latency and accessibility of computing resources.

The competitive environment has changed significantly in recent years. For many years, the communications network equipment industry was characterized by intense competition, but still had to bear high development expenses. This led to the departure of many market participants. The remaining competitors are predominantly to be regarded as technologically leading and profitable companies. In addition,

the importance of the market has increased. Increasingly, the focus is also on security aspects, so that the importance of Far Eastern manufacturers for equipping Western networks has declined.

Despite the improvement in competitive conditions described above, competition among manufacturers of telecommunications network equipment remains high and is based on the factors of price, quality, availability and distribution. Given the similarity of the products, it is expected that significant investment will be made in customer relationships. In view of the numerous standards and technologies, another key competitive factor is product interoperability.

Overall, demand for a high-performance network infrastructure is currently very high. The supply of intermediate products such as microchips required to fully satisfy demand cannot currently be ensured. The excess demand has caused prices of both products and inputs to rise. The considerable cost increases on the procurement side can only be passed on in part to the network equipment suppliers' customers in the form of higher selling prices.

The market for IT services is characterized by consolidation among the major providers, the threat of companies from outside the industry with large financial resources, increasing overlap with other industries, and the insourcing of IT services by customers. Overall, therefore, the intensity of competition is expected to increase.

On the other hand, the overall IT market will continue to expand in view of a large number of growth drivers. This is especially true for cloud IT infrastructure, which is expected to grow at an average annual rate of 13.2% globally to \$133.7 billion between 2021 and 2026. IT spending on data center systems is expected to grow globally by an average of 4.5% p.a. to \$394.0 billion over this period. 5G technology can also be seen as a growth driver. For example, the number of 5G mobile subscriptions taken out worldwide is expected to increase by an average of 46.1% from 2021 to 2026 to around 3.7 billion.

In summary, ADVA's competitive environment can be considered positive. As a Western network equipment supplier with a European-American corporate culture, innovative strength as well as a viable business model, ADVA sees itself as being perceived extremely positively and expects to be able to take advantage of the opportunities arising from the macroeconomic environment.

bd) Financial, liquidity and earnings position, including adjustments

The Valuation Expert has performed an analysis of the financial, liquidity and earnings position of the ADVA Group based on the published consolidated financial statements for the financial years 2019 to 2021. Insofar as the actual figures for the historical period under consideration contain effects which, due to their nature, are not included in the estimates, the Valuation Expert has previously adjusted the actual figures for these effects.

bda) Financial and liquidity position

The Valuation Expert presents its analysis of the financial and earnings position in tables, preceded by the consolidated balance sheet¹⁹² - summarized in the presentation at item level, but separated into assets (financial position) and liabilities (liquidity position).

The market and competitive conditions can be summarized as follows:

- Increase in total assets - after temporary decrease to € 500.0 million (31 December 2020) - to € 601.5 million (31 December 2021)
- Financial position determined by intangible assets and property, plant and equipment (non-current assets), inventories, trade receivables, and cash and cash equivalents (current assets)
- Total intangible assets of € 189.9 million (31 December 2021), with a high share of total assets (around 32%) due to the business model of a technology company:
 - Capitalized expenses from internally generated development projects for technologies and products (€ 97.8 million as of 31 December 2021)
 - Goodwill and other intangible assets arising from business combinations completed before 1 January 2019 (total €83.6 million as of 31 December 2021), whereby the pre-tax discount rates applied in the impairment testing of goodwill ranged from approximately 10.1 to 14.8% depending on the cash-generating unit
- Property, plant and equipment most recently almost constant at € 55.8 million (31 December 2021; approx. 9% of total assets), also including capitalized rights of use from leases
- Inventories - after temporary decline - increased to € 129.2 million (31 December 2021; approx. 21% of total assets), in particular due to the early procurement of materials as a result of expected delivery difficulties for semiconductors, mainly attributable to finished goods (€ 98.6 million) and raw materials and supplies (€ 27.7 million)
- Trade receivables most recently almost constant at € 83.0 million (31 December 2021; approx. 14% of total assets), days sales outstanding reduced to 50 days (2021) due to improved receivables management
- Cash and cash equivalents increased to € 109.0 million (31 December 2021; approx. 18% of total assets), in particular due to positive earnings development and the related increase in cashflow from operating activity¹⁹³
- Liquidity position increasingly characterized by long-term available funds (equity and non-current liabilities) (total € 406.0 million as of 31 December 2021; approx. 67% of total assets)
- Equity increased significantly to € 339.9 million (31 December 2021; approx. 57% of total assets) in financial year 2021
 - Subscribed capital (€ 51.5 million as of 31 December 2021) and capital reserve (€ 327.8 million as of 31 December 2021) continuously increased as a result of the exercise of stock options
 - Continuous repayment of the loss carryforward (€ 94.3 million as of 31 December 2021) through consolidated net income, especially as both the operating result and the tax result have improved significantly in the financial year 2021 and profits have not been distributed to shareholders by paying dividends in 2021 in continuation of the distribution policy
- Interest-bearing liabilities reduced to € 80.2 million (31 December 2021; approx. 13% of total assets), in particular due to a decrease in non-current liabilities to banks as a result of scheduled repayments and a reclassification to current liabilities
- Non-interest-bearing liabilities - after a temporary decline - increased to € 163.5 million (31 December 2021; approx. 27% of total assets), in particular due to the advance procurement of materials and thus corresponding to the development of inventories

¹⁹² According to the findings of the Valuation Expert, which we share, no adjustments to the balance sheet were necessary.

¹⁹³ Improved in financial year 2021 to € +123.3 million. This is juxtaposed with net cash outflows for investments of € 64.3 million and financing activity of € 14.8 million.

bdb) Earnings position

The Valuation Expert prefaces its analysis of the earnings position with the consolidated income statement¹⁹⁴ - partially summarized in the presentation - in tables. The presentation includes the adjusted figures for the historical period under review (financial years 2019 to 2021) and the estimated income statement for the detailed forecast phase (financial years 2022 to 2026).

The Valuation Expert also presents a table of the adjustments made in a reconciliation statement and explains them in writing. Finally, the Expert comments on the adjusted earnings situation on this basis.

In order to improve the comparability of the plan periods with the historical period under consideration and to make plan overruns or shortfalls at least partially explainable by special states of affairs that cannot be planned, it is customary in valuation practice to analyze the results of the past with regard to states of affairs of a non-recurring or non-recurring nature as well as extraordinary items or items relating to other periods.

In addition, it can be expedient to make so-called “pro forma adjustments” to take account of the fact that the valuation object has changed as a result of acquisitions or disposals of enterprises or business areas. Pro forma adjustments are also made on a regular basis if comparability is impaired by the change of the financial year. It may also be appropriate to make pro forma adjustments if the accounting policies have changed in the past period under review and/or for the planning period.

The Valuation Expert has made adjustments to the first category. In so doing, it relied on the information provided in the audited consolidated management reports and supplementary information and documentation provided by the Company. The adjustments explained in detail in the Expert Opinion relate exclusively to one-time effects from restructuring. The Valuation Expert reclassifies these from the respective items of the operating result to the extraordinary result.

During our audit, we were able to verify the adjustments made without any objections. In valuation practice, adjustments are often also made for expenses and income relating to other periods.¹⁹⁵ The Valuation Expert did not make such adjustments as it did not consider them to be material. We consider the statements to be appropriate.

Adjustments in the second category (pro forma adjustments) were also not necessary in the opinion of the Valuation Expert. We have also not identified any matters in our audit that would have required us to make pro forma adjustments.

The Valuation Expert is transferring the operating result before adjustments to a result after adjustments. The adjustments have had the effect of increasing operating profit in all years.¹⁹⁶ A significant increase in the EBIT margin will result in particular for financial year 2019.

¹⁹⁴ “Income Statement”

¹⁹⁵ E.g., the reversal of accruals and a corresponding correction of the overstated expenses of the respective previous year.

¹⁹⁶ -€1.4 million (2019), -€0.9 million (2020) and +€7.3 million (2021).

Audit result

The adjustments carried out ensure that the analysis of the planning of the operative results can be based on comparable developments from the Company's own past.

The comments of the Valuation Expert on the adjusted earnings position can be summarized as follows:

- Increase in revenue from € 556.8 million (2019) by an average of 4.1% p.a. to € 603.3 million (2021), with a significant increase in revenue - with varying development in the regions - especially in 2021 (+6.8%)
 - Significant increase in revenues generated in Germany by an average of 22.5% p.a. to € 154.1 million (2021) and in revenues generated in the other countries of the EMEA region by an average of 7.6% p.a. to € 227.3 million (2021), in particular due to the development in financial year 2021 (+23.5% overall), which is mainly attributable to increased demand from public authorities
 - Significant decline in revenue generated in the Americas region by an average of 11.9% p.a. to € 166.0 million (2021), mainly due to temporary restraint on the part of some major customers and a devaluation of the USD
 - Increase in revenue generated in the Asia-Pacific region by an average of 12.7% p.a. to €56.0 million (2021), with growth in this region subject to considerable fluctuations due to the predominance of project business there
 - Shift in the regions' share of revenues in favor of the EMEA region (63.2%) by 2021, while the share of the Americas region has decreased significantly (27.5%) and that of the Asia-Pacific region most recently (9.3%)
- Disproportionately low increase in production costs (2.6% p.a. on average) from €365.2 million (2019) to €384.8 million (2021), resulting in an improvement in gross profit margin from 34.4% (2019) to 36.2% (2021), to which the depreciation of the USD contributed, among other things, as a significant portion of the production costs is incurred in USD
- Decrease in selling, general and administrative expenses by an average of 3.4% p.a. from €105.1 million (2019) to €98.1 million (2021)
 - Sales and marketing expenses decreased from €70.9 million (2019) to €62.9 million, corresponding to a reduction in the expense ratio from 12.7 to 10.4%, mainly due to an absolute (2020) and relative (2021) reduction in personnel expenses and travel expenses
 - General and administrative expenses increased from €34.2 million (2019) to €35.1 million (2021) due to higher IT costs and personnel expenses, with the expense ratio slightly lower than in previous years at 5.8% (2021)
- Increase in net research and development expenses recognized in the income statement¹⁹⁷ from € 73.2 million (2019) by an average of 2.4% p.a. to € 76.7 million (2021)
 - Total R&D costs incurred increased from € 115.6 million (2019) to € 119.2 million (2021).
 - Capitalized R&D costs increased from €42.4 million (2019) to €42.5 million, corresponding to a slight decrease in the capitalization ratio from 36.7% (2019) to 35.6% (2021)
 - Capitalizations significantly higher in financial year 2019 and 2020 compared to amortization of development costs capitalized in the past recognized in production costs, and at almost the same level in 2021
- Increase in the balance of other operating income and expenses from € +4.3 million (2019) to € +5.2 million (2021), due among other things to higher reimbursements of customs duties and logistics costs and higher government grants
- EBIT and EBIT margin increased continuously to € 49.0 million and 8.1% (2021), respectively, which - in addition to the individual effects described above - is also attributable overall to cost optimization through verticalization activities as a key component of the business transformation strategy¹⁹⁸
- Total depreciation and amortization included in the functional costs presented above increased from €62.2 million (2019) to €70.4 million (2021), with depreciation and amortization of property, plant

¹⁹⁷ "R&D"

¹⁹⁸ Cf. Section D.V.1.ba).

and equipment remaining almost unchanged and amortization of intangible assets increasing significantly, mainly due to the increase in amortization of capitalized development costs

- EBITDA and EBITDA margin increase continuously to € 119.4 million or 19.8% (2021)
- Financial result improves from € -3.1 million (2019) to € +0.9 million (2021), with the result in financial year 2019 burdened by impairment losses on investments and the results in subsequent financial years benefiting from exchange rate gains
- Extraordinary result improved from € -5.7 million (2019) to € -3.7 million (2021) as a counterpart to the adjustments made to the EBIT items
- Income taxes significantly improved from € -1.9 million (net expense 2019) to € +13.0 million (net income 2021) due to utilization of existing loss carryforwards and capitalization of previously non-capitalizable loss carryforwards
- Increase in net profit from € 7.0 million (2019) to € 59.2 million (2021)

c) Key success factors of the business concept

The Valuation Expert summarizes its detailed analysis of the business model of ADVA including the market and competitive environment in a SWOT analysis.¹⁹⁹ This can be summarized as follows:

Strengths	Weaknesses
▪ Differentiated product offering of ADVA's three technology pillars aligned with growth markets in the telecommunications industry and digitalization (global megatrends "Cloud" and "Mobility") ▪ Development activities with a high degree of innovative strength and a focus on key technologies to maintain and further expand technology leadership in selected niche markets ▪ Global market leadership in optical transmission technology for data center interconnection for large enterprises and current expansion of market share ▪ International sales with the involvement of sales partners ▪ Broad customer base with established customer relationships ▪ ADVA more resilient to crises due to equity ratio (financial strength) and order backlog (ability to plan in the short to medium term)	▪ High intensity of competition in the relevant markets, with competitors having to gain advantages particularly through price, quality, availability and distribution ▪ Significant dependence on innovative strength, which requires correspondingly high investments in the adaptation of existing processes and products or the development of new ones ▪ Comparatively small size of ADVA, which results in lower value creation as well as limited product range and limits scaling effects ▪ Dependence on the availability of the required components and the prices for their purchase ▪ Dependence on key accounts and distribution partners ▪ Very low market share in the Asia-Pacific region due to focus on Europe (especially Germany) and the US
Opportunities	Threats
▪ Global megatrends 5G infrastructure and IoT as well as digital transformation and shift of data to the cloud combined with demand for more bandwidth, more flexible provision of telecommunications services, more precise network synchronization, and generally growing data volumes ▪ Extensive government programs to expand network infrastructure ▪ Realization of orders with large corporations through partnership with globally operating system integrators ▪ New sales potential in a consolidating market environment due to the pushback of Chinese equipment suppliers in the Western industrialized nations ▪ Temporary potential price increases for network equipment suppliers as a result of the currently limited availability of components, especially semiconductors ▪ Increasing demand from communications service providers for packet-based solutions in the access part of networks as a result of the introduction of 5G and the emergence of edge computing solutions	▪ Generally intense competition and rapid technological change in the market for innovative transmission technology for cloud and mobile networks ▪ Generally stronger bargaining power and reduction in competitive intensity on the customer side as a result of consolidation of network operators ▪ Reduction in the number of suppliers and technology partners on the customer side as a result of acquisitions and business combinations ▪ As a result of high cost increases due to the semiconductor crisis, price increases on the sales side may only be necessary at the cost of customer losses ▪ Currently disrupted supply chains and global shortages of components, especially semiconductors, due to COVID-19 pandemic ▪ Revenue recognition threatened in view of component orders placed on the basis of expected or actual customer orders due to component supply bottlenecks

As can be seen from the above list, the strengths and weaknesses as well as opportunities and risks of ADVA in the markets relevant to it are balanced overall.

¹⁹⁹ Strengths, weaknesses, opportunities and threats; a strategic planning tool developed by Harvard Business School

d) Structure and delimitation of the Valuation Object

ADVA SE, including its subsidiaries, is considered the Valuation Object.

The valuation of corporate groups can be carried out according to various methods, which, if properly applied, must lead to identical results.²⁰⁰ The selection of one of these methods depends on the structure of the estimates on which it is based, the control purposes pursued with it and the question of whether it makes sense or is necessary to display individual assets.

In the present case, business is planned and managed primarily at the Group level. In accordance with the structure of the estimates presented, the Valuation Expert therefore carried out a simultaneous valuation at the Group level and derived the earnings value from the Group plans presented. In addition, the determination of enterprise values for individual subsidiaries is not necessary in this specific valuation case.

For the reasons stated above, we consider the procedure described above to be expedient. We have ensured through consultations that the subsidiaries have been fully included in the calculation of the enterprise value of ADVA SE.

In summary, we consider the procedure used by the Valuation Expert to structure and demarcate the Valuation Object to be appropriate.

2. Valuation date

In the terms of the "information delimitation function of the valuation date", the legal valuation date is the date of the general meeting at which ADVA SE shareholders are to adopt the relevant resolution, i.e. 30 November 2022. With regard to the adequate cash compensation, this results directly from the law, according to which the circumstances of the Company at the time of the resolution of its shareholders in general meeting must be taken into account.²⁰¹ It is also widely recognized that this legal valuation date also marks the determination of the adequate compensation, for which there is no corresponding provision in the law.²⁰²

The Valuation Expert chose 31 December 2021 as the technical valuation date in the terms of the "value delimitation function of the valuation date". The Valuation Expert thus takes account of the fact that the result for financial year 2022 achieved before 30 November 2022 - due to accounting and planning in annual periods - cannot on the one hand be accrued and determined during the year with sufficient reliability and, on the other hand, the outside shareholders of ADVA SE will not yet have been credited fictitiously at the time of the resolution of the shareholders in general meeting.

Within the framework of valuation, the Valuation Expert assumes for the sake of simplicity that the net results accrue evenly throughout the year. In line with standard valuation practice, the Expert allocates both reinvested income and distributions of the net results to the shareholders on a uniform basis at the end of each financial year.

²⁰⁰ Cf. Section D.III.1.

²⁰¹ § 305(3), Sentence 2 AktG.

²⁰² Cf. Hüttemann/Meyer in Fleischer/Hüttemann (Eds.), *Rechtshandbuch Unternehmensbewertung*, 2nd Edition, § 14, Marginal No. 33.

The value contributions from distributions (dividends) and reinvestments are discounted on the technical valuation date (31 December 2021) using the period-specific discount rates and accrued as of the legal valuation date (30 November 2022).

In summary, we consider the above-described procedure to be appropriate. It was also carried out correctly from a mathematical point of view.

Audit result

The Valuation Date (30 November 2022) conforms with § 305(3), Sentence 2 AktG.

3. Valuation method

The Valuation Expert determined the enterprise value of ADVA SE according to the earnings value approach set forth in IDW S 1 within a range. According to prevailing opinion in business administration theory and in the auditing profession, the value of future success and thus also the earnings value method as a possible procedure for its determination is the authoritative and recognized method for determining the value of enterprises in which the going concern value exceeds the liquidation value. The earnings value method is also recognized as common practice in legal rulings.

Due to the fact that the cash compensation is to be determined on a single-value basis and that this is regularly to be derived from the enterprise value, we have verified the enterprise value which corresponds to the cash compensation determined. In this respect, our comments relate primarily to the amount of the market risk premium, which results in an enterprise value corresponding to the determined cash compensation. The edge of the range for the enterprise value, which is based on the alternatively applied market risk premium after personal taxes, is in our opinion not suitable to determine the enterprise value of ADVA SE. However, we have used the value resulting on this basis for the purposes of our plausibility check of the enterprise value.

In addition to the range for the objectified enterprise value according to IDW S 1 determined as described above, the Valuation Expert, following the DVFA recommendations, also determined a range for the enterprise value before personal taxes²⁰³ as well as further ranges for the value of the equity on the basis of multipliers and in each case a value of the equity extrapolated on the basis of the stock exchange price as the lower limit of the cash compensation and from the price paid in the case of prior acquisitions.

In our opinion, these considerations are not suitable to determine the enterprise value of ADVA SE or the appropriate amounts of compensation and settlement to be derived therefrom in the terms of §§ 304 and 305 AktG and the legal rulings available on these provisions. Indirectly, we have them used them within the framework of an adequacy test to check the plausibility of the enterprise value resulting from an extrapolation of the determined cash compensation.²⁰⁴

The Valuation Expert did not compute the liquidation value of ADVA. The Expert justifies this approach by stating that the return on capital employed is always higher than the indebted cost of equity and thus

²⁰³ Or in the case of indirect typification of personal taxes.

²⁰⁴ Cf. Section D.V.7 on the plausibility of the enterprise value.

it can be assumed that the going concern is advantageous compared to liquidation. We have verified these considerations and also do not consider it necessary to derive the liquidation value.²⁰⁵

In accordance with prevailing opinion, the Valuation Expert has determined the enterprise value, from which the fixed cash compensation is derived, which we consider to be the sole decisive factor, as the objectified enterprise value, i.e. in accordance with the viewpoint of a typified shareholder. This typical shareholder is assumed to be a domestic natural person with unlimited tax liability who, due to his or her small shareholding, is unable to exert any financial or corporate influence.

In addition, the determination of an objective enterprise value is to be carried out in such a way that synergies that could only result from the conclusion of the Agreement ("real synergy effects") are not taken into account, while synergies that can also be realized without this measure ("virtual synergy effects") and are part of the business concept documented on the valuation date are to be taken into account.

ADVA and ADTRAN have jointly estimated the synergy potential from the merger. The calculation presented includes the synergies attributable to ADVA. The contracting parties estimate that a significant portion of the potential synergy effects attributable to ADVA will not be realizable prior to the conclusion of the Agreement, as there are strict limits to the control and coordination of activities in the de facto Group relationship. ADVA and ADTRAN have listed separately the synergy effects which, in their opinion, can be realized even without the conclusion of the Agreement, and have included the effects thereby attributable to ADVA as virtual synergies in the estimates. These effects are therefore included in the determination of the objectified value according to IDW S 1.

The Valuation Expert has additionally taken into account the concept of a "typical market purchaser" recommended by the DVFA. This differs from the concept of IDW S 1 in, among other things, a different treatment of synergies. A distinction is made here not between real and virtual synergies, but between synergy effects that are strictly specific to the purchaser and those that can be achieved by a typical market purchaser. These "market participant synergies" are included in the valuation before personal taxes in accordance with DVFA recommendations.

Audit result

We consider the procedure of using the earnings value method as described to be appropriate for determining the enterprise value of ADVA SE.

4. Derivation of net income to be capitalized

a) Structure of the estimates and planning process (including synergies)

In accordance with the principles of IDW S 1, the valuation of ADVA is based on the assumption that the enterprises of the ADVA Group will have an unlimited useful life. Since well-deliberated planning is not

²⁰⁵ Cf. Section D.V.6.d).

possible for an infinite period, a distinction must be made between the detailed forecast phase and the phase of the perpetual annuity.

The detailed forecast phase is determined by the planning submitted by the Company, which covers the years 2022 to 2026. The first year of the estimates (budget) has a higher level of detail than the four subsequent years.

The estimates of ADVA SE have been prepared in accordance with its external reporting in accordance with IFRS. They comprise an integrated estimated income statement, balance sheet and cash flow statement. The information on revenues summarized at the Group level can be broken down by technology pillar and region. In addition, the estimates presented contain further breakdowns for individual items, in particular for the derivation of corporate taxes.

The regular planning process in the ADVA Group takes place in the months from July to November. The process begins "top-down", with the Management Board defining the strategy and corporate goals and making them available to Controlling. On this basis, Controlling initially prepares a detailed "bottom up" plan for the individual components of revenues and costs, including employee numbers, at the level of the Group companies for the budget year. After consolidation into Group planning, this is reviewed "top down" by the Management Board and then discussed with those responsible for planning and modified if necessary.

Based on the budget, the estimates for the four subsequent years are developed "top down". Based on the estimated income statements, the corresponding estimated balance sheets and estimated cash flow statements are also prepared centrally. The final budget is regularly approved by the Management Board and Supervisory Board in November.

Due to the semiconductor crisis and the resulting macroeconomic and industry-specific changes, ADVA updated its estimates for the years 2022 to 2026 in the period from July to August 2022, going through the regular planning process. The updated estimates are based on the 2022 actual figures for January to June 2022. It was adopted by the Management and Supervisory Boards of ADVA SE on 21 September 2022.

The updated estimates include synergy effects attributable to ADVA from the cooperation with ADTRAN, which can be realized without concluding the CPLAA.

The synergies are based on estimates by a working group set up by ADTRAN and ADVA in the summer of 2021 to identify and quantify potential synergies. At that time, it was expected that synergy effects of approximately \$52 million could be leveraged for both parties to the business combination within two years of the CPLAA becoming effective. These synergies were expected in particular on the cost side through an increase in supply chain efficiency and consolidation of operating models. The working group also identified revenue synergies from cross-selling without quantifying them.

Taking into account the assumption that significant parts of these synergies can only be realized after the conclusion of the Agreement and to that extent are disregarded as real synergies in the determination of

the objectified enterprise value of ADVA SE, the updated calculations of the working group result in the following virtual synergies on the part of ADVA:

- Revenue synergies through cross-selling in the amount of € 5.0 million (2023), € 6.0 million (2024) and € 7.0 million (2025) with gross profit in the amount of € 2.5 million (2023), € 3.0 million (2024) and € 3.5 million (as of 2025).
- Cost synergies through savings in manufacturing costs due to greater negotiating power in the amount of € 0.1 million (2022), € 1.2 million (2023), € 2.5 million (2024) and € 2.6 million (from 2025)

The revenue synergies recognized take into account that the sales units of ADVA and ADTRAN can generate additional sales opportunities through cooperation. Before the Agreement is concluded, business secrets may not be exchanged and data protection must also be observed. According to the contracting parties, cost synergies can only be achieved through measures in the area of purchasing prior to the conclusion of the Agreement. According to their assessment, the remaining synergy potentials can only be realized after the conclusion of the Agreement. Insofar, according to the definition of IDW S 1, these are “real” synergies which are generally not to be taken into account in the determination of an objectified enterprise value.

We can understand the assessment that for legal reasons it is necessary to first wait for the intended conclusion of the CPLAA before taking measures to leverage further synergies, in particular further cost synergies.

Finally, there are strict limits to the control and coordination of activities in the de facto group relationship. Pursuant to § 76(1) AktG, the Management Board of ADVA SE is still obliged to manage the Company under its own responsibility. Legal transactions with companies of the ADTRAN Holdings Group which are not at the same time also companies of the ADVA Group, which are undertaken at the instigation or in the interest of ADTRAN Holdings, or measures which are taken or omitted at the instigation or in the interest of ADTRAN Holdings, are not permissible pursuant to § 311(1) AktG if they are disadvantageous for ADVA SE, unless the resulting disadvantages are quantifiable and are compensated to ADVA SE by ADTRAN Holdings. These legal transactions and measures are to be reported pursuant to § 312 AktG. In doing so, it is necessary to make an assessment for each of these legal transactions or measures as to whether the conclusion of the legal transaction or the taking of the measure is adverse for ADVA SE and whether any disadvantages have been compensated.

Such a case-by-case review can require extensive analysis and involve board resources heavily, without the review leading to an absolutely legally sound result in every case. This applies in particular to the exchange of know-how and business information. In such cases, it is difficult, if not often impossible, in practice to quantify and compensate for any disadvantages or corresponding advantages of the dependent company. As a result, such measures are not legally possible in the de facto Group relationship or can only be carried out with considerable auditing and documentation effort or should not be carried out at all. Therefore, it seems understandable to us that the Management Board of ADVA SE takes the position that the close exchange of information required to leverage further synergies is not possible for legal reasons prior to the conclusion of the intended CPLAA.

In the course of our audit, we verified the analyses underlying the determination of the synergies relevant for the valuation. We believe it is understandable that further virtual synergy effects cannot be achieved in light of the legal restrictions.

In relation to the question of how currencies flow into the estimates, it must first be noted that the estimates in the first plan year 2022 include the exchange rate gains and losses actually realized in the first half of the year. In the subsequent period, planning is based on constant exchange rates, i.e. no further exchange rate gains and losses are expected or future exchange rate gains and losses will cancel each other out. The constant exchange rates basically arrives from the current cut-off date exchange rates for July 2022. The development trends have only been taken into account for the USD, with an exchange rate of 1.06 USD/EUR being set. We deem the assumptions on the amount of this exchange rate to be appropriate. Compared to the current exchange rate of the USD to the EUR, these assumptions are not disadvantageous for the outside shareholders of ADVA.

In view of the systematic forecasting process described, we consider the estimates presented by the Company to be fundamentally suitable for the purposes of enterprise valuation.

We consider the update of the estimates to be appropriate in order to adequately take into account the effects of the semiconductor crisis on ADVA's business activities and the virtual synergies from the cooperation with ADTRAN.

b) Analysis of forecast accuracy

The Valuation Expert reviewed the forecast accuracy on the basis of a comparison of the revenue and results (EBITDA and EBIT) of the ADVA Group actually achieved or extrapolated in financial years 2019 to 2021 with the respective estimated figures (plan).

In view of the regularly significantly lower planning reliability of subsequent planning years, the analysis is limited to planning for the first planning year (budget year).

We consider the basic procedure of how the Valuation Expert analyzed the planning accuracy to be appropriate. The Expert's extensive explanations of the deviations of estimates and actual figures as well as the findings of this analysis can be summarized as follows:

- Revenue largely in line with forecasts
- Forecast results for financial year 2019 are missing.
 - Product costs have increased disproportionately due to appreciation of the USD and higher material costs as a result of competitive pressure
 - Unplanned M&A and restructuring expenses
 - Countereffect from reversal of provisions and higher capitalization rate of development costs
 - Higher interest expense following change in accounting for leases
- Earnings forecasts for financial year 2020 significantly exceeded
 - Lower costs due to devaluation of the USD
 - Lower amortization of capitalized development projects and travel and project costs as a result of the COVID 19 pandemic
- Earnings forecasts for financial year 2021 significantly exceeded

- Production costs increased below plan due to focus on higher margin projects in services, partly offset by appreciation of USD
- Lower travel and project costs as a result of the COVID 19 pandemic
- Reversal of provisions
- Higher R&D subsidies
- Use of tax loss carryforwards
- Forecasts met or even exceeded in the majority of cases in the past
- Deviations from plan mainly due to unforeseeable or one-off effects such as the COVID 19 pandemic, restructuring or exchange rate effects
- Also for financial year 2022, no indications that current budget targets cannot still be achieved
- ADVA's estimates are generally a suitable starting point for an enterprise valuation

We have been able to follow the Valuation Expert's analyses without any objections.

Consequently, the analysis of compliance with the forecasts, including the findings of our analysis of the forecasting process, has also shown, in our opinion, that ADVA's estimates are suitable for purposes of the enterprise valuation.

Audit result

The estimates presented by ADVA SE can be used to determine ADVA's enterprise value.

The Valuation Expert has basically based its valuation on the estimates submitted unchanged.

For reasons related to the valuation system, the Valuation Expert has made the following adjustments to the submitted forecasts in a comprehensible manner:

- Reclassification of restructuring and transaction-related expenses in 2022
- Adjustment of the balance sheet due to the assumption of an annual distribution of liquidity in excess of operating requirements (reduction of the planned amounts for cash and cash equivalents and retained earnings by the respective distribution)

c) Analysis of the estimates

ca) Overview

Compared to the (adjusted) figures for the historical period under review, the Company's modified²⁰⁶ estimated income statement - supplemented by selected key figures - is as follows overall:

ADVA Income statement Millions of €	Actual (adjusted)			Estimates					CAGR	
	2019	2020	2021	2022	2023	2024	2025	2026	2019-21	2021-26
Revenue	556,8	565,0	603,3	710,5	790,0	835,0	875,0	915,0	4,1%	8,7%
Production costs	-365,2	-368,4	-384,8	-471,1	-521,5	-544,0	-565,5	-586,0	2,6%	8,8%
Gross profit	191,7	196,5	218,6	239,4	268,5	291,0	309,5	329,0	6,8%	8,5%
Selling, general and administrative expenses	-105,1	-96,4	-98,1	-110,6	-113,8	-118,6	-123,1	-127,8	-3,4%	5,4%
Research and development costs	-73,2	-74,5	-76,7	-89,2	-93,3	-98,5	-104,0	-109,8	2,4%	7,4%
Other operating income	4,8	3,8	5,9	5,0	3,6	3,6	3,6	3,6	11,4%	-9,6%
Other operating expenses	-0,5	-1,2	-0,7	0,0	0,0	0,0	0,0	0,0	14,3%	-100,0%
EBIT	17,7	28,2	49,0	44,5	65,0	77,4	86,0	95,0	66,5%	14,2%
Depreciation (over all functional costs)	62,2	65,1	70,4	69,7	77,5	81,3	85,3	88,3	6,4%	4,6%
EBITDA	79,8	93,3	119,4	114,3	142,5	158,8	171,3	183,3	22,3%	9,0%
Financial result	-3,1	-2,7	0,9	2,4	-0,9	-0,6	-0,6	-0,6	n.a.	n.a.
Result from ordinary operations	14,6	25,5	49,9	47,0	64,1	76,8	85,4	94,4	85,0%	13,6%
Extraordinary result	-5,7	-0,7	-3,7	-15,5	0,0	0,0	0,0	0,0	n.a.	n.a.
Earnings before tax	8,9	24,8	46,2	31,4	64,1	76,8	85,4	94,4	127,6%	15,3%
Taxes on income	-1,9	-4,5	13,0	0,9	-16,7	-20,6	-23,0	-25,6	n.a.	n.a.
Net Income	7,0	20,3	59,2	32,4	47,4	56,2	62,3	68,7	189,9%	3,0%
as a % of revenue										
Production costs	65,6%	65,2%	63,8%	66,3%	66,0%	65,2%	64,6%	64,0%		
Gross profit	34,4%	34,8%	36,2%	33,7%	34,0%	34,8%	35,4%	36,0%		
Selling, general and administrative expenses	18,9%	17,1%	16,3%	15,6%	14,4%	14,2%	14,1%	14,0%		
Research and development costs	13,1%	13,2%	12,7%	12,6%	11,8%	11,8%	11,9%	12,0%		
Other operating income	0,9%	0,7%	1,0%	0,7%	0,5%	0,4%	0,4%	0,4%		
Other operating expenses	0,1%	0,2%	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%		
EBIT	3,2%	5,0%	8,1%	6,3%	8,2%	9,3%	9,8%	10,4%		
Depreciation, amortisation and other write-offs	11,2%	11,5%	11,7%	9,8%	9,8%	9,7%	9,7%	9,7%		
EBITDA	14,3%	16,5%	19,8%	16,1%	18,0%	19,0%	19,6%	20,0%		
Effective tax rate	21,1%	18,2%	-28,1%	-3,0%	26,0%	26,8%	27,0%	27,2%		

Sources: Company information, information from the Valuation Expert, own analyses

cb) Revenue

In the historical period under review, ADVA has succeeded in increasing its revenues despite the challenges posed by the COVID 19 pandemic, global supply bottlenecks and material shortages in the semiconductor sector. This applies in particular to financial year 2021, in which ADVA Group's revenues increased by 6.8%.

ADVA is benefiting from the current trends towards home offices and home schooling as well as video conferencing, the introduction of digital processes in all industry sectors and the trend towards multi-cloud solutions, which have resulted in significant investments in the expansion of data networks and will continue to do so in the future.

Growth is expected to accelerate significantly again in the planning period. For financial year 2022, ADVA expects to be able to achieve a 17.8% increase in revenues. Given that only 47% of the estimated revenue for financial year 2022 could be realized as of 30 June 2022, the revenue target for financial year 2022 appears ambitious, in the opinion of the Valuation Expert. The Company also expects to grow by 11.2% in financial year 2023. In subsequent plan years, growth rates decline to 4.6% (2026).

Revenue growth in financial years 2022 and 2023 is underpinned by the order backlog. This also includes projects that could not yet be realized due to delivery bottlenecks. In addition, ADVA has recently been able to push through more price increases with its customers. ADVA also sees a key growth driver in the fact that, as a Western network equipment supplier with a European-American corporate culture, it can

²⁰⁶ Reclassification of restructuring and transaction-related expenses in 2022.

gain market share as the U.S. and many countries in Europe, as well as in the Asia-Pacific region, seek to break away from their dependence on Chinese network operators.

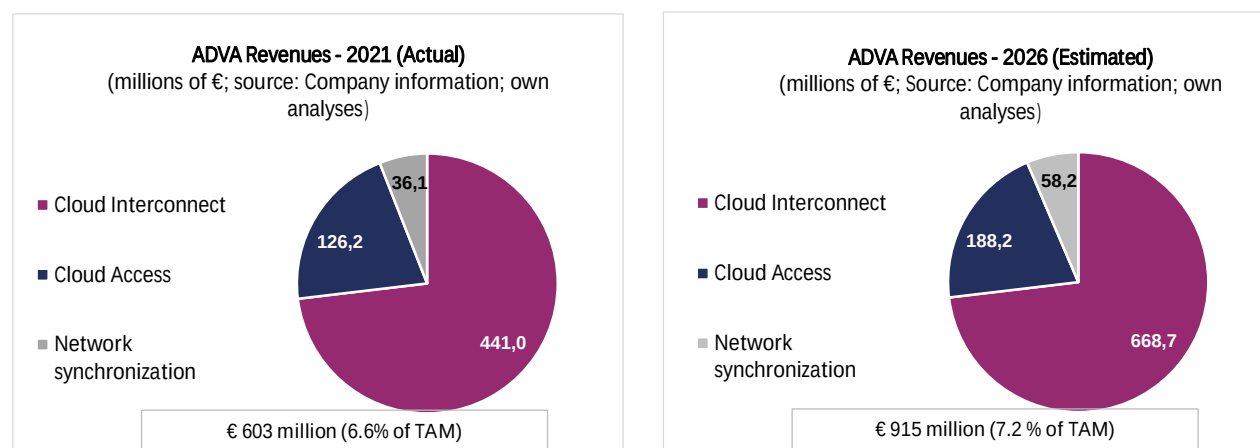
Revenue growth in the period to 2023 is therefore significantly higher than the expected market growth.²⁰⁷ For the further course of the planning period, ADVA expects the supply bottlenecks to ease. ADVA's revenue growth then aligns with expected market growth.

The growth expectations are also based on the following three pillars of the Business Transformation strategy, among others:

- Disproportionate growth in private and security networks outside the traditional network infrastructure as well as expansion into new industries outside the telecommunications sector
- Disproportionate growth in software and services
- Opening up of new markets and optimizing costs by integrating parts of the supply chain

As revenues from services are downstream of hardware sales and project implementation, ADVA expects revenues from services to increase by 2025 (CAGR 2021/25: 10.8%) significantly above market expectations (4.4%).

The Company's estimates includes a comparison of the revenues generated or planned by ADVA for each technology pillar with the realized or expected developments for the respective TAM. ADVA's revenue split and ADVA's total share of the TAM are then as follows:



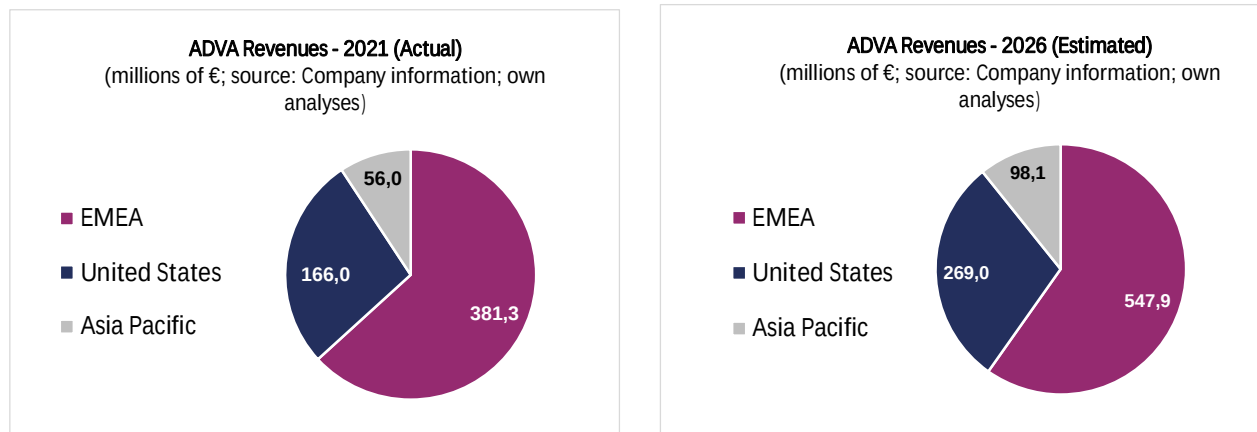
It can be seen from the presentation that the estimates do not include any significant shift in the revenue shares of the three technology pillars. Higher growth expectations for the cloud interconnect technology pillar in 2022 and 2023 are offset by higher growth expectations for the remaining two technology pillars in 2024 and 2025.

Growth expectations for the cloud interconnect technology pillar in 2022 and 2023 are also well above average in terms of its TAM. Subsequently, growth is expected to slow to market expectations. For the two remaining technology pillars, ADVA forecasts growth rates significantly above market expectations,

²⁰⁷ As measured by the Total Addressable Market (TAM).

especially in 2023 and 2024. Overall, ADVA is expected to be able to expand its market share from 6.6 (2021) to 7.2% (2026).

The Company's estimates also include a comparison of the revenues generated or planned by ADVA for each region with the realized or expected developments for the respective TAM in the period from 2021 to 2025. ADVA's revenue split is then as follows:



The expected market growth in the Asia-Pacific region is significantly above the expectations for the other two regions. In addition, ADVA aims to achieve above-average growth in the Asia-Pacific region every year. In the America region, ADVA expects to grow significantly faster than the market in 2022 and 2023. However, market expectations are also expected to be exceeded in the EMEA region, as planned. Overall, the other two regions are gaining weight. Nevertheless, the EMEA region will remain ADVA's largest sales market in 2026.

The comparison of ADVA's revenue growth with peer growth rates presented by the Valuation Expert shows that ADVA's revenue growth in 2019 and 2020 was above the median of peer growth rates. In 2021, however, the peers have been able to achieve significantly higher median growth than ADVA. In the first year of the forecast, ADVA's revenue growth is in the upper range established by the peers²⁰⁸ and thus significantly above the median of the growth rates estimated by the analysts of the peers. This is attributed by the Valuation Expert to the fact that ADVA plans to be able to benefit to a special degree from the efforts of many countries to break away from their dependence on Chinese network equipment suppliers. In 2023 and 2024, ADVA's projected revenue growth is in the lower end of the range spanned by the peers.

²⁰⁸ To eliminate outliers, the entire range is limited to the 25%/75% quantile.

cc) Operating result (EBIT)

Production costs/gross profit

In addition to the cost of materials, production costs primarily include freight, customs duties and packaging, personnel expenses and depreciation.

ADVA expects production costs to increase from €384.8 million, or a 63.8% share of revenues (2021), to €471.1 million, or 66.3% of revenues (2022), at the beginning of the planning period. This is mainly due to the increase in purchasing prices as a result of the semiconductor crisis, supply bottlenecks and the appreciation of the USD, which cannot be fully passed on to customers.

For the further course of the planning period, the Company expects a gradually decreasing production costs ratio. This is due in particular to the expected easing of the semiconductor crisis and the planned focus on high-margin business. In addition, ADVA expects to achieve cost savings through component reuse, supplier consolidation and scaling, technological product improvements and an increase in vertical integration.

Over the entire planning period, the production costs (CAGR 2021/26: 8.8%) are to increase largely proportional to revenues (CAGR 2021/26: 8.7%). On this basis, gross profit is expected to increase from € 218.6 million (2021) to € 329.0 million (2026) over the course of the planning period. As expected, the gross profit margin will initially fall from 36.2 (2021) to 33.7% (2022) and is then expected to gradually return to the favorable level of financial year 2021 by 2026 (36.0%).

Selling, general and administrative expenses

Selling, general and administrative expenses will increase by an average of 5.4% p.a. in the detailed forecast period, which is significantly lower than the increase in revenues. As a result, the trend of a declining expense ratio is continuing according to plan. In financial year 2021, functional costs in the amount of 16.3% of revenue will be incurred. In the final plan year (2026), the expense ratio is expected to have decreased to 14.0% due to various cost-cutting measures.

For example, the amount of business travel and physical events that were restricted during the COVID-19 pandemic should not be ramped up to the old levels even after the pandemic ends. Furthermore, savings are to be achieved through the efficient integration of IT applications into workflows. Otherwise, effects of scale are also evident here. Personnel costs account for around 70% of selling, general and administrative expenses over the entire planning period.

In 2022, selling, general and administrative expenses include transaction costs related to the merger with the ADTRAN Group in the amount of € 15.5 million. The Valuation Expert reports the costs as an extraordinary result.

Research and development costs

(Gross) research and development costs incurred are partially capitalized as development projects. The expense disclosed in the income statement represents the balance. The total amount of estimated (gross) research and development costs is as follows:

ADVA	Actual	Estimates					CAGR
Research and development costs	2021	2022	2023	2024	2025	2026	2021-26
Millions of €							
Research and development costs	76,1	88,6	92,7	97,9	103,3	109,1	7,5%
Capitalization	42,5	44,1	50,7	53,7	57,0	60,4	7,3%
Research and development costs	118,6	132,6	143,4	151,6	160,3	169,5	7,4%
as a % of revenue							
Research and development costs	19,7%	18,7%	18,1%	18,2%	18,3%	18,5%	

Sources: Company information, information from the Valuation Expert, own analyses

The share of gross research and development costs in revenue initially decreases in the detailed forecast period from 19.7 (2021) to 18.1% (2023) and then increases again to 18.5% (2026). This development is to be achieved through efficiency improvements. The net costs show a similar development. The expense ratio decreases from 12.7 (2021) to 12.0% (2026) over the entire period under review.

The share of personnel costs in gross research and development costs increases slightly over the planning horizon from around 78 to around 81%.

Capitalized research and development costs largely correspond to the annual amortization of capitalized development projects.

The comparison of gross R&D costs as a percentage of revenues with the corresponding ratios of the peers, as presented by the Valuation Expert, shows that ADVA's R&D cost ratios are at the level of the peer group median in all three years of the historical analysis. As no analyst estimates are available for R&D costs, the comparison is limited to the past.

Other operating income and expenses

The estimates of other operating income take into account - in addition to a base rate for miscellaneous regularly occurring income amounting to 1.0 million - increased income from the provision of development services (€ 2.5 million) compared to financial year 2021. Income relating to other periods and non-recurring income are generally not estimated. However, the first planning year includes income relating to other periods from recoveries on receivables written off and the reversal of provisions.

Other operating expenses are not estimated.

Personnel costs

Under the cost of sales method, personnel expenses are not shown separately in the income statement. For further analysis, we have used the information on personnel costs and employees per functional area contained in the submitted estimates and determined further key figures as follows:

ADVA Personnel expenses by function Millions of €	Actual 2021	Estimates					CAGR 2021-26
	2021	2022	2023	2024	2025	2026	
Production costs	29,4	31,8	35,2	36,7	38,0	39,3	6,0%
Selling, general and administrative expenses	68,5	75,9	77,2	81,1	85,0	89,0	5,4%
Research and development costs	92,4	105,3	114,9	122,4	130,4	139,0	8,5%
Total	190,3	212,9	227,4	240,2	253,4	267,3	7,0%
Average number of employees							
Production	410	456	481	500	511	521	4,9%
Sales, administration and marketing	524	554	585	604	621	638	4,0%
Research and development	963	1.055	1.144	1.201	1.261	1.324	6,6%
Total	1.897	2.065	2.209	2.306	2.394	2.484	5,5%
Average costs per employee in thousands of €:							
Production	71,8	69,7	73,2	73,4	74,4	75,5	1,0%
Sales, administration and marketing	130,7	137,0	132,1	134,3	136,7	139,4	1,3%
Research and development	95,9	99,8	100,5	101,9	103,4	105,0	1,8%
Total	100,3	103,1	102,9	104,2	105,9	107,6	1,4%
Revenue per employee in thousands of € (total)	293,5	273,6	273,1	308,1	330,1	336,2	2,8%

Sources: Company information, information from the Valuation Expert, own analyses

Compared with revenues, which are expected to grow by an average of 8.7% p.a. in the period from 2021 to 2026, personnel costs will increase by an average of only 7.0% p.a. in this period. While personnel costs in the R&D function are expected to grow at almost the same rate as revenues, significant economies of scale can be realized in the other functional areas as planned.

This development results on the one hand from an increase in the average number of employees. As expected, lower staff additions are required in the administrative functions to handle the significant revenue growth. On the other hand, it can be seen that the assumptions for the development of salaries assume a moderate factor price increase (1.4% p.a.). In combination with the lower increase in the number of employees relative to revenue and moderate factor price development, average revenue per employee will rise by 2.8% p.a. in the period from 2021 to 2026.

EBIT

EBIT decreases from € 49.0 million (2021) to € 44.5 million (2022) in the first planning year as a result of increased manufacturing costs due to the semiconductor crisis, supply bottlenecks and other cost increases. From the second year of the plan, EBIT is expected to increase steadily to €95.0 million (2026) as a result of the developments described.

The EBIT margin will increase from 6.3 (2022) to 10.4% (2026) in the planning period. Compared to the comparative period under review, the EBIT margins in the detailed forecast phase from 2023 onwards are already higher than those achieved in the recent past. At 10.4%, the EBIT margin for plan year 2026 is significantly higher than the margin achieved in the already solid financial year 2021 (8.1%).

This development is due to the focus on high-margin projects as well as cost optimization and efficiency improvements through enterprise applications and systems. The synergies included in the estimates account for 0.7 percentage points of the improvement in EBIT margin.

A comparison with the peers²⁰⁹ shows that ADVA has already achieved an EBIT margin below the median of the peer margins in the historical period under review. Compared to analyst estimates, which are available in sufficient numbers until 2024, the EBIT margin achieved by ADVA as planned will continue to be below the median of the peer margins in the years until 2024.

The Valuation Expert attributes this primarily to the fact that the peers are on average more vertically integrated and offer technically more differentiated products and a broader product portfolio than ADVA. In addition, ADVA is dependent to a somewhat greater extent on large customers, who obtain price concessions from ADVA due to their negotiating power, and also tend to be price takers on the procurement side.

Depreciation and amortization/EBITDA

The sum of depreciation and amortization included in the functional costs is slightly below 10% of revenue for the entire planning period. In the past, depreciation and amortization amounted to more than 11% of revenue. Depreciation and amortization mainly relate to capitalized development projects.

EBITDA developed largely in line with EBIT. As a result of the cost increase in the first year of the plan, it falls from €119.4 million (2021) to €114.3 million (2022) and increases continuously in the further course of the plan to €183.3 million (2026). The EBITDA margin develops largely in parallel with this development from 19.8% (2021) to 16.1% (2022) to 20.0% (2026).

Based on the adjusted figures (see above), ADVA also has a yield disadvantage compared to its peers in terms of EBITDA margin. ADVA's (adjusted) EBITDA margin is always below the median of the peer group's range, both in the actual figures and in the estimates.

²⁰⁹ In order to make the figures for ADVA and the peers more comparable, the Valuation Expert has presented an adjusted figure for ADVA in addition to an unadjusted figure. The adjustment takes into account, on the one hand, pro forma adjustments (costs from share-based payment as well as transaction and restructuring costs) and, on the other hand, the effects resulting from the capitalization of development costs (income from capitalization as well as amortization of capitalized development costs), which are not observed at the peer group companies as they do not capitalize development costs. The peer figures are also adjusted for effects not incurred by ADVA (e.g., acquisition-related expenses and integration costs).

cd) Net Income

Financial result

The Valuation Expert has adopted the Company's estimated financial result without adjustments because, as planned, the excess liquidity the Expert uses for distributions as cash and cash equivalents not required for operations during the planning period does not earn interest.

In the first planning year (2022), the reported financial result includes interest expenses for liabilities to banks, lease liabilities and pension provisions, as well as exchange rate gains and losses and costs for factoring and exchange rate hedging.

The positive financial result in the first year of the plan is due to a positive balance of exchange rate gains and losses and gains and losses from forward exchange transactions amounting to € 4.3 million. No gains or losses from currency translation are planned for the remainder of the planning period. However, costs for exchange rate hedging continue to be incurred to a small extent.

Liabilities to banks will be repaid in full by 2023 as scheduled. From 2024 onwards, the financial result will therefore only include factoring costs, exchange rate hedging costs, and interest on lease liabilities and pension provisions. An amount of € 0.6 million p.a. is recognized for these items.

Extraordinary result

In financial year 2022, the Valuation Expert allocated expenses incurred in connection with the merger with the ADTRAN Group in the amount of € 15.5 million to the extraordinary result.

Corporate taxes

The Valuation Expert adopted the corporate tax planning prepared by the Company without any adjustments, as the Expert did not make any adjustment to the pre-tax result affecting profit or loss, considering the tax planning to be comprehensible.

ADVA has calculated corporate taxes in a simplified manner by allocating the pre-tax estimated results under IFRS to the three regions of Germany, the United States and the rest of the world and then charging an effective tax rate of approximately 29% (Germany), 25% (United States) and 21% (rest of the world). For significant differences between the proportionate pre-tax results and the respective tax bases, the Company has adjusted the tax expense accordingly. Deferred taxes on book value differences between assets and liabilities recognized in the tax balance sheet and the IFRS balance sheet were also taken into account.

In its calculation of tax expense, the Company has taken into account usable tax loss carryforwards at ADVA SE and subsidiaries in Israel, Switzerland and the U.S.A. totaling €237.3 million as of 31 December 2021.

As a result of income from the capitalization of tax loss carryforwards, the Company expects income from corporate taxes in the first planning year in the amount of € 0.9 million, corresponding to an effective tax rate of -3.0%. For Germany, Israel and Switzerland, the future tax savings from the use of the loss carryforwards in the estimates are thus settled. Only in the United States will loss carryforwards be capitalized and corresponding income be generated until 2035 due to the tax regulations there.

On this basis, effective tax rates are calculated for the remainder of the planning period, rising steadily from 26.0 (2023) to 27.2% (2026). The increase is mainly due to the fact that an increasing share of the pre-tax budgeted earnings is attributable to Germany, which has the highest effective tax rate of the three regions.

Net Income

Due to the increase in costs in the first year of the plan, net income for the year decreases to € 32.4 million (2021: € 59.2 million). In the following years, it will rise continuously to € 68.7 million (2026).

ce) Balance sheet

Compared to the figures for the historical period under review, the Company's modified²¹⁰ estimated balance sheet - supplemented by selected key figures -²¹¹ is as follows overall:

ADVA Balance sheet Millions of €	Actual			Estimates						CAGR	
	2019	2020	2021	2022	2023	2024	2025	2026	2019-21	2021-26	
Intangible assets	192,8	185,9	189,9	197,3	196,6	192,6	188,7	186,0	-0,7%	-0,4%	
Property, plant and equipment	64,6	56,6	55,8	58,7	58,9	59,1	59,3	59,6	-7,1%	1,3%	
Other non-current assets	3,4	2,6	4,8	5,3	5,3	5,3	5,3	5,3	18,6%	1,8%	
Fixed assets	260,8	245,2	250,5	261,3	260,8	257,0	253,3	250,8	-2,0%	0,0%	
Inventories	105,4	90,1	129,2	148,3	142,3	133,6	138,6	143,2	10,7%	2,1%	
Accounts receivable and other assets	96,2	83,9	83,0	115,8	119,0	125,8	131,5	137,1	-7,1%	10,6%	
Cash and cash equivalents	54,3	64,9	109,0	50,0	55,6	58,8	61,6	64,4	41,7%	-10,0%	
Other current assets	19,8	15,9	29,8	38,2	29,3	18,7	18,7	18,7	22,8%	-8,9%	
Current assets	275,6	254,8	351,0	352,4	346,2	336,9	350,3	363,4	12,9%	0,7%	
Total assets	536,4	500,0	601,5	613,6	607,0	593,9	603,6	614,2	5,9%	0,4%	
Shareholders' equity	255,8	263,2	339,9	357,3	386,4	367,3	360,7	365,6	15,3%	1,5%	
Provisions and accrued liabilities	15,8	16,0	17,9	31,1	31,1	31,1	31,1	31,1	6,5%	11,7%	
Interest-bearing liabilities	123,2	99,0	80,2	67,2	29,2	29,2	29,2	29,2	-19,3%	-18,3%	
Non-interest-bearing liabilities	141,6	121,8	163,5	158,1	160,2	166,2	182,5	188,2	7,4%	2,9%	
Total liabilities	536,4	500,0	601,5	613,6	607,0	593,9	603,6	614,2	5,9%	0,4%	
Indicators											
Days sales outstanding (in days)	63,6	58,2	50,5	51,1	54,2	53,5	53,7	53,6			
Liability ratio (in days)	68,3	58,2	60,4	66,2	60,6	58,5	58,6	58,5			
Cash and cash equivalents (as % of revenue)	9,7%	11,5%	18,1%	7,0%	7,0%	7,0%	7,0%	7,0%			
Interest-bearing debt/EBITDA	1,4	1,2	0,8	0,6	0,3	0,2	0,2	0,2			
Equity ratio (as % of total assets)	47,7%	52,6%	56,5%	58,2%	63,7%	61,8%	59,8%	59,5%			
Return on capital employed (ROCE)			14,2%	11,5%	16,9%	20,5%	23,4%	25,7%			

Sources: Company information, information from the Valuation Expert, own analyses

The development of the financial and liquidity position is summarized as follows:

- Largely stable conditions in the planning phase
- Fixed assets at the end of the planning phase at € 250.8 million (31 December 2026) almost unchanged compared to the preparation date (31 December 2021), as interim increases due to investments (CAPEX) are offset by depreciation and disposals over the planning period
- ADVA's CAPEX ratio (property, plant and equipment only) consistently at least at the upper end of the peer group range
- Inventories increased also as of 31 December 2022 as a result of restocking due to the semiconductor crisis, then normalized, resulting in a decrease in average inventory holding²¹²
- Increase in receivables and other assets largely in line with estimated revenue increase, minor increase in days sales outstanding to 54 days (2026)
- Cash and cash equivalents reduced to the liquidity required for operations for systemic valuation reasons²¹³
- Other current assets include deferred tax assets recognized for loss carryforwards that will be fully utilized by 2024.

²¹⁰ Adjustment due to the assumption of an annual distribution of liquidity in excess of the liquidity required for operations (reduction of the planned amounts for cash and cash equivalents and retained earnings by the respective distribution).

²¹¹ In our calculation, the annual key figures are based on the respective average of the balance sheet figures at the end of the respective financial year and the respective previous year: In this respect, they differ in part from the figures provided by the Valuation Expert.

²¹² We have forgone any quantification because the figure can in our view only be calculated approximately based on the available data.

²¹³ The Company currently holds liquidity in the amount of € 50.0 million to be necessary: We believe this is plausible based on the development of daily cash balances provided to us over the period from 1 January 2021 to 30 June 2022. In relation to the revenue planned for financial year 2022, this corresponds to a ratio of 7.0%. Liquidity in excess of 7.0% of revenue is used for distributions.

- Equity increases by retained earnings and increases from the issue of stock options, equity ratio to around 60% as of 31 December 2026
- Interest-bearing liabilities reduce in financial year 2022 by the scheduled repayment in full of liabilities to banks, thus interest-bearing debt repayable through EBITDA in just one financial year
- Non-interest-bearing liabilities increase to € 188.2 million (31 December 2026) due to the business-related increase in trade payables at the end of the planning phase; liabilities range slightly reduces to approx. 59 days (2026)

Benchmarking with peers shows that ADVA was only able to achieve a comparatively low return on capital employed²¹⁴ in 2019 and 2020, but already significantly outperformed the peer group median in 2021. Over the planning period, ADVA's ROCE increases to 24.2% (unadjusted) and 25.7% (adjusted),²¹⁵ resulting from both an increase in EBIT margin and capital turnover rate. Thus, ADVA's ROCE is approaching the upper edge of the range spanned by the peer group (historically).²¹⁶

cf) Overall assessment

The summary of the Valuation Expert on the result of its analysis of the submitted estimates can be condensed as follows:

- Overall revenue planning ambitious, but achievable
 - Realization of planned revenues dependent on expected timely resolution of semiconductor crisis and normalization of supply chains
 - Risk of prolonged problems
 - However, revenues partially secured due to high existing order backlogs.
- ADVA's EBIT margin below the median of the peer group range, but close to this level due to the focus on high-margin revenue contributions from software and services, expansion into industries outside the telecommunications sector and a verticalization of technologies
- Planning calculation ambitious overall, but plausible

In the course of our audit, we performed an independent plausibility check of the submitted estimates.²¹⁷ The results of our plausibility check are shown in detail in the sections above.²¹⁸ Summarizing these, we consider the estimates presented by ADVA to be comprehensible and plausible. We share the opinion of the Valuation Expert that the estimates are ambitious to a certain degree, but achievable.

Audit result

Based on the findings from the analysis of the planning process, the planning fidelity and the submitted estimates themselves, it can be stated that the estimates submitted by ADVA and modified for systemic valuation reasons are suitable to determine the objectified enterprise value of ADVA SE on their basis.

d) Convergence and continuation phase

The Valuation Expert correctly states that the Company is not yet in a steady state at the end of the detailed forecast period (2026).

²¹⁴ Return on capital employed, "ROCE"; product of EBIT margin and capital turnover rate or quotient of EBIT and invested capital.

²¹⁵ EBIT excluding capitalization and amortization of development expenses

²¹⁶ The analysts' estimates do not include the key figure invested capital, so comparative figures are only available for the past.

²¹⁷ Regarding the procedure, see Section D.IV.

²¹⁸ Section D.V.4.a) to Section D.V.4.c).

To derive the sustainable result (from 2031), the Expert therefore converted the estimates of the detailed forecast phase (2022 to 2026) into sustainable figures by interposing a technical convergence phase of four years (2027 to 2030). This sustainable result represents ADVA's future earnings power assuming an infinite going concern and without the implementation of expansion investments.

In a first step, the Valuation Expert converted ADVA's revenues to a sustainable expected revenue figure.

The growth in revenues in the last planning year (4.6%) is not in line with long-term expectations. Even in the high-growth areas of network synchronization and cloud access, growth prospects are limited in the long term by customer purchasing power growth and intensifying competition. In addition, the estimates take into account the fact that global network capacities are currently being expanded and will be expanded in the coming years. In the long term, however, saturation is to be expected.

Based on considerations of the long-term inflation trend and the possibilities of passing on rising purchasing costs to customers in the market for innovative transmission technology for cloud and mobile networks, the Valuation Expert estimates the sustainable rate of revenue growth at 1.5%. In the convergence phase, the Expert transferred the growth rate of the revenues of the last plan year (4.6%) to the expected sustainable revenue growth (1.5%) by linear reduction over four years. On this basis, the sustainable revenue volume is € 1,031.1 million.

In a second step, the Valuation Expert converted the sustainable revenue volume into a sustainable operating result by applying a sustainably achievable EBIT margin. Referring to the expansion of the high-margin software and services business as planned, the share of which was not to be increased further, the Expert used the EBIT margin forecast in the final year of the detailed forecast phase (10.4%) as a suitable estimate of a margin to be achieved in the long term.

Although this is at the lower end of the range defined by the peer group, it is significantly higher than the margins achieved by ADVA in the past. Compared to its peers, ADVA is somewhat more dependent on large customers, which can result in lower average sale prices and lower margins.

Taking the sustainable EBIT margin (10.4%) as a basis, the estimated sustainable revenue volume (€1,031.1 million) results in sustainable EBIT of € 107.2 million.

The Valuation Expert estimated the individual components of the operating result in the rough planning and continuation phase in a third step as follows:

- Gross profit margin: linear increase from 36.0% (2026) over three years to 36.6% (from 2029), as further cost savings are expected from the increase in procurement volumes
- Expense ratio of selling, general and administrative expenses: linear increase from 14.0% (2026) over three years to 14.6% (from 2029), resultant synchronizing the change in the ratios of the individual components of EBIT with the constant EBIT margin
- Research and development cost ratio: constant continuation of the ratio forecast in the last year of the detailed forecast phase (2026) (12.0%)
- Ratio of other operating income: constant continuation of the ratio forecast in the final year of the detailed forecast phase (2026) (0.4%)
- Depreciation rate: linear depreciation from 9.7% (2026) over three years to 9.0% (from 2029), as this is still higher than the CAPEX of the last plan year (taking into account the sustainable CAPEX rate of 9.4%, this results in sustainable growth in fixed assets of 1.5%)

- EBITDA margin: linear decrease from 20.0% (2026) over three years to 19.4% (from 2029), resulting from the constant EBIT margin (10.4%) and the depreciation ratio reduced to 9.0%

The Valuation Expert projects the other items of the income statement as follows:

- Financial result: Continued development with the respective interest rates of the last year of the detailed forecast phase (2026)
- Corporate taxes: Continued development with the effective tax rate of the last year of the detailed forecast phase (2026); in view of the limited duration of the further use of loss carryforwards of the American subsidiary, an increase of the effective tax rate would have been conceivable, which was waived by the Valuation Expert for reasons of materiality.

The Valuation Expert projects the balance sheet as follows:

- CAPEX ratio: constant continuation of the ratio forecast in the final year of the detailed forecast phase (2026) (9.4%), resulting in sustainable growth in fixed assets of 1.5% using the straight-line depreciation rate
- Inventories, trade receivables and trade payables: Extrapolated with the range indicators of the last planning year (2026)
- Cash and cash equivalents: Extrapolation of liquidity required for operations at 7.0% of revenue
- Other working capital items: Extrapolated depending on revenue growth
- Shareholders' equity: Increase by reinvested income
- Interest-bearing liabilities: Continued development at the growth rate (1.5%) from 2029 onwards

Based on the reconciliation of income statement and balance sheet performed by the Valuation Expert, sustainable EBIT and sustainable invested capital result in a sustainable ROCE of 25.2%, which is slightly below the ROCE determined for the last plan year (2026) (25.7%).

In light of the explanations received and our understanding of the business model, we consider the assumptions made by the Valuation Expert for reconciling the income statement and balance sheet of the final plan year (2026) via a convergence phase (2027 to 2030) to the sustainable level (2031) to be well founded and plausible. We were able to reproduce the associated calculations without any objections.

We would also like to point out that if the earnings level of the planning year 2026 is continued by applying the EBIT margin in the amount of 10.4%, it is implicitly assumed that there will be no future slumps in earnings due to crisis-related developments or that such developments will have to be offset by better results in other years of the rough planning and continuation phase in order to achieve an average EBIT margin in the amount of 10.4%.

Audit result

The Valuation Expert has derived the extrapolation of the estimates in the convergence and continuation phase in a plausible and comprehensible manner.

e) Net income after personal income taxes

According to IDW S 1, the determination of objectified enterprise values for the detailed forecast period is to be based on the distribution of those financial surpluses that are available after taking into account the business concept documented as of the valuation date and after legal restrictions.

For the perpetuity phase, it is generally assumed that the distribution behavior of the company being valued is equivalent to the distribution behavior of the alternative investment, unless special features of the industry, capital structure or legal framework need to be taken into account.

The Company has not undertaken any distribution planning. It did not make any distributions in the historical period under review. According to plan, significant holdings of cash and cash equivalents will therefore build up in view of the cash flows associated with the positive results, as it is not possible to use them to further repay liabilities to banks after they have been repaid in full in 2023, nor is any other use planned. Part of this liquidity is to be regarded as non-operating. The Valuation Expert has assumed in its model that the liquidity not required for operations will be distributed.

In addition, the Expert has assumed that a total of 40% of the results will be distributed. In this context, the Expert points to the observed distribution behavior of the peer companies.

In order to establish equivalence between the numerator and denominator of the valuation equation, the literature recommends using the same peer group that was used to derive the beta factor to determine the sustainable distribution behavior of the valuation object.

According to our findings, the distribution behavior of the peers varied greatly. A large number of the peer companies do not pay out any dividends at all. In some years, some companies paid out significantly more than the results they achieved. If the average figures for the last three years are taken as a basis, the distribution ratio is mathematically significantly higher than 40%. If a longer period is taken into account, the distribution ratio is arithmetically lower than 40%.

As the payout behavior of the peer companies was very inconsistent, we used additional calculations of average market payout ratios for German listed companies to check the plausibility of the payout ratio applied. The studies confirm average payout ratios of 40 to 60%. The distribution rate of 40% is at the lower end of this range and is not objectionable with regard to the audit objective of ensuring the appropriateness of the cash compensation.

The Valuation Expert has divided the distributions remaining - after the reinvestments necessary for financing - into actual distributions and any remaining notional distributions in accordance with the aforementioned distribution ratio.

The earnings components used to refinance net working capital and for capital expenditure and repayment of debt are therefore not available to the shareholders.

In contrast, the free earnings components in excess of the minimum operating cash flow are allocated to the shareholders as notional reinvestments. In terms of valuation, this is done by means of further reinvestments, which are notionally added to the value of the shareholders.

When Deducting the shareholders' personal taxes, the dividends are generally to be reduced by the nominal tax burden (26.375%). However, if distributions are made from the taxable contribution account, these can be received tax-free as a return of contributions.

The Company has a tax deposit account which amounts to € 303.4 million as of 31 December 2021. According to our calculations, which we have verified without objection, it is only possible to use parts of the tax deposit account for distributions of the profits forecast for the financial years 2022 and 2023, as in the other years a “distributable profit” in the terms of § 27(1), Sentence 3 KStG will arise and distributions will therefore be subject to (full) final withholding tax.

The return of taxable deposits in 2022 and 2023 will not result in an immediate charge to final withholding tax in 2022 or 2023. However, this will reduce the acquisition costs for tax purposes, so that a higher profit will be generated when the shares are sold, which will then be subject to the final withholding tax. Thus, the tax deposit account only results in a tax deferral effect and not in a tax saving.²¹⁹

For the deduction of personal taxes on reinvested earnings, the Valuation Expert followed the recommendation of the FAUB and applied an effective tax burden equal to half of the nominal tax rate (13.1875%). For the above-mentioned reason, it also applied half of the nominal tax rate as the effective tax burden for the return of taxable contributions.

An effective tax rate equal to half the nominal tax rate corresponds to very long holding periods.²²⁰ This is not objectionable from the perspective of outside shareholders.

In determining the amounts notionally allocated to shareholders via retention, the Valuation Expert also took into account - in addition to the taxation consequences at the shareholder level - that the growth in corporate earnings assumed from the final year of the convergence phase (2030) and in the perpetual annuity - with stable balance sheet ratios in the steady state - will be accompanied by corresponding growth in the balance sheet.

In order to finance sustainable operating growth, the Expert therefore correctly applied an additional retention and took into account the raising of additional financial liabilities in order to maintain the sustainable debt ratio. The partial amount of the retention from the resulting balance (€ 5.9 million) is not to be included in the value added from direct allocation. This approach has also been confirmed by courts.

In summary, we consider the approach chosen by PVT for the valuation of ADVA with regard to the distribution behavior and the related taxation to be appropriate and reasonable for the reasons set out above.

Audit result

The net income for ADVA's shareholders is appropriately derived from the integrated planning, taking into account personal taxes.

²¹⁹ Cf. Bertram, *WPg* 2017, pp. 150 ff.

²²⁰ Cf. Wagner/Saur/Willershausen, *WPg* 2008, pp. 731 ff.

5. Discount rate

a) Base interest rate

When determining the basic interest rate, it must be taken into account that the investment in the company to be valued must be compared with a maturity-equivalent risk-free alternative investment. Insofar as a company is valued with an unlimited term, the yield of a risk-free capital market investment, which is also not limited in time, would have to be used as the base interest rate on the valuation date.

Investments without risk do not exist. In view of their quasi-safe character, top-rated public-sector bonds regularly meet the requirement of being risk-free due to the issuers' inability to become insolvent. This applies in particular to German government bonds. Moreover, the limitation to domestic bonds is generally an appropriate typification, especially if the alternative investment of domestic investors is taken as a basis.²²¹

With the yields of listed German government bonds, a broad database exists for deriving base interest rates from market data. However, since government bonds are usually so-called "coupon bonds", which are characterized by an annually fixed finite cash flow, whereas cash flows from companies fluctuate and are not limited in time, such bond yields cannot be used directly for enterprise valuations. What is needed instead are maturity-specific interest rates for individual payments, so-called "zero-coupon bonds" or "zero bonds". While such zero bond yields can only be observed directly on the capital market in isolated cases, they can be derived mathematically from the observable coupon yields.²²²

However, German government bonds have a maximum term of 30 years to date. Nor are explicit forecasts available for the yield on German government bonds beyond a term of 30 years. Accordingly, an assumption must be made for risk-free returns beyond 30 years.²²³

In this light, IDW S 1 recommends deriving the base interest rate on the basis of current yield curves.²²⁴ The FAUB has substantiated this recommendation by means of the guidance published in IDW-FN on the determination of the base interest rate on the basis of market data using yield curves.²²⁵

Yield curves can be derived or estimated in various ways. According to the recommendations of the FAUB, for reasons of objectivity, uniform use should be made of the database of the German Bundesbank or of the methodologically comparable data of the European Central Bank, Frankfurt am Main.²²⁶

Since 1997, the yield curve has been estimated by the German Bundesbank on a daily basis using the so-called "Svensson method". This is a direct estimate of zero-coupon bond interest rates based on observed current yields on federal government bonds, federal notes and federal treasury bills with remaining maturities of up to 30 years. For the estimation of interest rates of zero-coupon bonds beyond 30 years, the FAUB is of the opinion that - in light of the residual maturities included in the exponential function developed by the German Bundesbank as well as due to general forecast uncertainties - the determined

²²¹ Cf. e.g. IDW, WPH Edition, *Bewertung und Transaktionsberatung*, loc. cit., Chapter A, Marginal No. 375.

²²² Cf. e.g. IDW, WPH Edition, *Bewertung und Transaktionsberatung*, loc. cit., Chapter A, Marginal No. 377.

²²³ Cf. e.g. IDW, WPH Edition, *Bewertung und Transaktionsberatung*, loc. cit., Chapter A, Marginal No. 377.

²²⁴ "IDW S 1", Marginal No. 117.

²²⁵ IDW-FN 2005, p. 555 f., IDW-FN 2008, p. 490 f. and IDW-FN 2013, pp. 363 ff.

²²⁶ "ECB"

interest rate of zero-coupon bonds with a residual maturity of 30 years can generally be used as a sustainable estimate.

If a yield curve is used, the income to be discounted must generally be discounted for each year at the respective maturity-equivalent interest rate. For reasons of practicability, a uniform base interest rate for the entire period is usually calculated from the yield curve. Depending on the length of the planning period and the assumed growth rate, a uniform interest rate equivalent to the present value is calculated from the yield curve for the subsequent perpetual annuity phase.

The derivation of the present value-equivalent basic interest rate was previously calculated on the basis of a payment series in which the specific inflows to the shareholders in the respective valuation case were taken into account, or, for the sake of simplicity, on the basis of a uniformly growing payment series. In the current capital market situation, this approach can lead to inconsistencies.

In this light, the FAUB decided at its meeting on 10 February 2022 to revise the information provided in its pronouncement "Questions and Answers: On the practical application of the principles for carrying out enterprise valuations according to IDW S 1 in the 2008 version (Q & A to IDW S 1 in the 2008 version)" for the determination of the base interest rate. The current version of this pronouncement indicates that a uniform base interest rate equivalent to present value can be derived mathematically from a uniform series of secure cash flows. Accordingly, it has also adjusted the example provided in the appendix to this pronouncement and now uses a uniform payment series.²²⁷

The FAUB further proposes that, in order to smooth short-term market fluctuations as well as possible estimation errors, in particular with regard to the long-term yields typically relevant for business valuations, the zero bond yields estimated as of the valuation date should not be used alone, but should be based on average values. This period-specific averaging is to be derived from the yields observed in the three months preceding the valuation date.²²⁸ In valuation practice, the base interest rate is regularly rounded up or down to quarter percentage points, as is recognized in legal rulings.²²⁹ In light of the ongoing low interest rate environment, the FAUB has since 2016 recommended rounding to tenths of a percentage point rather than to quarter of a percentage point when the base interest rate derived from the interest rate structure data of the German Bundesbank is less than 1.0%.²³⁰

On 19 September 2012, FAUB had adopted updated guidance on the consideration of the financial market crisis when determining the discount rate based on the CAPM/Tax-CAPM. In the context of these recommendations, it has also decided to continue to analyze the factors influencing the measurement of the discount rate on a regular basis in its meetings and to update the recommendations accordingly in the event of changes.²³¹

In light of the European Central Bank's continued expansionary monetary policy ("quantitative easing"), which represents a special European path and for which no end was foreseeable at the time, the FAUB discussed at its meeting on 22 October 2019, the extent to which it makes sense to continue with the

²²⁷ Cf. IDW Life 2022, pp. 321 ff.

²²⁸ Affirmative on averaging for many e.g. Higher Regional Court of Düsseldorf, decision of 6 June 2016, Case I-26 W 4/12 [AktE], AG 2017, pp. 487 ff.

²²⁹ Cf. e.g. Higher Regional Court of Saarbrücken, Decision of 11 June 2014, Case 1 W 18/13, ZIP 2014, pp. 1784 ff.

²³⁰ Cf. IDW Life 2016, p. 731 f.

²³¹ Cf. FAUB, IDW-FN 2012 p. 568.

fundamental approach of deriving the risk-free base interest rate on the basis of a yield curve derived from the zero-coupon yields of German government bonds. In particular, the issue of updating the curve from year 31 with the spot rate of year 30, as outlined above, had been discussed. In the end, the FAUB decided to stick to the previous approach for the time being, but to critically question it on an ongoing basis.²³²

In legal rulings, the determination of the base interest rate on the basis of the yield curve of the German Bundesbank is considered to be appropriate and in the interests of the parties concerned, as the use of the hypothetical zero bond interest rates takes account of the need for objectification.²³³

In the literature, there is some criticism of the FAUB's proposals to use average values and round the result in order to reduce complexity and smooth out short-term market fluctuations and possible estimation errors.

With regard to the rounding of the base interest rate, it should be noted that a base interest rate set with several decimal places feigns an accuracy that is not achievable in business valuations, given the uncertainties associated with forecasting future results and a market risk premium that is usually also rounded.

With regard to the estimation of the subsequent interest rate for the period beyond 30 years, it should be noted that, in light of the continuing low interest rate environment, there is increasing discussion in valuation practice about approaches to estimating a so-called "ultimate forward rate" and extrapolating the further course of the yield curve from the last spot rate obtained from current market data to the ultimate forward rate.²³⁴

The Valuation Expert followed the recommendations of the FAUB and determined and applied a uniform base interest rate before personal income taxes of 1.50% - rounded down to quarter percentage points - in the present case. This interest rate is based on an estimate of the future average interest rate level from interest rate structure data of the German Bundesbank for the three-month period from 7 July to 6 October 2022. From today's viewpoint as well, ²³⁵ a rounded basis interest rate before personal income taxes of 1.50% arises from the interest rate curve data.

We have been able to verify the calculations of the Valuation Expert for determining the established base interest rate without any objections. If a higher interest rate were to be applied to the subsequent interest rate than for the last year for which current market data are available, and if the FAUB's recommendation were not followed in this respect, the base interest rate would increase. This would result in a reduction in the earnings value compared to the approach taken by the Valuation Expert c.p.

The pre-tax base interest rate (1.50%) can be converted into a base interest rate after personal taxes in the amount of 1.10% by applying the final withholding tax on interest income (26.375% in total).

²³² See Online Report of Results of the 136th Session of the FAUB, 22 October 2019, <https://www.idw.de/idw/idw-aktuell/neue-kapitalkosten-empfehlungen-des-faub/120158>, last accessed 6 October 2022.

²³³ Cf. Higher Regional Court of Duesseldorf, Ruling of 12 November 2015, Case I-26 W 9/14, AG 2016, pp. 331 ff.

²³⁴ The European Insurance and Occupational Pensions Authority, Frankfurt am Main, most recently calculated the ultimate forward rate at 3.60% and determined the ultimate forward rate applicable for 2022 at 3.45%.

²³⁵ Interest rate curve for the period ending 20 October 2022.

Audit result

In summary, we consider the applied base interest rate after personal income taxes in the amount of 1.10% to be justified and appropriate.

b) Risk surcharge

ba) Detection of risk

From the investor's point of view, investing in a company entails higher risks than acquiring public-sector debt securities. In order to establish risk equivalence between the decision alternatives, the uncertainty of future financial surpluses can generally be included in the valuation as a deduction from the amount of the financial surpluses or as an addition to the discount rate.

The risk surcharge method, which is commonly used both nationally and internationally, has the advantage that it can be based on empirically observable behavior. Regardless of the form and characteristics a risk-benefit function theoretically assumes, the risk premium method can be used to depict a market-oriented approach to measuring risk premiums. The risk premium method complies with IDW S 1 and the usual procedure in valuation practice.

The risk premium is generally calculated on the basis of the shareholder's risk preference. However, with a large number of shareholders, it is not possible to ascertain their individual risk appetite. Therefore, it is common practice when determining objectified enterprise values to use capital market pricing models for the measurement of the risk premium and to derive the risk premium directly from the capital market. This assumption makes it possible to reflect the risk assessment of a large number of shareholders, which is reflected in the stock market price via supply and demand, in the valuation model.

Since the company to be valued differs in terms of its specific risk structure from the other companies for which returns can be observed on the market and risk premiums derived from them, appropriate adjustments must be made to the risk premium. In this context, the company-specific risk surcharge is intended to cover both the operating risk arising from the type of operating activity and the capital structure risk influenced by the level of debt.

For the determination of the discount rate in business valuations using capital market theoretical models, IDW S 1 explicitly refers to the CAPM or the Tax-CAPM, which supplements the standard CAPM with the effect of personal income taxes.

The risk premium is calculated according to the CAPM or the Tax-CAPM by multiplying the average market price for assuming risk on the capital market (market risk premium) and the company-specific risk (beta factor). Market risk is calculated as the difference between the return on a group of listed companies²³⁶ and the return on a quasi-risk-free capital market investment (base interest rate). Company-specific risk is measured using the beta factor, which is derived from the covariance of the fluctuation in the return of a security to the fluctuation in the market return. It thus describes the sensitivity of a security's return in relation to the development of the underlying market portfolio. If, in a particular case, the risk of the

²³⁶ Normally summarized in a stock exchange index.

company to be valued corresponds to the risk of the equity portfolio used, the return on the equity portfolio is the same as the discount rate.

The use of the CAPM to determine the risk premium in business valuations is not undisputed in literature and legal rulings. In legal rulings, the application of the CAPM is occasionally rejected with reference to the numerous fundamental reservations against the model. One of the reasons given for this is that the capital market, due to its imperfections, does not provide any reliable information on the future risk level of a company.

Despite all the criticism, the CAPM continues to be the preferred calculation model for determining the risk premium, both by the prevailing opinion in the business management literature and by valuation practice.²³⁷ This conclusion is also almost universally drawn in recent legal rulings.²³⁸

The Higher Regional Court of Frankfurt am Main further confirms that the CAPM is superior to the free estimation of the risk premium already due to its higher transparency and emphasizes that the CAPM is currently the most important model for determining risk-adjusted capital costs.²³⁹ The Higher Regional Court of Düsseldorf had previously described the CAPM as "state of the art" and also referred in particular to its objectivity and verifiability.²⁴⁰

Audit result

For the above reasons, we also consider it appropriate in the specific valuation case to determine the risk premium using the CAPM or Tax-CAPM.

²³⁷ Cf. Wagner/Jonas/Ballwieser/Tschöpel, *WPg* 2004, pp. 889 ff.

²³⁸ Cf. e.g. Higher Regional Court of Düsseldorf, Decision of 30 April 2018, Case 26 W 4/16 [AktE], source: https://www.jus-tiz.nrw.de/nrwe/olgs/duesseldorf/j2018/26_W_4_16_AktE_Beschluss_20180430.html, last accessed on: 6 October 2022; Higher Regional Court of Frankfurt am Main, Decision of 5 February 2016, Case 21 W 69/14, AG 2016, pp. 588 ff.; Higher Regional Court of Düsseldorf, Decision of 12 November 2015, Case I-26 W 9/14, *loc. cit.*; Higher Regional Court of Karlsruhe, Decisions of 23 July 2015, Case 12a W 4/15, AG 2016, pp. 220 ff.; Higher Regional Court of Düsseldorf, Decision of 25 May 2016, Case I-26 W 2/15 [AktE], *BeckRS* 2016, 21367, Marginal No. 58.

²³⁹ Cf. Higher Regional Court of Frankfurt, Decision of 2 May 2011, Case 21 W 3/11, <https://www.lareda.hessenrecht.hessen.de/bshe/document/LARE190015625>, last accessed 6 October 2022.

²⁴⁰ Cf. Higher Regional Court of Düsseldorf, Decision of 27 May 2009, Case I-26 W 5/07 (AktE), *WM* 2009, pp. 2220 ff.

bb) Market risk premium

The market risk premium can be determined directly on a forward-looking basis or on the basis of historical capital market analyses. Even though the immediate forward-looking calculation²⁴¹ has the conceptual advantage of being based on expected payments and current prices, it has not yet become widely accepted in practice.²⁴²

In valuation practice, until 2012 the market risk premium was derived solely, or at least significantly primarily on the basis of observations of historical market data. In economic literature and jurisprudence, there has been controversy for years as to which of the numerous available capital market studies on returns observed in the past on risky securities and their comparison with (quasi) risk-free capital market investments²⁴³ are suitable for estimating a market risk premium to be expected in the future. This is followed by the question - also controversially discussed - of how to adapt the findings obtained from observation over a period of time in the past to current conditions.

The main methodological issues in dispute are as follows:

- Composition of the market portfolio of risky securities: Selection of a reference index, in particular the question whether it should reflect national or global conditions
- Measurement of the comparative return on (quasi-)risk-free capital market investments
- Observation period: Timeliness and statistical significance regarding the start and end time as well as length of the observation period
- Condensation of the observed yield differences to a mean value: arithmetic or geometric averaging, alternative procedures or combinations of different procedures
- Influence of personal taxes of shareholders: Reconciliation of observed pre-tax returns to post-tax returns, including questions on the holding period of company shares
- Extrapolation of results observed for the past into the future: Assumption of constant market risk premiums over the long term or constant total returns over the long term, as well as adjustments to take account of expectations of future development trends or special capital market conditions

In our view, it is not to be expected that these issues will be so convincingly clarified in economics or valuation practice in the foreseeable future that all controversies will be eliminated.

In this light and with a view to standardizing valuation practice, the FAUB has been issuing recommendations since December 2004 on the level of the market risk premium before and after personal taxes to be applied in business valuations. The recommendations of the FAUB on the amount of the market risk premium - as well as those of the IDW as a whole - are regularly observed by auditors in their valuation practice and by the companies audited by them in their financial reporting. Since the interests of majority shareholders in accounting issues tend to be different from those in issues of compensation for exiting minority shareholders, we believe that the FAUB's recommendations have already taken the different purposes into account and are fundamentally balanced.

The more recent legal rulings of the higher courts also consider it appropriate to follow the recommendations of the FAUB with reference to the fact that the FAUB is an expert body of auditors involved in

²⁴¹ E.g., by interviewing experts or using models to estimate implicit equity costs.

²⁴² Cf. Franken/Schulte in Fleischer/Hüttemann, *Rechtshandbuch Unternehmensbewertung*, 2nd edition 2019, § 6, Marginal No. 45 ff.

²⁴³ For a comprehensive overview of empirical data on the market risk premium in Germany and worldwide, see e.g. Wollny, *Der objektivierte Unternehmenswert*, 3rd edition, Herne 2018, pp. 557 ff.

business valuations. In particular, it was not evident that a deviation from these recommendations would lead to "more correct" enterprise values.²⁴⁴

The recommendations made by the FAUB over time²⁴⁵ on the level of the market risk premium (before and after personal taxes) can be summarized as follows:

Market risk premium Recommendation of FAUB	Date of Recommendation	Before personal taxes			After personal taxes		
		Bandwidth		Mean Value	Bandwidth		Mean Value
Half-income method	10.12.2004	4,00%	5,00%	4,50%	5,00%	6,00%	5,50%
Final withholding tax	29.11.2007	4,50%	5,50%	5,00%	4,00%	5,00%	4,50%
Low interest rate environment	19.09.2012	5,50%	7,00%	6,25%	5,00%	6,00%	5,50%
Zero interest rate environment	22.10.2019	6,00%	8,00%	7,00%	5,00%	6,50%	5,75%

Source: Own presentation

The FAUB's recommendation of 10 December 2004²⁴⁶ was based primarily on the observation of historical market data, but also included an adjustment for a discount to reflect expected long-term market changes.

In its recommendation of 29 November 2007,²⁴⁷ the FAUB estimated, on a model basis, the impact on the domestic market risk premium of the significant change in the taxation of capital income in Germany resulting from the introduction of the final withholding tax. Since no relevant historical capital market data could be provided prior to the introduction of the amendments, it has partially moved further away from relying solely on historical capital market data to measure the market risk premium.

In its recommendation of 19 September 2012,²⁴⁸ the FAUB stated that the capital market situation at the time did not correspond to the average situation observed in the past due to the extraordinarily low interest rates on long-term German government bonds in a historical comparison and even negative yields in the short maturity range. At the same time, the long-term trend developments that had been assumed up to that point in the forecast of the market risk premium would have been eclipsed by other influencing variables. The forecast of the market risk premium would have to take into account changed influencing parameters as a result of the financial market crisis, in particular a change in risk tolerance, so that a higher market risk premium could be justified compared to previous years.

According to the FAUB, market observations and capital market studies as well as ex-ante analyses based on forecasts by financial analysts and rating agencies on so-called "implicitly determined market risk premiums" suggested an orientation towards the upper end of the range of historically measured stock returns and the market risk premiums derived from them. This is also confirmed if the forecasts made on the basis of historical data are supplemented by considerations of the development of real stock returns.²⁴⁹

On 19 September 2012, the FAUB also decided to continue analyzing the factors influencing the measurement of the discount rate on a regular basis in its meetings and to update the recommendation

²⁴⁴ Cf. Higher Regional Court of Frankfurt, Decision of 26 January 2017, Case 21 W 75/15, juris para. 108, and in the result e.g. also Higher Regional Court of Düsseldorf, Decision of 6 April 2017, Case II ZB 10/15, ZIP 2017, pp. 1157 ff.

²⁴⁵ Neglecting the recommendations made in each case for a transitional phase.

²⁴⁶ Cf. IDW S 2005, p. 71.

²⁴⁷ Cf. IDW-FN 2007, pp. 443 ff.

²⁴⁸ Cf. FAUB Guidance on the Consideration of the Financial Market Crisis in the Determination of the Discount Rate in Business Valuation, IDW-FN 2012 p. 568.

²⁴⁹ The analyses and further considerations underlying the FAUB's recommendation are set forth in more detail in the following technical papers that immediately preceded or followed the recommendation: Zeidler/Tschöpel/Bertram, CFB 5/2012, pp. 70 ff; Wagner/Mackenstedt/Schieszl/Lenckner/Willershausen, WPG 2013, pp. 948 ff; Bertram/Castedello/Tschöpel, CF 2015, pp. 468 ff.

accordingly in the event of changes. Since then, it has reviewed at each meeting whether the situation on the capital markets, which had led to an increase in the range of its recommendation, has changed in the meantime.

In light of what it described as a "unique" situation in which the yield curve determined as described above²⁵⁰ was in negative territory for nearly the entire 30-year term at the time of the last published discussion of the cost-of-capital recommendations (22 October 2019), and the resulting uniform base interest rate was effectively zero percent for the first time and threatened to become negative in the foreseeable future, the FAUB in 2019 made a new adjustment to the recommendation on the level of the market risk premium.²⁵¹ The FAUB has not adjusted its recommendation to date. The recommendation of 22 October 2019 is still applicable as of the date of the cessation of the valuation and audit work.

Using the previously (until 22 October 2019) recommended range for the market risk premium before personal taxes (5.5 to 7.0%), the unchanged approach to deriving the base interest rate with a result of around zero percent, which is considered appropriate, would result in an overall expected return for the market of 5.5 to 7.0% finding its way into the valuation calculations. Using the parameters used in its pluralistic approach, the FAUB reviewed²⁵² whether this result was reasonable when current observations as of 22 October 2019 are included.

As a result, the FAUB noted that while the analyses indicated a slight decline in overall returns - particularly in the shorter period since 2012/13, this was out of all proportion to the decline in yields on German government bonds. Based on a cautious overall assessment of all analyses, the total return is nominally more likely to be in a range of 7 to 9%, which is also supported by studies of the German Bundesbank.

On this basis, it has raised its recommendation on the market risk premium before personal taxes to between 6.0 and 8.0%. In doing so, the FAUB had tended to orientate itself towards the lower end of observable total returns, thus taking into account the possibility that these could continue to fall slightly over time. A reconciliation to a world after personal taxes resulted in a corresponding slight adjustment of the recommendation for the market risk premium after personal taxes to a range of now 5.0 to 6.5%.

In the follow-up to the previously given recommendation (19 September 2012), it has been criticized several times that it was not sufficiently substantiated. In particular, the FAUB was criticized for not naming a specific source for the derivation of the market risk premium or for not having presented a clear, mathematically comprehensible procedure for its recommendation.²⁵³

In an ensuing publication,²⁵⁴ the authors, including the then and current FAUB Chair, countered this criticism by disclosing and explaining the analyses and calculations underlying the FAUB's recommendation on the market risk premium, as shown below.

The further explanations in the article by Castedello et al. were preceded by a detailed justification of why the capital market situation observed when the recommendation was derived was to be described

²⁵⁰ Cf. Section D.V.5.a).

²⁵¹ See Online Report of Results of the 136th Session of the FAUB, 22 October 2019, <https://www.idw.de/idw/idw-aktuell/neue-kapitalkosten-empfehlungen-des-faub/120158>, last accessed 6 October 2022.

²⁵² Historically measured stock returns, long-term real stock returns and implied cost of capital determined using ex-ante analyses.

²⁵³ Cf. e.g. Rowoldt/Pillen, CF 2015, pp. 115 ff.

²⁵⁴ Cf. Castedello/Jonas/Schieszl/Lenckner, WPG 2018, pp. 806 ff.

as special with regard to the assessment of the parameters of the discount rate for the purposes of enterprise valuation and why this continued to apply.

In the case of a risk-free base interest rate derived in a forward-looking manner from the respective current market conditions, the unusually low yield of fixed-interest German government securities in a historical comparison²⁵⁵ would, if the FAUB's quantitative recommendation on the market risk premium, which is primarily based on a long-term historical view,²⁵⁶ were to be adopted unchanged, mathematically lead to total return expectations that do not match the empirically observable conditions on the capital market.

Unlike the market risk premium, the total return is observable on the capital market. However, there is no investment instrument from which a direct estimate of the total return can be derived in the same way as for government bonds. Several conceptual approaches are available for the indirect estimation that is therefore required. Since each of these approaches has strengths and weaknesses and none is superior to the others, the FAUB follows a pluralistic approach to take the broadest possible perspective. Accordingly, however, no single valid source or algorithm can be presented.

The FAUB believes that the results from three different methodological considerations indicated that the overall rate of return has not declined to the extent that would be indicated by the decline in the base interest rate if the market risk premium were applied at an unchanged level. On the contrary, the overall view suggested that a higher market risk premium can be assumed at present compared to earlier average observations.

The authors of the aforementioned paper refer to the results of the following three methodological considerations as indicators of an elevated market risk premium:

- Ex-post analyses of historical real returns as well as market risk premiums calculated ex-post from average real stock returns
- Ex-ante analysis of the implicit cost of capital
- CAPM without risk-free borrowing

The ex-post analyses of historical real returns indicated that the so-called "historical approach", according to which the market risk premium is constant over time, could no longer explain the development of market returns from 2012 onward. This suggests that the so-called "total market return approach", according to which the total return is constant in the long term or moves within a corridor in the short to medium term, could provide a superior explanatory approach, at least for the particular capital market situation at the time. A regression of real market returns over investment periods of 30 years also found no evidence of a long-term decline in real returns. Consequently, it could be assumed that the market risk premium has risen for a given low base interest rate. Based on real stock returns over a longer investment period, an expected market risk premium of a solid 7% (geometric mean) or around 10% (arithmetic mean) could be derived retrogradely at the time using the total market return approach.

²⁵⁵ Explained by the combination of a sovereign debt crisis, a corresponding flight to the remaining safe assets, and an unprecedented relaxed monetary policy to deal with the sovereign debt crisis.

²⁵⁶ In which the current capital market situation is strongly underrepresented.

The ex-ante analysis has the advantage over the ex-post analysis that it - like the base interest rate - is based on current capital market data. Moreover, the approach of using this explanatory approach to determine a company's cost of equity as the denominator of the valuation equation is highly compatible with the determination and plausibility check of the numerator of the valuation equation. Accordingly, since October 2017, the FAUB's counterpart in Austria has recommended²⁵⁷ to use only the implied cost of capital method to determine the market risk premium. Regardless of the individual approaches chosen to determine the implicit cost of capital, the studies available at the time would conclude overall that implicit market risk premiums have risen sustainably since 2010.

A modification of the CAPM, in which the unrealistic assumption that market participants can borrow at the risk-free rate is abandoned, also indicated that the required stock return was likely to be between 0.5 and 1.0% higher at that time than the stock return that results from the traditional derivation of government bond yield plus average historical market risk premium.

Due to tax deferral effects from price gains, the conversion of the market risk premium before personal taxes (recommendation of a range from 6.0 to 8.0%), justified in detail above and obtained from observations, into a market risk premium after personal taxes depends on the assumptions regarding the holding period, the market payout ratio, the taxation of price gains in the detailed forecast period, and the ratio of the market return to the base interest rate.

Under the currently applicable flat tax system in Germany, the range of the FAUB's recommendation for the market risk premium before personal taxes can be used to derive a market risk premium after personal taxes that is 0.5 to 1.5 percentage points lower.

Ideally, a market risk premium before personal taxes rounded to quarter percentage points corresponds to a lower market risk premium after personal taxes, also rounded to quarter percentage points. Necessary rounding in the conversion of the quantity²⁵⁸ not specified by the Valuation Expert in the respective case is to be accepted, provided the conversion of one quantity into the other leads to plausible results.

The mean value of the FAUB's recommendation of 19 September 2012 on the range for the market risk premium after personal taxes (5.5%), which has been assessed in detail above on the basis of a current technical paper, has also largely been confirmed by legal rulings.²⁵⁹ For valuation cases where the valuation reports were completed after the most recent adjustment to the FAUB's recommendation on the level of the market risk premium (22 October 2019, mean value 5.75%), initial decisions have now also been issued that consider the use of the mean value to be appropriate.²⁶⁰

On the basis of the analyses presented in the Expert Opinion, the Valuation Expert considers the application of a market risk premium before personal taxes of at least 8.0% and a market risk premium after

²⁵⁷ Cf. Castedello/Jonas/Schieszl/Lenckner, WPg 2018, p. 820; KFS/BW 1 E7, Marginal No. 4.

²⁵⁸ Market risk premium before personal taxes or market risk premium after personal taxes.

²⁵⁹ See, e.g., for higher court legal rulings: Higher Regional Court of Düsseldorf, Decision of 30 April 2018, Case 26 W 4/16 [AktE], https://www.justiz.nrw.de/nrwe/olgs/duesseldorf/j2018/26_W_4_16_AktE_Beschluss_20180430.html, last accessed 6 October 2022; Higher Regional Court of Frankfurt am Main, Decision of 26 January 2017, Case 21 W 75/15, DB 2017, p. 713, and of 29 January 2016, Case 21 W 70/15, BeckRS 2016, 4317, Marginal No. 65; Higher Regional Court of Hamburg, Decision of 30 June 2016, Case 13 W 75/14, and of 18 September 2015, Case 13 W 44/14 (both not published).

²⁶⁰ Cf. e.g. LG Frankfurt am Main, Decision of 25 November 2021, Case 3-05 O 13/20, <https://www.rv.hessenrecht.hessen.de/bshe/document/LARE220002252>, last accessed on 6 October 2022.

personal taxes of 6.5% and thus the upper end of the range currently recommended by the FAUB for the market risk premium before and after personal taxes to be appropriate.

With reference to the legal rulings, in the context of its bandwidth consideration in the present valuation case, the Valuation Expert additionally made value determinations which take into account the mean value of the bandwidth currently recommended by the FAUB for the market risk premium before personal taxes (7.0%) and after personal taxes (5.75%).

We have subjected the FAUB's considerations presented and the Valuation Expert's comments to a critical appraisal. In this context, we have also acknowledged recent counter-opinions to the observations and conclusions cited by the FAUB.

In the legal rulings of the higher courts, the recognition of a market risk premium after personal taxes in the amount of 5.5% as the average value of the range recommended by the FAUB from September 2012 to October 2019 was not accepted by the Higher Regional Court of Munich for a long time - in contrast to the predominant legal rulings of the other higher regional courts.

In more recent decisions,²⁶¹ the Higher Regional Court of Munich has accepted a market risk premium after personal taxes in the amount of 5.5% for a valuation date in 2015 or 2016. The decisive factor for a departure from its previously established legal rulings was the fact that the base interest rate as of the valuation date had fallen to 1.00 and 1.25% (before personal taxes) in the cases decided. In its detailed reasoning, the deciding division takes up in detail the above-mentioned argumentation of the FAUB and also cites the article previously reproduced in detail, which explains the recommendation of the FAUB.²⁶²

In a technical paper on the total market return approach, the authors conclude that the data they collected on implied market returns for the period from 1 January to 31 December 2018 did not support the thesis of a constant market return, but rather suggested a stable market risk premium.²⁶³ Finally, with the gradual decline in the base interest rate, a decline in implied market yields in Germany could also be observed.

However, this result is consistent with the FAUB's conclusions to the extent that the FAUB found a slight decline at the time in overall returns as a result of its analyses. Moreover, in our view, the regression lines derived by the authors of this paper also clearly indicate that this decline in total expected returns is smaller than the decline in the yield on fixed-income German government securities, which was unusually and uniquely low at the time by historical standards and can be explained by a combination of the sovereign debt crisis, the corresponding flight to the remaining safe assets, and an unprecedented relaxed monetary policy to deal with the sovereign debt crisis.

Incidentally, in its legal rulings issued prior to 12 May 2020,²⁶⁴ the Higher Regional Court of Munich considered it necessary for the total market return approach to be empirically proven. For a derivation from historical observations, Wollny has in this respect attempted to draw conclusions on the further

²⁶¹ Cf. e.g. Higher Regional Court of Munich, Decision of 9 April 2021, Case 31 Wx 2/19, BeckRS 2021, 9687.

²⁶² Castedello/Jonas/Schieszl/Lenckner, *op. cit.*

²⁶³ Cf. Beumer/Jürgens, *BewertungsPraktiker* 2019, pp. 71 ff.

²⁶⁴ Cf. Decision of 12 May 2020, Case 31 Wx 361/18, <https://www.gesetze-bayern.de/Content/Document/Y-300-Z-BECKRS-B-2020-N-9359?hl=true>; last accessed 6 October 2022.

development of the market risk premium from an extrapolation of Stehle's data (for the survey period from 1955 to 2003), on which the IDW's first recommendation on the level of the market risk premium was based. As a result of his surveys, extending the observation period to 2013 increases the market risk premium before personal taxes by only 0.30 to 6.03%. On this basis, in his opinion, there was no need for an increase, which is why he was sticking to the previous market risk premium (after personal taxes) of 4.5% in practice.²⁶⁵

In our opinion, the following objections should be raised against Wollny's approach and conclusions:

- Conclusion of an unchanged market risk premium not provable with a short time period (2004 to 2013)
- Results for this period (7.47%), however, at least indicating an increase in the market risk premium relative to the previously identified long period from 1955 to 2003 (5.73%)
- Period generally not current and thus not including the significant further decline in the risk-free interest rate
- Conceptual weaknesses for use in enterprise valuation as a result of deriving the risk-free interest rate using the REXP, which, as a so-called "performance index" for 2004 to 2013, leads to distortions caused by price appreciation²⁶⁶

In our opinion, evidence that the more recent recommendations made by the FAUB lead to market risk premiums that are inappropriately high could not be presented with the objections presented. However, unequivocal evidence that the market risk premium recommendations made by the FAUB are appropriate is equally unlikely to be forthcoming at this time, as the relationships presented continue to be debated in the academic community.

In our view, therefore, particularly in the current market environment, which is characterized by increasing micro- and macroeconomic uncertainty and disruptive developments, limiting analyses to individual considerations or model approaches such as historical market risk premiums alone is not expedient. In our opinion, the pluralistic approach of the FAUB is, seen overall, much better suited to justify a balanced recommendation.

If one follows the recommendations of the FAUB, the question further arises whether one should use the range currently recommended for the market risk premium after personal taxes (5.0 to 6.5%). In the case of structural measures under stock corporation law, the middle of the recommended range after personal taxes is applied in almost all cases in valuation practice, as the application of a mean value is also generally regarded as appropriate by the courts.

If one considers the total market return approach outlined above to be applicable, the question arises as to whether the current increase in the base interest rate necessarily means that the Valuation Expert should use a rate below the middle of the range currently recommended by the FAUB, or whether the FAUB will even make a new recommendation in which the range is adjusted downward. Finally, the most recent recommendation, dated 22 October 2019, was made in a low interest rate environment after the base interest rate before personal taxes hovered around zero and threatened to turn negative.

²⁶⁵ Cf. Wollny, *Der objektivierte Unternehmenswert*, 3rd edition 2018, pp. 579 ff.

²⁶⁶ Cf. Popp, *WPG* 2019, pp. 1222 ff. The author also attests to conceptual weaknesses in the other two studies mentioned there for use in business valuations, especially in the derivation of the risk-free interest rate.

Over the remainder of 2019 and through the end of 2021, the base interest rate before personal taxes continued to hover around zero. The general increase in the interest rate level has had the effect that the base interest rate before personal taxes has increased continuously since spring 2022 and is currently 1.5%. In this respect, the circumstances are different than they had appeared in October 2019. Assuming a constant total return, this would have the effect, c.p., of lowering the market risk premium before personal taxes.

In fact, however, an increase in implied market returns has been observed since the onset of the COVID-19 pandemic and, in particular, since the beginning of the Ukraine crisis. The Valuation Expert currently puts this at around 11%. The result of a calculation of implied market returns depends, on the one hand, on whether analysts' estimates are based on current expectations. Second, the result also depends on the model used in each case and, in particular, the growth rates used for the years for which no analyst estimates are available. Ultimately, a reporting date view can also be distorted by market exaggerations.

However, it appears from all of the survey results we have that the implied market return in 2022 has risen above the magnitude observed near 22 October 2019, the date of the FAUB's most recent recommendation. In view of the current crisis situation,²⁶⁷ it can be assumed that risk aversion and thus the price of risk have increased.

Given current implied total returns, we do not believe that it is currently justifiable to apply a market risk premium before personal taxes of less than 7.0% (middle of the range recommended by the FAUB). The FAUB reviews at each meeting whether the situation in the capital markets has changed in such a way that an adjustment of the bandwidth recommendation might become necessary. This has not been done so far. Rather, the FAUB maintained its bandwidth recommendations even after the onset of the COVID 19 pandemic and the outbreak of the Ukraine crisis, as the Valuation Expert correctly points out.

Auditor Wagner also had the opportunity to exchange views on this topic with several members of the FAUB at the IDW's September 2022 workshop, including in the Business Valuation Working Group with its chair. The FAUB saw no need to adjust its recommendations on the level of the mark-to-market premium at this time. However, developments on the capital markets are constantly monitored and a monthly telephone exchange takes place on this topic.

In the present valuation case the fixed cash compensation corresponds to an enterprise value calculated on the basis of a market risk premium after personal taxes in the amount of 5.75%, which is in the middle of the range currently recommended by the FAUB. This corresponds to a distribution ratio of 40% - as in the present valuation case -, a market risk premium before personal taxes of 7.01% and thus, rounded, also the mean value of the range recommended by the FAUB for the market risk premium before personal taxes.

²⁶⁷ In addition to the ongoing COVID 19 pandemic and the Ukraine crisis, including their consequences such as the rise in commodity prices and the general inflation rate, as well as the disruption of supply chains, the political tensions between the major powers are also worthy of mention.

With reference to the views on the level of the market risk premium described in detail above, no objections are to be raised against the use of the mean value (5.75%) of the range recommended by the FAUB for the market risk premium after personal taxes (5.0 to 6.5%) in the present valuation case.

Audit result

For the reasons explained above, there are no objections raised to the recognition of a market risk premium after personal taxes in the amount of 5.75% - in the middle of the range recommended by the FAUB.

bc) Beta factor

bca) Methodological and practical application issues

The risk premium estimated for an overall market portfolio (market risk premium) must be adjusted with regard to the specific risk structure of the company being valued. The relationship between general market risk and individual, company- and industry-specific risk is expressed by the so-called "beta factor".

The beta factors derived from capital market data include both the operating risks and the financing risks of a valuation object. Common practice is to first determine an unlevered beta factor that reflects only the operational risks of a company. The impact of financing on the uncertainty of future financial surpluses is then taken into account via so-called "relevering".

The concrete determination of a beta factor raises a number of methodological and practical application questions. In valuation practice, standards have become established for some of these questions, with the remaining choices condensed to a few reasonable approaches, ideally to a preferred approach. Nevertheless, it is not possible to define a binding standard approach, as the degree of freedom remains large despite these standards.

Even if this interim result leaves room for discretion, we believe that this is to be welcomed. This gives the Valuation Expert the opportunity to vary the procedure for determining the beta factor at its own discretion and to adapt it to the specific valuation case, so that the equivalence principle is adequately taken into account. The existing degrees of freedom, on the other hand, must not be exercised unilaterally. Consequently, the effects of selecting individual parameters must be questioned or the application of different combinations calculated in order to obtain an overview of the range of conceivable results. In addition, it is advisable to describe the - ultimately chosen - approach in sufficient detail.

The main methodological or practical application issues and conceivable or common solutions can be summarized as follows:

- Fundamental, future-oriented or past-oriented derivation
- Reference index - national, supraregional or global as performance or price index
- Observation period five years, three years, two years or one year, combination of several annual slices
- Return interval monthly, weekly or daily
- Distortion-free share price formation, measured by the liquidity of the share
- Filtering based on statistical criteria such as coefficient of determination and t-test
- Forecast of future beta factors by updating historical raw beta factors or adjustment by flat-rate adjustment procedures or free expert adjustment
- Consideration of capital structure risk (unlevering/relevering) for autonomous or value-based financing policy (tax shield risk) and default-threatened or non-default-threatened receivables of debt capital providers (debt beta)
- Components and fair value of net financial liabilities upon unlevering/relevering
- Beta factor of the valuation object or a group of comparable companies ("peer group")
- Qualitative and quantitative criteria for selecting potential peer companies and condensing them into a peer group

In valuation practice, the derivation of beta factors based on historical capital market data dominates. This approach is also considered appropriate in the literature.²⁶⁸

Accordingly, the Valuation Expert has calculated the beta factors on the basis of past experience.

Since a comprehensive, perfect market portfolio consisting of all risky assets existing worldwide and weighted by their market values does not exist or cannot be constructed, valuation practice uses national or international stock indices as an approximation of the ideal market portfolio. It is not possible to make a general statement about the choice of the appropriate reference index.²⁶⁹ The index used should be a performance index.²⁷⁰

The Valuation Expert performed its analyses on the basis of market-wide local performance indices using the respective local currency. Alternatively, we have also performed calculations using the "MSCI World" index.

The most common observation periods and return intervals are five years/monthly, two years/weekly, and one year/daily.²⁷¹ With these combinations, a sufficient number of data points are collected to reach statistically significant conclusions. One objection to measuring returns on a daily basis, however, is that these measurements tend to have less favorable empirical properties and the beta factors that result from them fluctuate more than when they are measured at longer-term intervals.²⁷²

Accordingly, based on our observations, the five-year/monthly and two-year/weekly combinations are by far the most common observation periods/return intervals collected in valuation practice.

The Valuation Expert collected the beta factors for these two combinations to take the broadest possible perspective. Consequently, the Expert makes use of the respective advantages of the two methods.

The Valuation Expert examined the significance of the beta factors primarily on the basis of liquidity criteria (analysis of trading volume and free float and trading days, bid-ask spread as an indication of transaction costs) and additionally on the basis of the coefficient of determination and the t-test.

In valuation practice, the historically measured beta factors ("raw beta") are often adjusted across the board using the "adjusted beta". The adjusted beta is composed one third of a market portfolio beta (by definition = 1.0) and two thirds of raw beta. In economic terms, this approach is based on the idea that the systematic risk of companies should approach the market average in the long term.

The question of whether an extrapolation of historical betas or an adjustment, e.g. using the adjusted beta, can better reflect the future risk arises primarily when a particularly high or low risk is indicated by the historical development.

In the present valuation case, the measured beta factors are to be assessed as above average. The Valuation Expert did not perform a mathematical adjustment of the measured beta factors. The question of

²⁶⁸ Cf. Dörschell/Franken/Schulte, *Der Kapitalisierungszinssatz in der Unternehmensbewertung*, 2nd edition 2012, p. 134.

²⁶⁹ Cf. Dörschell/Franken/Schulte, *loc. cit.* pp. 149 ff.

²⁷⁰ Cf. Dörschell/Franken/Schulte, *loc. cit.* pp. 156, 242 f.

²⁷¹ Cf. Dörschell/Franken/Schulte, *op. cit.* p. 158.

²⁷² "Intervalling Effect. See Dörschell/Franken/Schulte, *loc. cit.*, pp. 162 ff. and the literature cited there.

whether and in what way an adjustment should be made is controversial. In valuation practice, no adjustment is made in the vast majority of cases.²⁷³ At least in the present valuation case, we consider it appropriate not to adjust the measured beta factors.

When adjusting the leveraged beta factors for the capital structure risk, the Valuation Expert assumed uncertain tax shields and a value-oriented ("breathing") financing policy, which is plausible for capital market-oriented companies (peer group).

The Valuation Expert assessed the risk of default on receivables of the lenders within the framework of unlevering by using a debt beta. To this end, the Expert has derived indicative synthetic ratings for peers for which no rating has been assigned by a rating provider, following the Moody's methodology used for the Diversified Technology industry. The difference between the resulting interest rate on debt and the market return before personal taxes is the debt beta for the lenders.

Within the framework of unlevering, the Valuation Expert approximated the fair value of the financial liabilities with the book values of the interest-bearing liabilities and the pension provisions. In doing so, the Expert assumes that the existing liquidity of the peer companies is to be regarded as fully necessary for operations.

The Valuation Expert also made the adjustment for ADVA's capital structure risk ("relevering") using the formula for a value-based financing policy and taking into account the debt beta, as the cost of debt significantly exceeds the risk-free interest rate.

²⁷³ Cf. i-advise, *Studie zur Bewertungspraxis bei gesellschaftsrechtlichen Anlässen*, 8th edition (2010 to 2021), <https://www.i-advise.de/wp-content/uploads/2022/06/2022-I-ADVISE-Studie-Bewertungspraxis-8.-Auflage.pdf>, last accessed 6 October 2022.

bcb) Original beta factor of ADVA SE

ADVA shares are traded on stock exchanges. Thus, an original beta factor for ADVA SE can be derived mathematically from the trading data.

The Valuation Expert analyzed the development of ADVA's share price and determined that, particularly in the recent past, there were various special influences that led to a significant distortion of ADVA's share price and a disconnection from the development of industry indices. Consequently, no unbiased beta factor can be levied for periods after the announcement of the takeover offer in August 2021, which adequately represents the risk of ADVA's business model.

Accordingly, it limited its further analyses to the period before ADTRAN Holdings announced its intention to make a voluntary public takeover offer (August 30, 2021) and determined ADVA's original beta factor for the CDAX benchmark index and several observation periods/return intervals (one year daily, two years weekly, five years monthly) using data from S&P Global.

Based on the three calculations performed, the Valuation Expert concluded that the beta factor of the ADVA share for the period before 31 August 2021 is statistically significant and amounts to approximately 0.90. The liquidity of the ADVA share is also sufficient. However, the large time lag between the valuation date and the last unbiased observable beta factor argues against the use of the company's own beta. In particular, macroeconomic and industry-specific risks had increased sharply, mainly due to the Ukraine and semiconductor crises.

Since ADVA's own beta factor for the ADVA share was thus rather unsuitable for estimating ADVA's current risk, the Expert additionally determined a beta factor for the valuation of ADVA with the help of a peer group.

In the course of our audit, we were able to reconcile the data underlying the above analyses without objections. In addition, we consider the conclusions of the Valuation Expert to be well-founded and comprehensible.

In our opinion, ADVA's valuation cannot be based solely on its own measured beta factor, as it does not represent current conditions. However, the Valuation Expert ultimately incorporates the results of the calculations for its own beta factor when estimating ADVA's future risk.

Accordingly, we have additionally examined whether our preferred approach (four methods combining the observation periods/return intervals five years/monthly and two years/weekly, in each case against a market-wide local index and against the MSCI World) yields different results. With the results of our calculations, a beta factor of between 0.9 and 1.0 could be justified. Thus, there are no objections to the use of the Expert's own beta factor in the amount of 0.9.

bcc) Selection of a group of peer companies

If the historical beta factor of the valuation object appears to be rather unsuitable when deriving the future beta factor - as in the present case - it is necessary and customary in practice to identify

comparable companies with regard to the risk situation for which relevant beta factors can be determined in order to use the CAPM.

Since other companies are not comparable with the valuation object in every respect, valuation practice generally attempts to include several companies in the relevant industry in order to take account of the fact that each individual comparable company is not fully comparable to the valuation object by forming an average. This approach is also based on the idea that the peer companies and the valuation object in their common industry will continue to converge in terms of opportunities and risks in the future.

When searching for comparable companies, the Valuation Expert took into account the fact that the companies in the peer group must be largely comparable with the valuation object in terms of opportunities and risks. On the other hand, the Expert has taken into account that historical trade data of sufficient scope and quality must be available for the potential comparable companies.

The Valuation Expert took a multi-stage approach to deriving the peer group. Its approach is described in detail in the Expert Opinion. The comments of the Valuation Expert can be summarized as follows:

- Screening of S&P Global data to identify listed operating companies that are active in a business segment²⁷⁴ in which ADVA is also active and that have their corporate headquarters in Europe or North America (397 companies)
- Compression to a "long list" (44 companies) through a further comparison of the business areas²⁷⁵ and a test for "regional comparability"²⁷⁶
- Further condensation to a "short list" of eleven companies, whereby further qualitative (including supplementary analyses based on annual reports) and quantitative criteria²⁷⁷ were taken into account in multi-stage²⁷⁸ review and analysis procedures

The eleven companies remaining on the final short list after the aforementioned filtering are described in detail in the Expert Opinion. The Valuation Expert additionally ranked these companies in order to rank their comparability to ADVA. For this purpose, the Expert used a "scoring model", the criteria and results of which are shown in the Expert Opinion.

The Valuation Expert's comments make it clear that the companies it selected as peers are sufficiently comparable to ADVA's business model and are therefore suitable for determining ADVA's operating risk.

In the course of our audit, we were able to comprehend the derivation and step-by-step elimination of potential peer companies without any objections. In addition, we consider the selection criteria to be appropriate. Nevertheless, we conducted our own research based on partially different criteria to determine whether other suitable peer companies exist. We have evaluated our long list, which also includes all companies in the peer group selected by the Valuation Expert, with regard to their comparability with ADVA using our own scoring model. Ultimately, we did not identify any other company that should additionally be included in the peer group.

²⁷⁴ Specification of suitable industries and keywords (in particular "Optical", "Network", "Communication", "FTTN").

²⁷⁵ Keyword search within S&P Global's data in the companies' business model descriptions, which describe ADVA's business model in detail (e.g. "Networking solutions" or "Communication infrastructure").

²⁷⁶ More than 50% of revenues in the Europe and North America regions.

²⁷⁷ An R&D ratio of at least 10% and key financial figures, in particular for segments, products and regions.

²⁷⁸ In an intermediate step, first to 16 companies.

Consequently, in summary, we consider it appropriate to use the beta factors resulting for the eleven peer companies to derive the beta factor for the valuation of ADVA.

bcd) ADVA's beta factor based on peer companies

Based on the data points as of 6 October 2022, the two calculation methods performed by the Valuation Expert and presented in the Expert Opinion result in debt beta factors ranging from 0.54 to 1.99 (individual values) and 1.22 to 1.26 (mean values) and 1.13 to 1.25 (medians), respectively.

The unlevered beta factors span a range of 0.50 to 1.76 (individual values), 1.09 to 1.12 (mean values), and 0.97 to 1.03 (medians). On the basis of mean values, the calculations of the Valuation Expert justify a beta factor in the amount of 1.1. If the medians are used as a basis, this would result in a beta factor in the amount of 1.0.

The Valuation Expert considers the application of an unencumbered beta factor in the amount of 1.0 for the purposes of ADVA's valuation. In making this assessment, the Expert also took into account that ADVA's own unbiased beta factor is around 0.9 according to its surveys. The Expert nevertheless points out that a beta factor greater than 1.0 could also be justified.

Within the scope of our audit, we were able to comprehend the data collection and calculations of the Valuation Expert without any objections. In addition, we consider the methodological approach to be fundamentally appropriate.

However, this differs from the methodology we usually use. Major differences are, first, that we regress not only against local indices, but also against a global index. Secondly, we generally consider a confidence level of 95% (probability of error 5%) to be sufficient. The Valuation Expert assesses statistical significance using the criterion R^2 . The filter the Expert sets is more restrictive as a result. Ultimately, however, this different approach has no impact, as all beta factors determined for 6 October 2022 also withstand the more stringent criteria of the Valuation Expert.

Overall, the result of our own calculations shows that the regression against the MSCI World yields slightly higher beta factors. Based on these calculations, however, a beta factor of between 1.0 and 1.1 could also be justified. Consequently, these calculations do not give any reason to view the unencumbered beta factor of 1.0 as inappropriate.

Audit result

Considering ADVA's business model, we consider the beta factor chosen for the valuation of ADVA to be appropriate.

c) Growth discount

Future growth in corporate financial surpluses results on the one hand from retention and reinvestment in the company and on the other hand organically from price, volume and structural effects.

In the detailed planning and convergence phases, the growth potential is included in the corporate estimates or their projection and thus in the financial surpluses, as their individual components are estimated as nominal figures. No growth discount is therefore required for this period.

In the perpetual annuity phase, the items of the balance sheet and income statement will also continue to develop, and thus also the net income of the shareholders. In principle, this sustainable growth can be reflected in financial mathematics as a growth discount in the discount rate.

The amounts retained in the perpetual annuity phase and directly allocated to the shareholders for valuation purposes already represent a significant portion of the future growth of the valuation object. The value equivalent of this retention-related growth could also be represented by discounting the additional distributions generated as a result.

Assuming that ADVA earns its costs of capital, which reflect its own risk and financing structure, on a sustainable basis, the future growth in distributions will correspond directly to the value contribution from retention-related increases in value. Thus, the main part of the future operating growth financed by retained earnings is already taken into account in the valuation model through the direct attribution of the value contribution from value increases.

Any additional growth potential - e.g. temporarily limited additional growth effects based on excess returns achievable for a limited period of time due to special market and industry conditions or special company characteristics, as well as inflation-related growth effects - must be taken into account in the growth discount in the valuation system described above.

However, company-specific inflation-related growth effects differ from macroeconomic indicators such as the general rate of price increases, which is measured by the rate of change in the consumer price index, or price developments on procurement markets. Thus, company-specific inflation-related growth effects are determined by the price changes on the procurement markets that affect each company individually, the company's ability to continuously generate efficiency gains, and its own ability to implement price increases on the sales market.

For the valuation of ADVA, which corresponds to the appropriate cash compensation, the Valuation Expert has applied a growth discount in the amount of 1.5% (before personal taxes).

The growth discount reflects the fact that the market for innovative transmission technology for cloud and mobile networks is characterized by intense competition and that ADVA cannot fully pass on rising purchasing costs to customers. For some components, declining purchase prices can even be expected based on technological progress. Normally, these cost decreases have to be passed on to ADVA customers in the form of price reductions.

On this basis, the growth rate set in our opinion adequately reflects the company-specific, inflation-conditioned growth effects.

Empirical studies additionally show that company-specific inflation-related growth rates are on average below the target value defined by the ECB for a long-term (consumption-oriented) inflation rate (2.0%).

According to current forecasts, consumer-oriented inflation in the markets relevant to ADVA will be well above 2.0% in the short to medium term. In our view, consumption-based inflation in the euro area can be expected to return to within the ECB's target range in the long term - and thus for periods mapped in the perpetual annuity phase (2031 ff.). Taking into account ADVA's other target markets as well, we believe that inflation can be expected to be slightly above 2.0% in the long term.

In light of the considerations outlined above, we consider the growth rate used for the valuation of ADVA SE in the amount of 1.5% (before personal taxes) to be appropriate.

In reconciling the earnings growth rate (gross) to the growth discount (net), the Valuation Expert made a deduction for personal taxes. The Expert thus takes account of the fact that inflation-related increases in value are subject to taxation as capital gains when realized. Based on the assumption of long holding periods, the Expert applied half the nominal tax rate²⁷⁹ when deducting personal taxes. We also consider this to be appropriate.

In summary, we consider the the growth discount of 1.3% (after personal taxes) applied in the valuation of ADVA SE to be appropriate.

Insofar some literature claims that the (average) earnings growth of German companies is significantly higher based on statistical analyses, these sources mostly fail to recognize the aforementioned connection between retained earnings and the resulting increase in value.

However, when comparing the growth discount to be applied in an enterprise valuation with the statistically determined earnings growth of companies, it should be noted that in practice companies regularly retain earnings, which they use to finance (expansion) investments. These investments in turn increase future corporate profits. Empirically measured earnings growth therefore includes both inflation-driven and retention-driven earnings increases.

In the earnings value method, the net income of the shareholders to be discounted is sustainably composed of the profit distributions/dividends and the value contribution from increases in value. As the value added from appreciation fully covers future dividend growth from retained earnings, the growth rate of profit distributions/dividends shown in the growth discount essentially only reflects inflation-related value effects associated with the company-specific price increase on the procurement and sales markets of the company being valued.

In the present valuation case, the growth discount applied in the amount of 1.5% (gross) or 1.3% (net) according to the relationship described by Tschöpel/Wiese/Willershausen²⁸⁰

$$w = (1 - q) * R^{vSt} + q * \pi$$

where

w = total growth rate

q = payout ratio

R^{vSt} = levered cost of equity before income tax

²⁷⁹ 26.375% * 50% = 13.1875%.

²⁸⁰ Cf. Tschöpel/Wiese/Willershausen, WPg 2010, pp. 349 ff. and pp. 405 ff.

π = company-specific inflation rate

sustainable earnings growth of the ADVA Group of 5.6%. This value would be the appropriate benchmark for a comparison with the average profit growth of German companies.

The described influence of retention-related growth is confirmed in a paper²⁸¹ that decisively analyzes the causes of earnings growth. Furthermore, the authors conclude in this paper that the price-induced growth of corporate profits in Germany is in the range of 0.0% to 1.5%. Thus, the expected growth of 1.5% (gross) is to be regarded as a higher figure on this basis.

In order to classify the growth discount applied, it should also be noted that, according to our analysis of rulings by higher courts, the growth discounts usually applied in valuation practice and confirmed by legal rulings to date range from 0.0 to 2.5%.

²⁸¹ Schieszl/Bachmann/Amann, in: Peemöller (ed.), *Praxishandbuch der Unternehmensbewertung*, 6th edition, 2015, Chapter 3, Part G.

According to a recent study²⁸² analyzing 230 valuation reports prompted by corporate law with valuation dates within a period from 2010 to 2021, the average (gross) growth rate of sustainable earnings decreased from 1.31 to 1.07% during this period and the median growth rate decreased from 1.25 to 1.00%. In the meantime, values have been below 1.00%.

Audit result

In summary, based on the considerations presented, we consider the growth discount (after personal taxes) applied for the valuation of ADVA SE in the amount of 1.3% to be appropriate.

d) Overview of the discount rate

In summary, the discount rate is as follows:

ADVA Derivation of capital costs %	Planning					Convergence				TV as of 2031
	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Base interest rate (before personal taxes)	1,50%	1,50%	1,50%	1,50%	1,50%	1,50%	1,50%	1,50%	1,50%	1,50%
Personal income tax	-0,40%	-0,40%	-0,40%	-0,40%	-0,40%	-0,40%	-0,40%	-0,40%	-0,40%	-0,40%
Base interest rate after personal taxes	1,10%	1,10%	1,10%	1,10%	1,10%	1,10%	1,10%	1,10%	1,10%	1,10%
Market risk premium after personal taxes	5,75%	5,75%	5,75%	5,75%	5,75%	5,75%	5,75%	5,75%	5,75%	5,75%
Beta (levered)	1,09	1,08	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03
Risk surcharge	6,24%	6,19%	5,91%	5,91%	5,91%	5,91%	5,90%	5,90%	5,90%	5,90%
Cost of equity before growth discount	7,35%	7,30%	7,02%	7,02%	7,01%	7,01%	7,01%	7,01%	7,01%	7,01%
Growth discount										-1,30%
Cost of equity after growth discount	7,35%	7,30%	7,02%	7,02%	7,01%	7,01%	7,01%	7,01%	7,01%	5,70%

Sources: S&P Global, database of Valuation Expert, own presentation.

6. Derivation of the enterprise value

a) Earnings value of the assets required for operations

The earnings value of ADVA's operating assets as of 30 November 2022 is determined as follows:

ADVA Earnings value of core assets Millions of €	Planning					Convergence				TV as of 2031
	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Net income	32,4	47,4	56,2	62,3	68,7	71,4	73,6	75,4	76,5	77,6
Distributions	13,0	18,3	22,5	24,9	27,5	28,6	29,5	30,1	30,6	31,1
Personal taxes on distribution	-1,7	-2,4	-5,9	-6,6	-7,3	-7,5	-7,8	-7,9	-8,1	-8,2
Reinvestment with utilization planning	17,4	29,1	-19,1	-6,6	4,9	6,3	7,2	7,8	5,8	5,9
Reinvestment with notional addition	2,0	0,0	52,8	44,0	36,3	36,6	36,9	37,5	40,1	40,7
Personal taxes on notional allocation	-0,3	0,0	-7,0	-5,8	-4,8	-4,8	-4,9	-4,9	-5,3	-5,4
Net income	13,0	15,9	62,4	56,6	51,8	52,8	53,7	54,7	57,3	58,2
Cost of capital	7,35%	7,30%	7,02%	7,02%	7,01%	7,01%	7,01%	7,01%	7,01%	5,70%
Present value factor	0,9316	0,9320	0,9344	0,9344	0,9345	0,9345	0,9345	0,9345	0,9345	17,5296
Present values as of 31 December of the previous year	838,0	886,6	935,3	938,6	947,8	962,5	977,2	992,0	1.006,8	1.020,0
Earnings value of core assets as of 31 December 2021	838,0									
Compounding factor										1,0670
Earnings value of core assets as of 30 November 2022	894,2									

Sources: Data of the Valuation Expert, own presentation.

²⁸² Vgl. i-advise, Studie zur Bewertungspraxis bei gesellschaftsrechtlichen Anlässen, loc. cit.

b) Non-core assets

The Valuation Expert has not identified any non-operating assets or non-core assets that would have to be valued separately.

The Expert notes in this context that an inactive shareholding is not be reported as a non-core asset, as the latter does not have any notable assets. We deem this to be comprehensible. In the course of our audit, we also did not become aware of any non-operating assets requiring separate valuation.

According to the information provided to us and our findings, the Company's real estate is used for operational purposes. Accordingly, the real estate is all to be classified as operationally necessary in accordance with the so-called "functional delimitation criterion."

We have not identified any holdings of works of art or other fixtures and fittings that go beyond what is normally required for representational purposes or that have a significant value.

Cash and cash equivalents not required for operations are also not to be added separately. Funds in excess of the liquidity required for operations are used for distributions.²⁸³

Insofar as circumstances exist for which a presentation as a non-core asset is occasionally chosen in valuation practice, the Valuation Expert did not present these states of affairs as a non-core asset, but rather previously considered them in the net revenue. This applies in particular to the tax loss carryforwards available as of 31 December 2021 (€ 237.3 million) and the Company's tax contribution account as of 31 December 2021 (€ 322.4 million).

Audit result

In the course of our audit, we did not become aware of any non-operating assets to be added separately. In deriving the enterprise value of ADVA, the Valuation Expert correctly did not add any non-core assets to the earnings value of the assets required for operations.

c) Enterprise value

The enterprise value of ADVA as of the day of the general meeting at which the shareholders pass the resolution (valuation date; 30 November 2022) corresponds to the earnings value of the assets required for operations (€ 894.2 million). This is the equivalent and rounded amount of € 17.21 per ADVA share.

In calculating the enterprise value per share, the Valuation Expert has, for the sake of simplicity, refrained from taking into account the dilutive effect of the potential exercise of stock options granted to employees and members of the Management Board under stock option plans.²⁸⁴ This is not objectionable from the perspective of ADVA's outside shareholders.

²⁸³ Cf. Section D.V.4.ce).

²⁸⁴ See section D.V.1.a); in the Group's estimates, the fair values of options from stock option plans are expensed as of the grant date.

d) Comparison with liquidation value

The Valuation Expert did not compute the liquidation value of ADVA. The Expert justifies this approach by stating that the return on capital employed is always higher than the levered cost of equity and thus it can be assumed that the going concern is advantageous compared to liquidation.

We have verified these considerations and also do not consider it necessary to derive the liquidation value, especially since considerable costs are usually incurred in a liquidation.

e) Particular difficulties in the valuation

The determination of ADVA's enterprise value did not give rise to any particular difficulties in the terms of § 293e (1), Sentence 3 AktG.

7. Plausibility check of the enterprise value

a) Enterprise value in a valuation after personal taxes in accordance with IDW S 1 in a different parameterization

As engaged, the Valuation Expert has determined the enterprise value of ADVA as of 30 November 2022 within a range. According to its findings, the range for the value of equity (enterprise value) in a valuation after personal taxes in accordance with IDW S 1 is between € 809.2 million (market risk premium in the amount of 6.50% and sustainable growth rate in the amount of 1.74%, both after personal taxes) and € 894.2 million (market risk premium in the amount of 5.75 % and sustainable growth rate in the amount of 1.30%, in each case after personal taxes).

The enterprise value of ADVA as of 30 November 2022 in the valuation corresponding to the fixed cash compensation amounts to € 894.2 million.

Based on a plausibility check with the range determined by the Valuation Expert, which also includes the enterprise value at a market risk premium after personal taxes in the amount of 6.5% (assuming a growth rate after personal taxes in the amount of 1.74%), there is no indication that the valuation, which corresponds to the fixed cash compensation, is not appropriate in the terms of the German Stock Corporation Act.

b) Enterprise value in the case of indirect typification

In accordance with the DVFA recommendations, the Valuation Expert also determined ranges for the enterprise value before personal taxes, applying the DCF method in the form of the direct determination of the value of equity ("cash flows to equity").

According to its findings, the range for the value of equity (enterprise value) is between € 848.1 million (market risk premium of 8.0% and sustainable growth rate of 2.0%, both before personal taxes) and € 941.2 million (market risk premium in the amount of 7.0% and sustainable growth rate of 1.5%, both before personal taxes).

The enterprise value of ADVA as of 30 November 2022 in the valuation corresponding to the fixed cash compensation amounts to € 894.2 million.

The upper value of the range determined by the Valuation Expert from a valuation before personal taxes is above the value obtained for the valuation corresponding to the determined cash compensation. The difference in value is mainly due to the recognition of additional synergy effects as a result of the concept, which deviates from the principles of IDW S 1, of recognizing the so-called “market-participant synergies” as synergy effects.

Accordingly, this higher valuation also does not give rise to any reliable indication that the valuation, which corresponds to the fixed cash compensation, is not appropriate in the terms of the German Stock Corporation Act.

c) Comparative market valuation

The Valuation Expert has used public capital market data (“trading multiples”) and transactions (“transaction multiples”) to establish the plausibility of ADVA's (fundamental) enterprise value, which was determined using the earnings method and thus on the basis of decided internal information and business management principles. He determined the trading multiples for the peer companies that were also used to determine the beta factor.

For the comparative valuation on the basis of the trading multiples, the Valuation Expert determined multiples from the ratio of the total enterprise value²⁸⁵ to the revenues and the earnings ratios EBITDA, EBIT and the so-called “cash contribution”.²⁸⁶ The transaction multiples are calculated for the key figures: revenue, EBITDA and EBIT.

Revenue, EBITDA and EBIT multiples are common methods for plausibility checks of enterprise values that have been fundamentally determined. The Valuation Expert also uses cash contribution multiples on the grounds that they take account of the different asset intensities and accounting policies of the peer companies.

The calculations of the multiples are based on analysts' revenue, EBITDA, EBIT and CAPEX estimates for financial years 2023 and 2024 provided by S&P Global. Sufficient estimates were not available for subsequent financial years. The estimates for 2022 are skewed according to the Valuation Expert, which we consider plausible.

In order to account for the different approaches to capitalizing development costs, the Valuation Expert adjusted the figures EBIT and EBITDA at ADVA and the peer companies, which also capitalize development costs, for the capitalized expenses and the amortization thereof, as previously explained in the benchmarking of the estimates.

The multiples determined span a wide range of values. In the opinion of the Valuation Expert, no reliable statements can be derived from the full range. Accordingly, the Expert has further condensed the full range. The results of the multiples valuation are presented with respect to the earnings multiples only for the average of the three peers that the Valuation Expert considers to be most comparable to ADVA in

²⁸⁵ Enterprise Value (“EV”).

²⁸⁶ The cash contribution is the difference between EBITDA and capital expenditure on property, plant and equipment (CAPEX).

terms of growth and profitability ("Best Comparables") and - due to ADVA's lower profitability compared to the peers - for the 25% percentile.

In analyzing the revenue multiples, the Valuation Expert used regression lines to determine the correlations between the forecast EBIT growth and the revenue multiples, in each case for the years 2023 and 2024. The regression lines show that there is a positive correlation between the expected EBIT margins and the revenue multiples for the peer group. On this basis, the Valuation Expert determined the respective multipliers from the regression lines using the corresponding margins from ADVA's planning and used them in its further analyses. The further considered bandwidth contains the value determined by means of the regression line as well as the value resulting from the average of the three Best Comparables.

In total, the Expert has determined a range of multipliers for 2023 and 2024 for each of four different types of multipliers in this way. In relation to ADVA's reference figures derived from the Group planning, this results in eight ranges of ADVA's total enterprise values. The Valuation Expert has condensed these ranges into an average range of total enterprise values of ADVA of € 794.7 million to € 849.2 million.

After deducting interest-bearing liabilities and taking into account cash and cash equivalents not required for operations²⁸⁷ as well as the present value of tax loss carryforwards, the multiplier analysis results in a range of the value of ADVA SE's equity from € 748.9 million to € 803.5 million.

In a final step, the Valuation Expert increased the calculated range of equity values by a notional takeover premium of 10% because, in its opinion, the stock market multiples only reflect the prices of minority interests and the enterprise values derived from stock market multiples should be increased by a financial control premium. Based on analyses of transactions and an empirical study, PVT derives a control premium of 10%.

In our opinion, it is questionable whether such a surcharge should be applied, since an objectified business valuation does not simulate the assumption of control over a company. In the practice of valuation for structural measures under stock corporation law, it is therefore not customary to apply a control surcharge to multiplier values collected for the purpose of plausibility checks.

The range of market values of ADVA's equity determined on the basis of the market valuation with trading multiples is between € 823.8 million and € 883.8 million. ADVA's enterprise value (value of equity) determined on the basis of fundamental analysis in the valuation, which corresponds to the fixed cash compensation (€ 894.2 million), is slightly above the range presented. The valuation with trading multiples therefore gives no indication that this value might be too low.

The Valuation Expert derived in a supplementary fashion revenue, EBITDA and EBIT multiples from comparable transactions. The Expert condensed these into a range of multiples from the average of the transactions considered and the value of what it considered to be the most comparable transactions.²⁸⁸ The Expert applied the two range values to reference figures of ADVA for the last twelve months ending 30 June 2022.

²⁸⁷ These funds are used for distributions in the valuation model in the logical second thereafter.

²⁸⁸ These are six of the 13 total transactions identified.

The valuation with transaction multiples results in a range of the market value of the equity of ADVA SE of € 860.5 million to € 1,016.7 million. The enterprise value (value of equity) of ADVA determined in the fundamental analysis in the valuation, which corresponds to the determined cash compensation (€ 894.2 million), is in the lower range of the presented range.

A valuation with transaction multiples generally has less significance than a valuation with trading multiples.²⁸⁹ Beyond the general reservations regarding their informative value, we would like to point out that the vast majority of the transactions used for comparison were carried out a long time after the valuation date. The general capital market conditions and the specific market conditions at the time these transactions were executed are different from today's conditions.

Also taking into account the limited informative value of transaction multiples, the plausibility check with transaction multiples does not provide any indications that the enterprise value (value of equity) of ADVA determined by fundamental analysis in the valuation, which corresponds to the fixed cash compensation (€ 894.2 million), might be too low.

We were also able to verify PVT's approach substantively and its calculations for the determination of trading and transaction multiples based on S&P Global's "consensus estimates" without any objections.

d) Further benchmarks

The stock market price of ADVA shares shows various conspicuous jumps, which, according to the findings of the Valuation Expert, which we share, can be attributed to events in connection with the takeover by ADTRAN. Legal rulings assume that the stock market price is no longer relevant for a cash compensation, at least from the time of the announcement of a structural measure under stock corporation law.²⁹⁰

The volume-weighted average stock exchange price per ADVA share over a reference period of three months prior to the announcement of ADTRAN Holdings to enter into a CPLAA with ADVA SE as the controlled company and ADTRAN Holdings as the controlling company amounts to € 15.85. Extrapolated by the number of outstanding ADVA shares, this results in an enterprise value of ADVA SE in the amount of € 823.5 million.

In our opinion, this average price is already influenced by the previous events in connection with the takeover by ADTRAN and is only suitable for plausibility checks to a limited extent. However, there are at least no indications from such a plausibility check that the fundamental analytically determined enterprise value of ADVA in the valuation, which corresponds to the determined cash compensation (€ 894.2 million), might be too low.

A more suitable benchmark could be pre-acquisition prices. The implied price granted on the basis of a share exchange offer by ADTRAN²⁹¹ was € 17.17 per ADVA share.²⁹² Extrapolated by the number of outstanding ADVA shares, this results in an enterprise value of ADVA SE in the amount of € 892.8 million.

²⁸⁹ Cf. Section D.III.3.

²⁹⁰ As divestment values of the share (see Section D.I).

²⁹¹ At the time trading as Acorn HoldCo, Inc.

²⁹² Based on the closing price of ADTRAN's shares on 27 August 2021 (\$24.57).

The enterprise value of ADVA determined in a fundamental analysis in the valuation, which corresponds to the defined cash compensation (€ 894.2 million), deviates only slightly from the extrapolated pre-acquisition price.

Deviations may have resulted from changes in ADVA's²⁹³ circumstances in the meantime. On balance, these changes may have resulted in both an increase and a decrease in ADVA's enterprise value. Therefore, this benchmark is also only of limited use.

In addition, it can be assumed that the takeover price also took into account possible synergy effects. In any case, the takeover price included a premium on ADVA's share price in the run up to the takeover.²⁹⁴ In the valuation of ADVA using the objectified enterprise value according to IDW S 1, these effects are only included to a minor extent. For this reason, too, this benchmark is only of limited use.

In any case, also the comparison with the pre-acquisition price does not, in our opinion, provide any indications that the enterprise value of ADVA determined in the fundamental analysis in the valuation, which corresponds to the fixed cash compensation (€ 894.2 million), might be too low.

Audit result

In summary, the plausibility checks carried out give no indication that the present valuation would not be appropriate.

²⁹³ Internal changes, changes in specific market and competitive conditions, and capital market conditions.

²⁹⁴ Cf. Section D.V.1.a).

8. Derivation of settlement and compensation

a) Adequate settlement pursuant to § 305 AktG

There are no different classes of shares or other reasons according to which the enterprise value would not have to be converted proportionately to one share. As a result of the business valuation carried out, the appropriate cash compensation thus corresponds to the prorated enterprise value of ADVA SE, provided a lower limit of the cash compensation is not to be taken into account.

In view of the legal rulings of the Federal Constitutional Court,²⁹⁵ the stock market price of a company may not, in principle, be disregarded when determining a settlement and represents a suitable benchmark for determining its fair value. As a rule, the stock market price represents the lower limit of the compensation to be paid to the shareholder.

However, constitutional law does not require compensation at the stock market price, but only "full compensation" at the "true value" of the shareholding. If, in a specific case, the stock exchange price does not reflect the market value and thus also the "true value" of the share, the stock exchange price may therefore be undercut. According to legal rulings, this may be the case if, due to a so-called "market squeeze", it was uncertain whether the minority shareholders would actually have been able to sell their shares at the market price during the relevant period.

The Expert Opinion contains comprehensive comments on the relevance of the stock exchange price, in particular a detailed discussion of the question of the existence of a market squeeze. The statements of the Expert Opinion on the authoritative nature of the stock market price can be summarized as follows:

- Relevant reference period 6 April 2022 to 5 July 2022
- Volume-weighted average price according to BaFin letter € 15.85
- No demonstrable market squeeze in the terms of WpÜG-AngVO
- Three-month weighted average price of ADVA shares fundamentally relevant for determining cash compensation

As part of our audit, we have examined the arguments presented and the data on which they are based. From an auditor's point of view, there are no objections to the statement that the weighted three-month average price of the ADVA share is basically relevant for the determination of the cash compensation. Based on our audit, we can also confirm the amount of the average price stated.

The volume-weighted average price of the ADVA share (€ 15.85) as a divestment price is below the prorated enterprise value of ADVA SE in the valuation, which corresponds to the determined cash compensation (€ 17.21). Since other lower limits of the cash compensation are not to be observed,²⁹⁶ the prorated enterprise value of ADVA SE represents the fair value of the ADVA Share.

²⁹⁵ Federal Constitutional Court, Ruling of 27 April 1999, Case 1 BvR 1613/94, BVerfGE 100, pp. 289 ff.

²⁹⁶ Such as, for example, the present value of the compensation payments in the event of an exclusion of the minority shareholders with an existing CPLAA.

The enterprise value of ADVA as of the day of the general meeting at which the shareholders pass the resolution (valuation date; 30 November 2022) corresponds to the earnings value of the assets required for operations (€ 894.2 million). This is the equivalent and rounded amount of € 17.21 per ADVA share.

Audit result

The cash compensation was accordingly set at €17.21 per share. In summary, based on our audit, we consider this to be appropriate.

If, in the period between the conclusion of our audit (22 October 2022) and the intended date of the resolution of the shareholders of ADVA SE in general meeting on the conclusion of the Agreement (30 November 2022), material changes in the net assets, financial position and results of operations or other bases for the valuation of ADVA should occur, these would still have to be taken into account in the assessment of the cash compensation, in particular to the extent that the changes would result in a value per no-par-value share that exceeds the contractually agreed settlement.

In this regard, we will obtain declarations updating the letters of general representativeness on the day of the general meeting at which ADVA SE shareholders adopt the resolution and we will issue a declaration as of the reporting date on the adequacy of the compensation and settlement.

b) Adequate compensation pursuant to § 304 AktG

The basis for determining the compensation payment is ADVA's enterprise value converted to one share.

In the case of annuitization of the cash compensation, the Valuation Expert assumed a risk- and maturity-equivalent interest rate. This was determined by taking into account the specific risk situation of the outside shareholders resulting from the Agreement.

The risk that the enterprise value at the time of termination of an intercompany agreement, in particular a control agreement, could be reduced by measures of the other contracting party is not to be taken into account in the present case. By granting a temporary right of sale in case of termination of the Agreement,²⁹⁷ the outside shareholders will receive annual compensation during the term of the Agreement and, upon termination of the Agreement, compensation in the amount they would have received immediately after the Agreement became effective (€ 17.21 per ADVA share).

In the present case, the only risk remaining for ADVA's outside shareholders is therefore that the contractual party obligated to pay the compensation will not fulfill this obligation.

The default risk is thus determined by the creditworthiness of ADTRAN Holdings. Thus, the enterprise value of ADVA is to be annuitized at an interest rate that reflects the conditions currently offered to ADTRAN Holdings for an unsecured bond with a maturity corresponding to the expected term of the Agreement.

²⁹⁷ Cf. § 5(6) of the Agreement.

ADTRAN Holdings has not issued any bonds itself, so that the relevant interest rate cannot be observed directly. Consequently, an interest rate adequate for the risk situation of ADTRAN Holdings had to be determined indirectly. For this purpose, the Valuation Expert has determined a notional rating for ADTRAN Holdings. In doing so, the Expert used two methods to build on a secure database.

First, the Valuation Expert queried the “Z-Score”²⁹⁸ for ADTRAN Holdings at S&P Global. The calculated ratio can be converted into an S&P rating.²⁹⁹ The rating for ADTRAN Holdings is BBB+.³⁰⁰

The last available financial statements for a full financial year, from whose data this indicator is calculated, relate to the financial statements as of 31 December 2021. As of 31 December 2021, the figures of ADTRAN Holdings do not yet include the figures of the ADVA Group, as the takeover offer had not yet been completed as of that date. The current scope of consolidation, which also includes ADVA, is decisive for the future risk situation of ADTRAN Holdings. In this respect, the classification determined serves only to check the plausibility.

The Valuation Expert therefore derived, on the other hand, the credit rating of ADTRAN Holdings based on the combined financial figures of ADTRAN and ADVA for financial year 2021. In a further step, the Expert converted the corporate key figures determined in this way for the entire Group into a specific value in a rating model.³⁰¹ This corresponds to an S&P rating of BBB for ADTRAN Holdings.

A risk-equivalent interest rate can thus be obtained from market data for companies in the BBB risk class.

In addition, the interest must also be equivalent in terms of maturity. The question thus arises as to how long the compensation payment is expected to be granted. The contract provides for a minimum term of two years. It is also regularly extended for a further two years if not terminated.³⁰² In cases where the contracting parties primarily pursue strategic objectives and where the integration of the company controlled after conclusion of the CPLAA into the controlling company is intended to leverage long-term synergy potential, a long contract term is to be assumed. According to legal rulings, it must be assumed that an enterprise agreement continues indefinitely if there is no evidence to justify an assumption to the contrary.

Long maturities must therefore be assumed in order to establish maturity equivalence. Infinite corporate bonds are not issued. In principle, the interest rate to be applied would be the one that can be determined on the market and corresponds to the highest maturity.

The Valuation Expert used data from S&P Global to determine yields on euro-denominated corporate bonds (corporates) rated BBB. The markets for corporate bonds with a rating class of BBB and a remaining term of more than 25 years are not liquid enough to derive a resilient market yield. The Valuation Expert collected data for remaining terms of 15, 20 and 25 years and derived an average interest rate. It is questionable whether exclusively the data for a remaining term of 25 years should have been applied or not. The answer to this question can be left open, as the bonds with a remaining term of 25 years have a lower

²⁹⁸ The so-called “Altman Z-Score” uses a linear combination of four ratios of business data to determine a ratio that is supposed to reflect the financial quality of the company.

²⁹⁹ See <https://pages.ste.nyu.edu/~ealtman/CorpCrScoringModels.pdf>, p 33, last accessed 6 October 2022.

³⁰⁰ This S&P rating represents an average credit rating.

³⁰¹ Moody's Investors Service Rating Methodology for the Diversified Technology industry, as of 25 February 2022.

³⁰² Cf. § 7(3) of the Agreement.

interest rate given the current yield curve. The calculation of an average value therefore currently tends to increase compensation.

Based on the data as of 6 October 2022, the average interest rate is 3.12%. If the average interest rates over a period of one or three months before 6 October 2022³⁰³ are taken as a basis to compensate for market volatilities, the average interest rate in each case is 2.80%.

As a result, the Valuation Expert applied an interest rate rounded to 3.0% for the annuitization of the prorated enterprise value.

In summary, assessing the results of these three approaches, the result of our review of the annuity interest rate is that the link to the guarantor's default risk is customary in practice and, in our opinion, also appropriate. It is also recognized by the courts.³⁰⁴ We were also able to verify the derivation of the specifically applied annuity interest rate without any objections.

The guaranteed compensation is derived from the enterprise value annuitized at this interest rate into a constant annual payment in the calculation required by legal rulings³⁰⁵ as follows:³⁰⁶

ADVA Fixed compensation payment	With Corporate income tax, solidarity surcharge encumbered	Without Corporate income tax, solidarity surcharge encumbered	Total
Value per share (EUR)	13,71	3,50	17,21
Annuity rate	3,00%	3,00%	3,00%
Net compensation payment per share	0,41	0,10	0,52
Plus corporate income tax and solidarity surcharge	0,08	-	0,08
Gross compensation payment per share	0,49	0,10	0,59

Source: Database of Valuation Expert, own presentation

Audit result

The compensation payment was accordingly set at € 0.52 per share. Without taking into account the deduction of corporate income tax plus the solidarity surcharge, a gross compensation amount of € 0.59 per no-par-value share is assured. In summary, based on our audit, we consider this to be appropriate.

In the event of a future change in the tax rates for corporation tax and the solidarity surcharge, the amount of the net compensation calculated above on the basis of the current ratios will change in accordance with § 4 (2) of the Agreement.

This is appropriate in light of the legal rulings of the BGH.

We were also able to reconcile the associated calculations without any objections.

³⁰³ In accordance with § 5 (1) WpÜG-AngVO and taking into account the legal rulings of the Federal Supreme Court on the stock exchange price as the lower limit of a settlement as well as the established legal rulings on the determination of the base interest rate to a three-month period.

³⁰⁴ Regarding comparable cases, for example: Higher Regional Court of Düsseldorf, decision of 25 May 2016, Case I-26 W 2/15 [AktE], BeckRS 2016, 21367; Higher Regional Court of Frankfurt am Main, decision of 24 November 2011, Case 21 W 7/11, BeckRS 2012, 02278.

³⁰⁵ Guarantee of gross compensation (before KSt including SolZ).

³⁰⁶ The table contains the rounded figures for each component of the compensation payment. Decisive are the gross compensation payment (€ 0.59 per ADVA share) and the net compensation payment (€ 0.52 per ADVA share). Thus, € 0.07 per ADVA share is deducted for corporate income tax and the solidarity surcharge. The computational charge for the corporate income tax and solidarity surcharge thus amounts to € 0.08 per ADVA share (rounded).

If, in the period between the completion of our audit (22 October 2022) and the intended date of the resolution of the shareholders of ADVA SE in general meeting on the conclusion of the Agreement (30 November 2022), material changes in the earnings, financial and liquidity position or other bases for the valuation of ADVA should occur, these would still have to be taken into account in the assessment of the compensation payment, particularly to the extent the changes would result in a compensation payment exceeding the compensation payment stipulated in the draft Agreement.

In light of the currently rising yields for risk-free federal bonds and corporate bonds, an increase in the compensation payment may become necessary as of the valuation date. An increase in the risk-free interest rate (base interest rate) has a reducing effect on the enterprise value c.p. The compensation payment is derived from the enterprise value and is thus - viewed in isolation - lower. If the annuity interest rate increases by the same amount, this effect will c.p. exceed the effect from a reduction in the enterprise value, so that the compensation payment will increase c.p. as a result if the interest rates increase by the same amount.

The Valuation Expert has calculated scenarios in which the base interest rate and the annuitization rate increase in the same direction by 0.25 percentage points each. At the same time, the Expert took into account the fact that if the base interest rate were increased to at least 2.0%, it could not be ruled out that the market risk premium would have to be set at a lower level. In the scenarios in which the prorated enterprise value falls below the average stock market price as the floor for the cash compensation, the Valuation Expert annuitized these (€ 15.85 per ADVA share). No other parameters of the evaluation were changed (c.p.).

These scenarios are summarized in a table in the Expert Opinion. This table shows the changes in the compensation payment (gross and net) in the event of a change in the annuity rate

According to the calculations of the scenarios, which we verified without objections, the gross and net settlement per ADVA share in the event of a change in the annuity rate would result as follows:

ADVA Scenario analysis - annuity rate	Compensation payment	
	€ Gross	€ Net
3,00%	0,59	0,52
3,25%	0,62	0,54
3,50%	0,68	0,59
3,75%	0,70	0,61
4,00%	0,73	0,63
4,25%	0,77	0,67
4,50%	0,82	0,71
4,75%	0,87	0,75
5,00%	0,91	0,79
5,25%	0,96	0,83
5,50%	1,00	0,87

Sources: Database of Valuation Expert, own presentation

We can confirm that upon a change in the circumstances between the date of the signing of our Audit Report (22 October 2022) and the date of the general meeting at which the shareholders of ADVA SE resolve on the Agreement (30 November 2022) corresponding to these scenarios (c.p.), the portrayed changes in the compensation payment would result.

We would like to point out at this point that the parameters on which the calculation is based can theoretically also change in the opposite direction and that the anticipated increases in the base interest rate and the annuity rate can at least not occur to the same degree. Moreover, other parameters of the valuation can also change.

In this regard, we will obtain declarations updating the letters of general representativeness on the day of the general meeting at which ADVA SE shareholders adopt the resolution and we will issue a declaration as of the reporting date on the adequacy of the compensation and settlement.

E. Concluding statement

As court-appointed auditor, we have audited the control and profit and loss absorption agreement between ADVA Optical Networking SE and ADTRAN Holdings, Inc.

The CPLAA accurately contains all provisions set out in §§ 291 ff. AktG and thus complies with the provisions of law.

With regard to the appropriateness of the compensation and settlement, we issue the following concluding statement pursuant to § 293e AktG:

"In our opinion, for the reasons set out above, a net amount of €0.52 per ADVA no-par-value share to be received by the outside shareholders of ADVA Optical Networking SE as a compensation payment for each subsequent full financial year and the proposed settlement under which the outside shareholders of ADVA Optical Networking SE will receive cash compensation of € 17.21 per no-par-value share of their company are appropriate. We consider the provision of the control and profit and loss absorption agreement, according to which the compensation payment results from a fixed gross amount of € 0.59 per no-par-value share of ADVA Optical Networking SE less corporate income tax and the solidarity surcharge at the respective rate applicable for these taxes for the year in question, to be appropriate in view of the ruling of the German Federal Supreme Court in Case II ZB 17/01 on 21 July 2003."

No particular difficulties have arisen in the valuation of ADVA Optical Networking SE.

Düsseldorf, 22 October 2022

ADKL AG
Wirtschaftsprüfungsgesellschaft

Wolfram Wagner
Auditor

p.p. Axel Augustin
Auditor

Beglaubigte Abschrift

Landgericht Meiningen

Az.: HK O 15/22



Beschluss

In dem Rechtsstreit

- 1) **ADTRAN Holdings, Inc. Corporation Trust Center**, vertreten d.d. Vorstand, 1209 Orange Street, Wilmington, Delaware, Vereinigte Staaten von Amerika
- Antragstellerin -

Bevollmächtigte:

Rechtsanwälte **Kirkland & Ellis International LLP**, Herrn Dr. Achim Herfs, Maximilianstraße 11, 80539 München

- 2) **ADVA Optical Networking SE**, vertreten durch d. Vorstand, Märzenquelle 1-3, 98617 Meiningen
- Antragstellerin -

Bevollmächtigte:

Rechtsanwälte **Hogan Lovells International LLP**, Karl-Scharnagl-Ring 5, 80539 München

wegen Antrag auf Bestellung eines Vertragsprüfers

hat die Kammer für Handelssachen des Landgerichts Meiningen durch

Richter am Landgericht Dr. Kliebisch

am 22.07.2022

b e s c h l o s s e n :

1. Die zwischen ADTRAN und ADVA Optical Networking SE beabsichtigte Vereinbarung über den Abschluss eines Beherrschungsvertrags oder eines Beherrschungs- und Gewinnabführungsvertrags im Sinne von § 291 Abs. 1 AktG zwischen ADVA Optical Networking SE als beherrschtem Unternehmen und ADTRAN (eingetragen im Handelsregister des Amtsgerichts Jena HRB 508155) als beherrschendem Unternehmen Beherrschungs- und Gewinnabführungsvertrag ist gemäß § 293b Abs. 1 AktG durch einen sachverständigen Prüfer (Vertragsprüfer) zu prüfen und wird für beide beteiligten Gesellschaften durch einen gemeinsamen Vertragsprüfer geprüft (§ 293c Abs. 1 Satz 1 Var. 1, Satz 2 AktG).

2. Zum Sachverständigen Vertragsprüfer wird bestellt:

Wirtschaftsprüfer Wolfgang Wagner

ADKL AG Wirtschaftsprüfungsgesellschaft

Breite Straße 29-31

40213 Düsseldorf

3. Dem Prüfer steht gegen den Hauptaktionär ein Anspruch auf Ersatz angemessener Auslagen und ein Vergütungsanspruch zu (§§ 327 c Abs. 2 Satz 4, 293 c Abs. 1 Satz 5 AktG, § 318 Abs. 5 HGB). Soweit sich Hauptaktionär und Prüfer ausnahmsweise nicht einigen können, setzt das Gericht Auslagen und Vergütung fest. Diese Vergütung liegt regelmäßig über der Vergütung, die auf der Basis des Gesetzes über die Entschädigung von Zeugen und Sachverständigen entstünde. Die Kammer bittet daher, der Hauptaktionär soll sich darüber erklären, dass ggf. mit einer über dem gesetzlichen Satz liegenden Vergütung Einverständnis besteht.

Rechtsbehelfsbelehrung:

Gegen die gerichtliche Bestellung des sachverständigen Prüfers steht dem Hauptaktionär das Recht der Beschwerde zu (§§ 327c Abs. 2 S. 4, 293c Abs. 2 iVm § 10 Abs. 4 UmwG, § 58 FamFG)

Die Beschwerde ist schriftlich einzulegen oder durch Erklärung zu Protokoll der Geschäftsstelle des genannten Gerichts. Sie kann auch vor der Geschäftsstelle jedes Amtsgerichts zu Protokoll erklärt werden; die Frist ist jedoch nur gewahrt, wenn das Protokoll rechtzeitig bei dem oben genannten Gericht eingeht. Eine anwaltliche Mitwirkung ist nicht vorgeschrieben.

Rechtsbehelfe können auch als **elektronisches Dokument** eingereicht werden. Eine einfache E-Mail genügt den gesetzlichen Anforderungen nicht.

Rechtsbehelfe, die durch eine Rechtsanwältin, einen Rechtsanwalt, durch eine Behörde oder durch eine juristische Person des öffentlichen Rechts einschließlich der von ihr zur Erfüllung ihrer öffentlichen Aufgaben gebildeten Zusammenschlüsse eingereicht werden, sind **als elektronisches Dokument** einzureichen, es sei denn, dass dies aus technischen Gründen vorübergehend nicht möglich ist. In diesem Fall bleibt die Übermittlung nach den allgemeinen Vorschriften zulässig, wobei die vorübergehende Unmöglichkeit bei der Ersatzeinreichung oder unverzüglich danach glaubhaft zu machen ist. Auf Anforderung ist das elektronische Dokument nachzureichen.

Elektronische Dokumente müssen

- mit einer qualifizierten elektronischen Signatur der verantwortenden Person versehen sein oder
- von der verantwortenden Person signiert und auf einem sicheren Übermittlungsweg eingereicht werden.

Ein elektronisches Dokument, das mit einer qualifizierten elektronischen Signatur der verantwortenden Person versehen ist, darf wie folgt übermittelt werden:

- auf einem sicheren Übermittlungsweg oder
- an das für den Empfang elektronischer Dokumente eingerichtete Elektronische Gerichts- und Verwaltungspostfach (EGVP) des Gerichts.

Wegen der sicheren Übermittlungswege wird auf § 130a Absatz 4 der Zivilprozessordnung verwiesen. Hinsichtlich der weiteren Voraussetzungen zur elektronischen Kommunikation mit den Gerichten wird auf die Verordnung über die technischen Rahmenbedingungen des elektronischen Rechtsverkehrs und über das besondere elektronische Behördenpostfach (Elektronischer-Rechtsverkehr-Verordnung - ERVV) in der jeweils geltenden Fassung sowie auf die Internetseite www.justiz.de verwiesen.

gez.

Dr. Kliebisch
Richter am Landgericht



Beglaubigt
Meiningen, 22.07.2022
Steger, Justizsekretärin
Urkundsbeamtin der Geschäftsstelle

**Beherrschungs- und Gewinnabführungs-
vertrag**

**Domination and Profit and Loss
Transfer Agreement**

zwischen

by and between

ADVA Optical Networking SE

Märzenquelle 1-3, 98617 Meinigen OT Dreißigacker

eingetragen im Handelsregister des Amtsge-
richts Jena (HRB 508155)

registered at the commercial register of the
local court Jena (HRB 508155)

– **ADVA** –

und

and

ADTRAN Holdings, Inc.,

Corporation Trust Center, 1209 Orange Street, Wilmington, New Castle County, Delaware,
United States of America,

eine Aktiengesellschaft (*corporation*) nach
dem Recht des Bundesstaates Delaware
(Vereinigte Staaten von Amerika), eingetra-
gen im *Division of Corporations* des Bundes-
staates Delaware (Vereinigte Staaten von
Amerika) unter der Nummer 6141966

a corporation organized under the laws of
the State of Delaware (United States of
America), registered in the Division of
Corporations of the State of Delaware
(United States of America) under number
6141966

– **ADTRAN Holdings** –

§ 1

Leitung

(1) ADVA unterstellt ADTRAN Holdings
die Leitung ihrer Gesellschaft ab dem
Zeitpunkt der Wirksamkeit dieses Ver-
trags. Dementsprechend ist ADTRAN
Holdings berechtigt, dem Vorstand der
ADVA in Bezug auf die Leitung der
ADVA sowohl allgemeine als auch auf
den Einzelfall bezogene Weisungen zu
erteilen.

§ 1

Managerial Control

(1) ADVA agrees that the management of
its company shall be under the control
of ADTRAN Holdings as from the date
of the effectiveness of this Agreement.
Accordingly, ADTRAN Holdings
shall be entitled to give instructions to
the management board of ADVA with
respect to the management of ADVA
in general or on a case by case basis.

- | | |
|---|---|
| <p>(2) Der Vorstand der ADVA ist verpflichtet, Weisungen der ADTRAN Holdings nach § 1 Abs. 1 und in Übereinstimmung mit § 308 AktG zu befolgen.</p> <p>(3) ADTRAN Holdings kann dem Vorstand der ADVA keine Weisungen in Bezug auf die Änderung, Aufrechterhaltung oder Beendigung dieses Vertrags erteilen.</p> <p>(4) Weisungen bedürfen der Textform nach § 126b BGB oder sind, sofern sie mündlich erteilt werden, unverzüglich in Textform zu bestätigen, sofern der Vorstand dies verlangt.</p> | <p>(2) The management board of ADVA is required to comply with the instructions of ADTRAN Holdings as specified in § 1 para. 1 and in accordance with § 308 AktG.</p> <p>(3) ADTRAN Holdings shall not be entitled to give instructions to the management board of ADVA pertaining to amending, maintaining, or terminating this agreement.</p> <p>(4) Any instructions require text form according to § 126b BGB or, if the instructions are given orally, they shall be confirmed in text form without undue delay, if requested by the management board.</p> |
|---|---|

§ 2

Gewinnabführung

- (1) ADVA verpflichtet sich, ihren ganzen Gewinn an ADTRAN Holdings abzuführen. Vorbehaltlich der Bildung oder Auflösung von Rücklagen nach § 2 Abs. 2 ist der nach § 301 AktG in dessen jeweils geltender Fassung zulässige Höchstbetrag abzuführen.
- (2) ADVA kann mit schriftlicher oder in Textform nach § 126b BGB erfolgreicher Zustimmung der ADTRAN Holdings Beträge aus dem Jahresüberschuss in andere Gewinnrücklagen einstellen, soweit dies handelsrechtlich zulässig und bei vernünftiger kaufmännischer Beurteilung wirtschaftlich begründet ist. Während der Vertragslaufzeit gebildete andere Gewinnrücklagen sind auf schriftliches oder in Textform nach § 126b BGB erfolgreiches Verlangen der ADTRAN

§ 2

Transfer of Profit

- (1) ADVA undertakes to transfer its entire annual profit (*Gewinnabführung*) to ADTRAN Holdings. Subject to establishing or dissolving reserves in accordance with § 2 para. 2, the maximum amount permissible under § 301 AktG, as amended from time to time, shall be transferred.
- (2) If and to the extent permissible under commercial law and economically justified by reasonable commercial judgment, ADVA may, with the consent of ADTRAN Holdings in writing or text form according to § 126b BGB, allocate parts of its annual profit to other profit reserves. Other profit reserves which have been created during the term of this agreement shall be liquidated upon request of ADTRAN Holdings in writing or text form according

Holdings aufzulösen und zum Ausgleich eines Jahresfehlbetrags zu verwenden oder als Gewinn abzuführen. Sonstige Rücklagen oder ein Gewinnvortrag, der aus der Zeit vor der Wirksamkeit dieses Vertrags stammt, dürfen weder als Gewinn abgeführt noch zum Ausgleich eines Jahresfehlbetrages verwendet werden.

- (3) Die Verpflichtung zur Abführung des gesamten Gewinns besteht erstmals für das Geschäftsjahr der ADVA, in dem dieser Vertrag nach § 7 Abs. 2 wirksam wird. Die Verpflichtung ist in jedem Fall mit Feststellung des Jahresabschlusses für das betreffende Geschäftsjahr der ADVA fällig.

§ 3

Verlustübernahme

- (1) ADTRAN Holdings ist nach § 302 Abs. 1 AktG in dessen jeweils geltender Fassung zum Ausgleich eines Jahresfehlbetrags der ADVA verpflichtet. Die Vorschrift des § 302 AktG ist in ihrer Gesamtheit in der jeweils geltenden Fassung anzuwenden.
- (2) Die Verpflichtung zum Ausgleich des gesamten Jahresfehlbetrags besteht erstmals für das Geschäftsjahr der ADVA, in dem dieser Vertrag nach § 7 Abs. 2 wirksam wird. Die Verpflichtung wird in jedem Fall zum Ende eines Geschäftsjahrs der ADVA fällig.
- (3) Bei einer Beendigung dieses Vertrags während eines Geschäftsjahrs, insbeson-

to § 126b BGB and used to compensate any annual deficit for the financial year or be transferred as profit. Other reserves or profits carried forward from the period prior to the term of this agreement may neither be transferred as profit nor be used to compensate for any annual deficit.

- (3) The obligation to transfer the annual profit applies for the first time to the entire profits generated in the fiscal year of ADVA in which this agreement becomes effective according to § 7 para. 2. In each case, the obligation becomes due with the approval of the respective annual financial statement of ADVA.

§ 3

Balancing of Losses

- (1) ADTRAN Holdings is obliged pursuant to § 302 para. 1 AktG, as amended from time to time, to balance each year any annual net loss of ADVA that would otherwise arise during the term of this agreement. The provision of § 302 AktG applies in its entirety, as amended from time to time.
- (2) The obligation to balance any losses applies for the first time to the entire losses generated in the fiscal year of ADVA in which this agreement becomes effective according to § 7 para. 2. In each case, the obligation becomes due at the end of the respective fiscal year of ADVA.
- (3) In the event this agreement is terminated during a fiscal year, and specifically in the event of termination for

dere durch eine Kündigung aus wichtigem Grund, ist ADTRAN Holdings zur Übernahme desjenigen Fehlbetrags der ADVA, wie er sich aus einer auf den Tag des Wirksamwerdens der Beendigung zu erstellenden Stichtagsbilanz ergibt, verpflichtet.

§ 4

Ausgleichszahlung

- (1) ADTRAN Holdings verpflichtet sich, den außenstehenden Aktionären der ADVA für die Dauer dieses Vertrags als angemessenen Ausgleich nach § 304 Abs. 1 AktG die Zahlung einer wiederkehrenden Geldleistung (**Ausgleichszahlung**) zu zahlen.
- (2) Die Ausgleichszahlung beträgt für jedes volle Geschäftsjahr der ADVA für jede nennwertlose Inhaberaktie der ADVA mit einem rechnerischen Anteil am Grundkapital von EUR 1,00 (jede einzelne eine **ADVA Aktie**, insgesamt die **ADVA Aktien**) brutto EUR 0,59 (**Bruttoausgleichsbetrag**), abzüglich eines etwaigen Betrags für Körperschaftsteuer und Solidaritätszuschlag in Höhe des für diese Steuern für das jeweilige Geschäftsjahr jeweils geltenden Steuersatzes (**Nettoausgleichsbetrag**), wobei dieser Abzug nur auf den Teil des Bruttoausgleichsbetrags, der sich auf die der deutschen Körperschaftsteuer unterliegenden Gewinne bezieht, vorzunehmen ist. Am Tag des Abschlusses dieses Vertrags beträgt die Körperschaftsteuer 15 % und der Solidaritätszuschlag 5,5 %. Dementsprechend ergibt sich am Tag des Abschlusses dieses Vertrags nach kaufmännischer Rundung auf einen vollen Cent-Betrag eine Ausgleichszahlung in Höhe

cause (*wichtiger Grund*), ADTRAN Holdings is required to balance the losses of ADVA as shown in the balance sheet to be drawn up as of the date of the effectiveness of the termination in accordance with applicable accounting rules.

§ 4

Recurring Compensation Payment

- (1) ADTRAN Holdings undertakes to pay to outside shareholders of ADVA as adequate compensation pursuant to § 304 para. 1 AktG a recurring cash compensation (**Recurring Compensation Payment**) (*Ausgleich*) as long as this agreement is in effect.
- (2) The Recurring Compensation Payment payable for each full fiscal year of ADVA with respect to each no-par value bearer share of ADVA (*Namensaktie ohne Nennbetrag*), each with a notional value of EUR 1.00 (each a **ADVA Share**, together the **ADVA Shares**), shall be equal to EUR 0.59 gross (**Gross Compensation Amount**), less any amount of corporate income tax (*Körperschaftsteuer*) and solidarity surcharge (*Solidaritätszuschlag*) at the prevailing rate of these taxes for the relevant fiscal year (**Net Compensation Amount**), provided that this deduction is to be effected only on such portion of the Gross Compensation Amount that relates to profits subject to German corporate income tax. As of the date of the execution of this agreement, the corporate income tax amounted to 15% and the solidary surcharge amounted to 5.5%. When applied to the Gross Compensation

von EUR 0,52 je ADVA Aktie für ein volles Geschäftsjahr der ADVA. Klarstellend wird vereinbart, dass, soweit gesetzlich vorgeschrieben, anfallende Quellensteuern (etwa Kapitalertragsteuer zuzüglich Solidaritätszuschlag) von dem Nettoausgleichsbetrag einbehalten werden.

Amount which is subject to German corporate income tax and rounded to a full cent amount in accordance with commercial practices and then deducted, the resulting amount as of the date of the execution of this agreement is a Recurring Compensation Payment of EUR 0.52 for each ADVA Share for an entire fiscal year of ADVA. For the avoidance of doubt, it is agreed that any withholding tax (such as capital gains tax plus solidarity surcharge thereon) shall be withheld from the Net Compensation Amount to the extent required by statutory law.

(3) Die Ausgleichszahlung ist am dritten Bankarbeitstag (Frankfurt am Main) nach der ordentlichen Hauptversammlung der ADVA für das jeweils abgelaufene Geschäftsjahr, jedoch spätestens acht Monate nach Ablauf des jeweiligen Geschäftsjahrs fällig.

(3) The Recurring Compensation Payment is due on the third banking day (Frankfurt am Main) following the ordinary general shareholders' meeting of ADVA for the respective preceding fiscal year, but in any event within eight months following expiration of this fiscal year.

(4) Die Ausgleichszahlung wird erstmals für dasjenige Geschäftsjahr der ADVA, in dem dieser Vertrag nach § 7 Abs. 2 wirksam wird, gewährt und wird gemäß § 4 Abs. 3 erstmals nach der ordentlichen Hauptversammlung der ADVA im darauffolgenden Jahr gezahlt.

(4) The Recurring Compensation Payment is first granted for the fiscal year of ADVA in which this agreement becomes effective according to § 7 para. 2, and will be paid for the first time in accordance with § 4 para. 3 after the ordinary general shareholders' meeting of ADVA in the following year.

(5) Falls dieser Vertrag während eines Geschäftsjahrs der ADVA endet oder ADVA während der Laufzeit dieses Vertrags ein Rumpfgeschäftsjahr bildet, vermindert sich der Bruttoausgleichsbetrag für das betroffene Geschäftsjahr zeitanteilig.

(5) If this agreement ends during a fiscal year of ADVA or if ADVA establishes a short fiscal year (*Rumpfgeschäftsjahr*) during the term of this agreement, the Gross Compensation Amount is reduced to *pro rata temporis* for the relevant fiscal year.

- (6) Falls das Grundkapital der ADVA aus Gesellschaftsmitteln gegen Ausgabe neuer Aktien erhöht wird, vermindert sich der Bruttoausgleichsbetrag je ADVA Aktie in dem Maße, dass der Gesamtbetrag des Bruttoausgleichsbetrags unverändert bleibt. Falls das Grundkapital der ADVA durch Ausgabe neuer Aktien gegen Bar- und/oder Sacheinlagen erhöht wird, gelten die Rechte aus diesem § 4 auch für die von außenstehenden Aktionären bezogenen Aktien aus einer solchen Kapitalerhöhung. Der Beginn der Berechtigung aus den neu ausgegebenen Aktien nach diesem § 4 korrespondiert mit dem von ADVA bei Ausgabe der neuen Aktien festgesetzten Zeitpunkt zur Gewinnanteilsberechtigung.
- (6) If the share capital of ADVA is increased from own funds of ADVA in exchange for the issuance of new shares, the Gross Compensation Amount per ADVA Share is reduced to such extent that the aggregate amount of the Gross Compensation Amount remains unchanged. If the share capital is increased by the issuance of new shares against cash contributions and/or contributions in kind, the rights under this § 4 also apply for the shares subscribed to by outside shareholders in such capital increase. The beginning of the entitlement to rights under this § 4 in respect of the newly issued shares follows the beginning of entitlement to dividends as set out by ADVA at the time of issuance of the new shares.
- (7) Falls ein Spruchverfahren nach dem Spruchverfahrensgesetz ("**SpruchG**") eingeleitet wird und das Gericht rechtskräftig eine höhere Ausgleichszahlung festsetzt oder in einem gerichtlich protokollierten Vergleich zur Beendigung eines Spruchverfahrens oder in einem Vergleich im schriftlichen Verfahren nach § 11 Abs. 4 SpruchG eine höhere Ausgleichszahlung vereinbart wird, können auch die bereits nach Maßgabe des § 5 abgefundenen außenstehenden Aktionäre eine entsprechende Ergänzung der von ihnen bereits erhaltenen Ausgleichszahlungen verlangen, soweit gesetzlich vorgesehen.
- (7) If appraisal proceedings (*Spruchverfahren*) are initiated in accordance with the German Appraisal Proceedings Act ("**SpruchG**") and the court legally determines a higher Recurring Compensation Payment or if a higher Recurring Compensation Payment is agreed in a court-recorded settlement (*gerichtlich protokollierter Vergleich*) to terminate appraisal proceedings or in a settlement in written proceedings in accordance with § 11 (4) SpruchG, the outside shareholders already compensated in accordance with clause § 5 may also demand a corresponding supplement to the Recurring Compensation Payments already received by them, to the extent provided by law.

§ 5 Abfindung

- (1) ADTRAN Holdings verpflichtet sich, auf Verlangen eines jeden außenstehenden Aktionärs der ADVA dessen ADVA Aktien gegen eine Barabfindung (**Abfindung**) in Höhe von EUR 17,21 je ADVA Aktie zu erwerben.
- (2) Die Verpflichtung der ADTRAN Holdings zum Erwerb der ADVA Aktien ist befristet. Die Frist endet zwei Monate nach dem Tag, an dem die Eintragung des Bestehens dieses Vertrags im Handelsregister des Sitzes der ADVA nach § 10 HGB bekannt gemacht worden ist. Eine Verlängerung der Frist nach § 305 Abs. 4 Satz 3 AktG wegen eines Antrags auf Bestimmung der angemessenen Ausgleichszahlung oder der angemessenen Abfindung durch das in § 2 SpruchG bestimmte Gericht bleibt unberührt; in diesem Fall endet die Frist zwei Monate nach dem Tag, an dem die Entscheidung über den zuletzt beschiedenen Antrag im Bundesanzeiger bekannt gemacht worden ist.
- (3) Falls bis zum Ablauf der in § 5 Abs. 2 genannten Frist das Grundkapital der ADVA aus Gesellschaftsmitteln gegen Ausgabe neuer Aktien erhöht wird, vermindert sich die Abfindung je ADVA Aktie in dem Maße, dass der Gesamtbetrag der Abfindung unverändert bleibt. Falls das Grundkapital der ADVA bis zum Ablauf der in § 5 Abs. 2 genannten Frist durch Ausgabe neuer Aktien gegen Bar- und/oder Sacheinlagen erhöht wird,

§ 5 Compensation

- (1) ADTRAN Holdings undertakes upon demand of any outside shareholder of ADVA to purchase the ADVA Shares tendered by such shareholder in exchange for a cash compensation (**Compensation**) (*Abfindung*) in the amount of EUR 17.21 for each ADVA Share.
- (2) The obligation of ADTRAN Holdings to acquire ADVA Shares is limited in time. The time limitation period ends two months after the date on which the entry of the existence of this agreement has been published in the commercial register at the registered seat of ADVA pursuant to § 10 HGB. An extension of the time limitation period pursuant to § 305 para. 4 sent. 3 AktG as a result of a filing for determination of the adequate Recurring Compensation Payment or the adequate Compensation by a court pursuant to § 2 SpruchG remains unaffected; in this event, the time limitation period shall expire two months after the date on which the decision on the last motion disposed has been published in the Federal Gazette (*Bundesanzeiger*).
- (3) If the share capital of ADVA is increased from own funds of ADVA in exchange for the issuance of new shares prior to the expiration of the time limitation period set forth in § 5 para. 2, the Compensation for each ADVA Share is reduced to such extent that the aggregate amount of the Compensation remains unchanged. If the share capital of ADVA is increased by the issuance of new shares against cash

gelten die Rechte aus diesem § 5 auch für die von außenstehenden Aktionären bezogenen Aktien aus der Kapitalerhöhung.

contributions and/or contributions in kind prior to the expiration of the time limitation period set forth in § 5 para. 2, the rights under this § 5 also apply for the shares subscribed to by outside shareholders in such capital increase.

(4) Die Übertragung der ADVA Aktien gegen Abfindung ist für die außenstehenden Aktionäre der ADVA kostenfrei, sofern sie über ein inländisches Wertpapierdepot verfügen.

(4) The transfer of ADVA Shares in exchange for Compensation is without charge to outside shareholders of ADVA, provided that they have a domestic securities deposit account.

(5) Falls ein Spruchverfahren nach dem SpruchG eingeleitet wird und das Gericht rechtskräftig eine höhere Abfindung festsetzt oder in einem gerichtlich protokollierten Vergleich zur Beendigung eines Spruchverfahrens oder in einem Vergleich im schriftlichen Verfahren nach § 11 Abs. 4 SpruchG eine höhere Abfindung vereinbart wird, können auch die bereits abgefundenen außenstehenden Aktionäre eine entsprechende Ergänzung der Abfindung verlangen, soweit gesetzlich vorgesehen.

(5) If appraisal proceedings (*Spruchverfahren*) are initiated in accordance with the SpruchG and the court legally determines a higher Compensation, or if a higher Compensation is agreed in a court-recorded settlement (*gerichtlich protokollierter Vergleich*) to terminate appraisal proceedings or in a settlement in written proceedings in accordance with Sec. 11 (4) SpruchG, the outside shareholders who have already received the Compensation may also demand a corresponding supplement to the Compensation, to the extent provided by law.

(6) Falls dieser Vertrag durch Kündigung der ADVA oder ADTRAN Holdings zu einem Zeitpunkt endet, zu dem die Frist nach § 5 Abs. 2 für den Erwerb der ADVA Aktien durch ADTRAN Holdings gegen Abfindung nach § 5 Abs. 1 abgelaufen ist, hat jeder außenstehende Aktionär der ADVA das Recht, seine ADVA Aktien, die er im Zeitpunkt der Beendigung dieses Vertrags hält, ADTRAN Holdings gegen Abfindung nach § 5 Abs. 1 anzubieten und ADTRAN

(6) If this agreement ends upon termination by ADVA or ADTRAN Holdings at a time when the period pursuant to § 5 para. 2 to tender the ADVA Shares to ADTRAN Holdings against the Compensation pursuant to § 5 para. 1 has expired, every outside shareholder of ADVA is entitled to tender the ADVA Shares held at the time of termination of this agreement to ADTRAN Holdings against the Compensation pursuant to § 5 para. 1 and AD-

Holdings ist verpflichtet, die von dem außenstehenden Aktionär angebotenen ADVA Aktien zu erwerben. Falls die Abfindung nach § 5 Abs. 1 für jede ADVA Aktie durch eine rechtskräftige Entscheidung in einem Spruchverfahren oder durch einen gerichtlich protokollierten Vergleich zur Abwendung oder Beendigung eines Spruchverfahrens erhöht wird, wird ADTRAN Holdings die von dem außenstehenden Aktionär angebotenen ADVA Aktien gegen Zahlung der im Spruchverfahren oder im gerichtlich protokollierten Vergleich festgesetzten Abfindung erwerben. Das Recht unter diesem § 5 Abs. 6 ist befristet. Die Frist endet zwei Monate nach dem Tag, an dem die Eintragung der Beendigung dieses Vertrags im Handelsregister des Sitzes der ADVA nach § 10 HGB bekannt gemacht worden ist. § 5 Abs. 3 und § 5 Abs. 4 gelten entsprechend.

§ 6 Auskunftsrecht

- (1) ADTRAN Holdings ist berechtigt, Bücher und Schriften der ADVA jederzeit einzusehen.
- (2) Der Vorstand der ADVA ist verpflichtet, ADTRAN Holdings jederzeit alle verlangten Auskünfte über sämtliche Angelegenheiten der ADVA zu geben.
- (3) Unbeschadet der vorstehenden Rechte ist ADVA verpflichtet, ADTRAN Holdings

TRAN Holdings shall be obliged to acquire the ADVA Shares tendered by the outside shareholder. If the Compensation pursuant to § 5 para. 1 for each ADVA Share is increased as a result of non-appealable appraisal proceedings (*Spruchverfahren*) or as a result of a judicially recorded settlement (*gerichtlich protokollierter Vergleich*) in order to avert or terminate appraisal proceedings (*Spruchverfahren*), ADTRAN Holdings will acquire the ADVA Shares tendered by the outside shareholders against payment of the Compensation for each ADVA Share as determined in the appraisal proceedings or judicially recorded settlement (*gerichtlich protokollierter Vergleich*). The right of disposal as set forth in this § 5 para. 6 is limited in time. The time limitation periods ends two months after the date on which the registration of the termination of this agreement has been published in the commercial register at the registered seat of ADVA pursuant to § 10 HGB. § 5 para. 3 and § 5 para. 4 apply accordingly.

§ 6 Right to Information

- (1) ADTRAN Holdings is entitled to inspect the books and records of ADVA at any time.
- (2) The management board of ADVA is obliged to supply ADTRAN Holdings at any time with all requested information on all matters relating to ADVA.
- (3) Notwithstanding the rights above, ADVA is required to keep ADTRAN

über die geschäftliche Entwicklung, insbesondere über wesentliche Geschäftsvorfälle, laufend zu informieren.

Holdings continuously informed on the business development and, specifically, on material transactions.

- (4) Solange es sich bei ADVA um eine börsennotierte Aktiengesellschaft handelt, sind die Parteien verpflichtet, die kapitalmarktrechtlichen Vorschriften, insbesondere die Marktmissbrauchsverordnung (EU) Nr. 596/2014, einzuhalten.

- (4) As long as ADVA is a publicly listed stock corporation the Parties are obliged to comply with the capital market law requirements, in particular with Market Abuse Regulation (EU) No 596/2014.

§ 7

Wirksamwerden und Dauer des Vertrags

- (1) Dieser Vertrag bedarf zu seiner Wirksamkeit der Zustimmung der Hauptversammlung der ADVA.
- (2) Dieser Vertrag wird wirksam, sobald sein Bestehen in das Handelsregister des Sitzes der ADVA eingetragen worden ist, frühestens jedoch zu Beginn des am 1. Januar 2023 beginnenden Geschäftsjahres von ADVA.
- (3) Dieser Vertrag wird für die Zeit bis zum Ablauf des zweiten (2.) Geschäftsjahres von ADVA, das nach der Eintragung dieses Vertrags im Handelsregister beginnt, fest abgeschlossen ("**Erstlaufzeit**"). Mit Ablauf der Erstlaufzeit und jeder nachfolgenden Folgelaufzeit (wie unten definiert) verlängert sich dieser Vertrag automatisch jeweils um weitere zwei Geschäftsjahre von ADVA (jeweils eine "**Folgelaufzeit**"), falls er nicht sechs Monate vor Ablauf der Erstlaufzeit oder der betreffenden Folgelaufzeit von einer Partei schriftlich gekündigt wird. Sonstige Rechte zur ordentlichen Kündigung sind ausgeschlossen.

§ 7

Effectiveness and Term of this Agreement

- (1) This agreement requires for its effectiveness the consent of the general shareholders' meeting of ADVA.
- (2) This agreement becomes effective upon registration of its existence in the commercial register at the registered seat of ADVA, however, at the earliest, upon the beginning of the fiscal year of ADVA beginning on 1 January 2023 .
- (3) This Agreement is entered into for a fixed term until the end of ADVA's second (2nd) fiscal year, which begins after the registration of this Agreement in the commercial register ("**Initial Term**"). Upon expiration of the Initial Term and each subsequent Term (as defined below), this Agreement shall automatically renew for an additional two fiscal years of ADVA (each a "**Subsequent Term**") unless terminated in writing by either party six months prior to the expiration of the Initial Term or the relevant Subsequent Term. Any other rights of ordinary termination are excluded.

- (4) Jede Partei kann diesen Vertrag aus wichtigem Grund ohne Einhaltung einer Kündigungsfrist kündigen. Falls ADTRAN Holdings nach diesem Vertrag bestehende Zahlungsverpflichtungen nicht erfüllt, soll ADVA die ADTRAN Holdings hiervon unterrichten und ihr einen Monat Zeit zur Erfüllung geben, bevor ADVA diesen Vertrag aus wichtigem Grund kündigt. § 297 Abs. 1 Satz 2 AktG bleibt unberührt.
- (4) Each party may terminate this agreement for cause (*aus wichtigem Grund*) without compliance with any notice period. If ADTRAN Holdings fails to perform any of its payment obligations under this agreement, ADVA shall give notice to ADTRAN Holdings and grant a period of one month to cure the default before terminating this agreement for cause. § 297 para. 1 sent. 2 AktG remains unaffected.
- (5) Insbesondere sind die Vertragsparteien zur Kündigung aus wichtigem Grund berechtigt, sofern:
- (5) The parties to this agreement are entitled to terminate this agreement in particular, but without limitation to, if one of the following events occurs:
- (a) ADTRAN Holdings wegen einer Veräußerung der ADVA Aktien, einer Einbringung der ADVA Aktien in eine andere Gesellschaft oder eines anderen Grunds in der Hauptversammlung der ADVA nicht mehr die Mehrheit der Stimmrechte zusteht; oder
 - (a) ADTRAN Holdings ceases to hold the majority of the voting rights in the general shareholders' meeting of ADVA as a result of a disposal of ADVA Shares, or a contribution of ADVA Shares to another entity, or for another reason; or
 - (b) ein Rechtsformwechsel, eine Verschmelzung, Spaltung oder Liquidation einer der Vertragsparteien stattfindet.
 - (b) a change in legal form, merger, demerger or liquidation of one of the parties to this agreement.
- (6) Im Fall einer fristlosen Kündigung aus wichtigem Grund endet dieser Vertrag mit dem Ablauf des in der Kündigung genannten Tags, frühestens jedoch mit Ablauf desjenigen Tags, an dem die Kündigung zugeht.
- (6) In the event of termination for cause without notice, this agreement lapses at the end of the date stated in the notice of termination, provided that this date is no earlier than the day on which notice of termination is served.
- (7) Endet dieser Vertrag, hat ADTRAN Holdings den Gläubigern der ADVA nach Maßgabe des § 303 AktG Sicherheit zu leisten.
- (7) If the agreement is terminated, ADTRAN Holdings must furnish security to the creditors of ADVA under the conditions set forth in § 303 AktG.

(8) Die Kündigung muss schriftlich erfolgen.

(8) Any notice of termination must be in writing.

§ 8

Schlussbestimmungen

(1) Sollte eine Bestimmung dieses Vertrags ganz oder teilweise unwirksam, undurchführbar oder nicht durchsetzbar sein oder werden, ist davon die Gültigkeit, Wirksamkeit und Durchsetzbarkeit der übrigen Bestimmungen nicht berührt. Anstelle der unwirksamen, undurchführbaren oder nicht durchsetzbaren Bestimmung gilt eine wirksame, durchführbare und durchsetzbare Bestimmung, die dem wirtschaftlich Gewollten und dem mit der unwirksamen, undurchführbaren oder nicht durchsetzbaren Bestimmung Bezweckten am nächsten kommt. Entsprechendes gilt für den Fall einer unbeabsichtigten Lücke dieses Vertrags. Die Parteien vereinbaren, dass durch das Vorstehende nicht nur eine Beweislastumkehr eintritt, sondern auch die Anwendbarkeit des § 139 BGB ausgeschlossen ist.

(2) Die Parteien erklären ausdrücklich, dass dieser Vertrag keine rechtliche Einheit (§ 139 BGB) mit anderen Rechtsgeschäften oder Vereinbarungen, die zwischen den Parteien getätigt oder abgeschlossen wurden oder werden, bildet oder bilden soll.

(3) Änderungen und Ergänzungen dieses Vertrags bedürfen zu ihrer Wirksamkeit der Schriftform. Dies gilt insbesondere auch für diese Schriftformklausel. Im Übrigen gilt § 295 AktG.

§ 8

Miscellaneous

(1) Should any provision of this agreement be or become invalid, ineffective or unenforceable as a whole or in part, the validity, effectiveness and enforceability of the remaining provisions shall not be affected thereby. Any such invalid, ineffective or unenforceable provision shall be deemed replaced by such valid, effective and enforceable provision as comes closest to the economic intent and the purpose of such invalid, ineffective or unenforceable provision. The aforesaid shall apply analogously to any unintended gap in this agreement. The parties agree that the aforesaid shall not only reverse the burden of proof but that the application of § 139 BGB shall be excluded in its entirety as well.

(2) The parties explicitly declare that this agreement is not intended to form a legal unity (§ 139 BGB) with other legal transactions or agreements which are or will be concluded and/or effected between the parties.

(3) Amendments and supplements to this agreement must be in writing to be effective. This specifically applies to this clause requiring written form as well. § 295 AktG applies.

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|--|--|
| <p>(4) Dieser Vertrag unterliegt dem Recht der Bundesrepublik Deutschland unter Ausschluss der Bestimmungen des Internationalen Privatrechts. Soweit rechtlich zulässig, ist Frankfurt am Main Erfüllungsort für die beiderseitigen Verpflichtungen aus diesem Vertrag sowie ausschließlicher Gerichtsstand.</p> <p>(5) Nur der deutsche Text dieses Vertrags ist rechtsverbindlich. Der englische Text ist nicht Teil des Vertrags und nur eine unverbindliche Übersetzung.</p> | <p>(4) This agreement is subject to German law under exclusion of its provisions on private international law. As far as legally permissible, Frankfurt am Main is the place of performance for reciprocal obligations and the exclusive legal venue.</p> <p>(5) Only the German text of this agreement is legally binding. The English text is not part of this agreement and a non-binding convenience translation only.</p> |
|--|--|

ADVA Optical Networking SE

Meiningen, den [[●]. [●] 2022] / the [[●]. [●] 2022]

Dr. Christoph Glingener

Vorsitzender des Vorstands
Chief Executive Officer

Ulrich Dopfer

Mitglied des Vorstands
Chief Financial Officer

Scott St. John

Mitglied des Vorstands
Chief Marketing and Sales Officer

ADTRAN Holdings, Inc.

Huntsville (Alabama, USA), [[●]. [●] 2022] / [[●]. [●] 2022]

Thomas R. Stanton

Chief Executive Officer and Chairman of the Board

Michael Foliano

Senior Vice President and Chief Financial Officer

General Engagement Terms

for

Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften

[German Public Auditors and Public Audit Firms]

as of January 1, 2017

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*) [Translators 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.