

CD Projekt

A new chapter

Following the release of Phantom Liberty expansion, CD Projekt entered a quiet period that we suspect will last several years, and should end with the premiere of Polaris (the next Witcher game), which we expect in 2027e. Nevertheless, we suspect there is a **significant likelihood that investor's perception of CD Projekt will gradually improve as the premiere date approaches**, especially given that the company's release schedule should be looking much more favorable than in the past.

With that said, we suspect that the release of Polaris will be followed by Sirius and a remake of the first Witcher (both seem possible in 2028), as well as Orion (second Cyberpunk), which we expect to be released in 2029e. In its previous strategies, the company had already planned the parallel development of at least two titles, which did not become reality, but **the current situation of the studio** (in terms of employment, experience and the financial situation) **allows us to assume the realization of such an ambitious development plan**.

The only and a **main issue with a described equity story** has to do with the waiting time required for results to improve, as we expect **profits decline to be seen this year and in 2025-26e**, as results may not recover before the release of Polaris. While this look not supportive (especially because the risk of release delay, however we perceive our estimates as conservative), **a comparison of the company's current valuation with its profits potential in 2027-29e shows its attractiveness** (ahead of the release of GTA VI, Take Two is priced by the market with a forward P/E of 17-20x, whereas 2027e P/E ratio of CD Projekt remains below 10x).

The final reason behind our positive stance is linked to the overall market structure, as large IPs have greater likelihood of acquiring attention of players and should provide a better risk-reward ratio for investors in the long run, as smaller titles may prove unattractive at increased supply environment. Taking all that into account, **we consider current valuation of the company as attractive entry point to benefit from the upcoming pipeline, even despite a long wait required for the profits growth**. Therefore, we decided to update our **recommendation to Buy**, and a **target price to PLN 152.1/sh**.

PLN mn	2021	2022	2023e	2024e	2025e	2026e
Revenues	888.2	952.6	1217.9	837.5	675.1	546.6
Adj. EBITDA	337.6	494.8	708.5	470.6	328.1	224.9
Growth %	-76%	47%	43%	-34%	-30%	0%
Free cash flow	784.5	149.9	207.3	23.2	-132.5	-321.9
Growth %	60%	-81%	38%	-89%	n/a	n/a
Net income	208.9	347.1	437.6	304.0	197.7	114.8
DPS	5.0	1.0	1.0	1.0	1.0	1.0
DY	2.5%	1.0%	0.9%	0.9%	0.9%	0.9%
P/E	100.3	28.8	24.5	35.3	54.3	93.6
EV/EBITDA	58.6	18.0	13.3	20.1	29.5	44.9

Source: Company, Pekao Equity Research

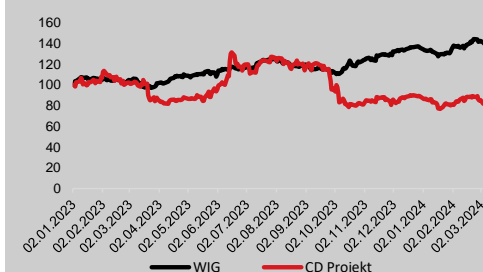
BUY (Sell previously)

Target price **PLN 152.1**

Upside to TP **43.6%**
 Price on 04 March 2024 **PLN 105.9**

ESG rating **B**
Final ESG score **1.45**

Relative share price performance vs. WIG



UPCOMING EVENTS

4Q'23 report	March, 28
1Q'24 report	May, 28

STOCK DATA

Reuters/Bloomberg	CDR.WA/CDR.PW
Free float (%)	70.3
Market capitalization (PLN mn)	10,581
No. of shares in issue (mn)	99.9

Shareholders	M. Iwinski 12.89%
	M. Kicinski 10.00%
	P. Nielubowicz 6.86%

Niniejszy raport stanowi skrót raportu przekazanego wcześniej klientom profesjonalnym i uprawnionym kontrahentom usługi sporządzania analiz inwestycyjnych BM Pekao w języku angielskim, a jego treść dostępna jest w aplikacji eTrader. Data pierwszej publikacji materiału: 07.03.2024 g. 07:00 Wyjaśnienie terminologii fachowej stosowanej w opracowaniu znajduje w zastrzeżeniach prawnych na końcu dokumentu.

Emil Popławski
emil.poplawski@pekao.com.pl

Valuation

We carried out SOTP analysis to present intrinsic value of particular franchises, which together makes up the company's valuation. All cash flows and operating costs are discounted to present value, final valuation is adjusted by net debt/cash hold by the company and presented as a 12M target price per share. In addition we present a peer comparison and DCF model. Our target price is equally based on SOTP and DCF model.

Key assumptions

- Risk free rate of 5.3%, Beta of 1.0, Equity Risk Premium of 6.0%
- 3.0% growth used in terminal
- TV FCFF calculated as an average 2026-29 FCFF
- USD/PLN of 4.0, EUR/PLN of 4.40
- SOTP WACC of 10.5%
- Diluted number of shares used to calculate TP (we used 1.5mn dilution)
- Witcher IV release in 2027e, 12M sales of 21.1mn copies, 4Y sales of 34.0mn
- Cyberpunk 2 release in 2029e, 12M sales of 21.2mn
- ESG Rating: B – WACC risk premium impact (% of RFR) = - 7.5%

Based on our model value of particular franchises coupled with unassigned costs and PLN 1,321mn of net cash (as of the end of 2023e), translates into **SOTP valuation of CD Projekt of PLN 13,792mn or PLN 153.2/sh.**

Peer comparison

Company name	Ticker	P/E			EV/EBITDA		
		2024e	2025e	2026e	2024e	2025e	2026e
Electronic Arts Inc	EA US	18.6	16.6	14.7	13.8	12.7	11.2
Ubisoft Entertainment	UBI FP	11.5	10.1	8.3	3.7	3.3	3.6
Take-Two Interactive Software	TTWO US	24.2	16.7	15.8	22.1	15.9	19.4
Konami	9766 JT	23.1	21.6	21.6	11.8	11.0	11.0
Capcom	9697 JT	26.1	24.0	25.4	19.7	18.4	17.6
Tencent	700 HK	13.7	12.1	10.7	10.4	9.3	8.1
Square Enix	9684 JT	18.6	19.6	17.9	8.5	8.8	7.9
Paradox Interactive	PDX SS	26.8	21.5	19.1	10.0	9.4	9.0
Embracer Group	EMBRACB SS	4.8	4.1	3.9	3.4	3.1	3.3
Team17	TM17 LN	11.0	10.5	10.5	7.2	6.7	6.8
Nintendo	7974 JT	26.0	23.9	21.0	19.2	17.2	14.9
Bandai Namco	7832 JT	19.4	17.5	17.9	9.9	9.2	9.1
11bit Studios	11B PW	8.7	11.8	18.7	5.0	5.9	8.8
Creepy Jar	CRJ PW	28.7	8.4	12.5	24.0	4.6	7.2
People Can Fly	PCF PW	n/a	9.8	10.2	35.0	4.8	2.6
PlayWay	PLW PW	13.4	13.2	12.1	9.5	9.4	8.7
Median		18.6	14.9	15.3	10.2	9.3	8.8
37 Interactive	002555 CH	11.2	10.0	4.0	9.2	8.1	7.0
Nexon	3659 JT	17.7	15.3	15.2	9.5	8.3	8.4
Playtika	PLTK US	10.4	9.8	9.9	5.5	5.2	4.4
Netmarble Corp	251270 KS	109.0	54.5	n/a	25.0	21.4	n/a
Huuuge	HUGE PW	6.7	7.3	7.8	2.8	2.3	1.6
Ten Square Games	TEN PW	7.5	7.7	7.8	4.9	5.2	5.4
Median - mobile gaming only		10.8	9.9	7.8	7.3	6.7	5.4
Median total		17.7	12.6	12.5	9.7	8.5	8.1
CD Projekt		35.3	54.3	93.6	20.1	29.5	44.9
<i>Premium/discount vs. Median</i>		<i>100%</i>	<i>330%</i>	<i>648%</i>	<i>107%</i>	<i>246%</i>	<i>456%</i>
Implied value p.s. PLN		53.7	25.0	14.4	58.5	38.5	24.6

Source: Bloomberg, Pekao Equity Research

WACC calculation

	2024e	2025e	2026e	2027e	2028e	2029e	Terminal Year
Risk free rate	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	4.0%
Equity risk premium	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%
ESG discount/premium	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	-0.3%
Beta	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Cost of equity	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	8.7%
Cost of debt	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	6.0%
After-tax cost of debt	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	5.5%
Equity weight	100%	100%	100%	100%	100%	100%	100%
WACC	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	8.7%

DCF valuation

(PLN mn)	2024e	2025e	2026e	2027e	2028e	2029e	Terminal Year
Revenues	837.5	675.1	546.6	3 499.3	2 299.6	3 792.6	
EBIT (excl. non cash incentive scheme cost)	310.4	199.9	114.8	1 843.5	1 291.9	1 841.9	
Taxes on EBIT	-24.8	-16.0	-9.2	-147.5	-103.3	-147.4	
NOPAT	285.6	183.9	105.6	1 696.0	1 188.5	1 694.6	
Depreciation and assets write-offs	120.2	88.1	70.1	511.1	457.1	772.6	
Change in NWC	-38.9	-16.6	-13.2	158.5	-168.0	341.9	
Capital expenditures	-420.0	-420.0	-510.0	-525.0	-530.0	-535.0	2026-29 avg.
FCFF	24.8	-131.3	-321.1	1 523.6	1 283.6	1 590.3	1 049.7
<i>Terminal value growth</i>							3.0%
Terminal value							18 967.9
<i>Discount factor</i>	0.90	0.81	0.73	0.66	0.60	0.54	0.49
Discounted free cash flow - Dec 31 2023	22.3	-106.8	-235.4	1 007.2	765.1	854.8	9 897.7
Enterprise value - Dec 31 2023	12 204.8						
Minorities	0.0						
Net debt	-1 321.5						
Other adjustments	0.0						
Equity value - Dec 31 2023	13 526						
Number of shares (mn)	101.4						
12M target price per share (PLN)	150.9						
Share price as of March 4th (PLN)	105.9						
<i>Upside/Downside vs. current price</i>	42.5%						
Revenues growth	62%	-19%	-19%	540%	-34%	65%	n/a
EBIT margin	37.1%	29.6%	21.0%	52.7%	56.2%	48.6%	n/a
Tax rate	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Capex/revenues	50.1%	62.2%	93.3%	15.0%	23.0%	14.1%	n/a
Capex/depreciation	349.4%	476.5%	727.5%	102.7%	116.0%	69.2%	n/a

Sensitivity of 12M target price per share to Terminal value growth & WACC

	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%
7.0%	153.3	165.2	179.7	197.9	221.2	252.4	296.0
8.0%	135.9	144.4	154.4	166.4	181.1	199.4	223.0
8.7%	126.6	133.5	141.5	150.9	162.1	175.7	192.6
9.7%	116.1	121.5	127.5	134.4	142.5	152.0	163.3
10.7%	107.9	112.1	116.9	122.2	128.3	135.4	143.5

Sensitivity of 12M target price per share to Witcher IV 12M sales volume & USD/PLN

	15.1	17.1	19.1	21.1	23.1	25.1	27.1
4.60	140.7	156.3	171.9	187.5	203.1	218.8	234.4
4.30	125.1	139.8	154.5	169.2	183.9	198.6	213.3
4.00	109.6	123.4	137.2	150.9	164.7	178.5	192.3
3.70	94.1	106.9	119.8	132.6	145.5	158.3	171.2
3.40	78.5	90.5	102.4	114.3	126.3	138.2	150.1

Source: Pekao Equity Research

P&L (PLN mn)	2021	2022	2023e	2024e	2025e	2026e
Revenues	888	953	1 218	838	675	547
Operating costs	621	542	800	527	475	432
Other Operating Income/Cost	-34	-33	29	0	0	0
EBITDA	338	495	708	431	288	185
EBITDA recurring	338	495	708	471	328	225
EBIT	233	377	447	310	200	115
Financial Income/(Cost)	-14	16	69	20	15	10
Pretax Profit	219	393	516	330	215	125
Income Tax	10	46	78	26	17	10
Net Income	209	347	438	304	198	115
EPS (PLN)	1.99	3.47	4.32	3.00	1.95	1.13
Balance Sheet (PLN mn)	2021	2022	2023e	2024e	2025e	2026e
Total Current Assets	1 253	1 154	1 425	1 301	1 054	620
Cash and Equivalents	984	895	1 114	1 057	840	428
Other Current Assets	269	259	311	243	214	192
Total Fixed Assets	906	1 120	1 207	1 507	1 838	2 278
Tangible Assets	115	145	180	250	260	270
Other Fixed Assets	791	975	1 027	1 256	1 578	2 008
Total Assets	2 159	2 274	2 632	2 807	2 893	2 898
Stockholders` Equity	1 894	2 033	2 371	2 575	2 673	2 688
Long Term Liabilities	36	36	36	36	36	36
Long -Term Debt	0	0	0	0	0	0
Other Long - Term liabilities	36	36	36	36	36	36
Short Term Liabilities	228	205	225	196	184	174
Short -Term Debt	0	0	0	0	0	0
Other Current Liabilities	228	205	225	196	184	174
Total Equity & Liabilities	2 159	2 274	2 632	2 807	2 893	2 898
Net debt	-1163	-1102	-1321	-1265	-1047	-635
Cash Flow (PLN m)	2021	2022	2023e	2024e	2025e	2026e
Net Profit	209	347	438	304	198	115
Depreciation and Amortisation	105	117	261	120	88	70
Other (incl. WC)	654	-58	-135	19	2	3
Operating Cash Flows	968	406	564	443	287	188
Capital Expenditures	-183	-256	-357	-420	-420	-510
Other	-430	-80	112	20	15	290
Cash Flows from Investing Activities	-614	-336	-245	-400	-405	-220
Dividends paid	-504	-101	-100	-100	-100	-100
Other	-2	-103	0	0	0	0
Cash Flows from Financing Activities	-506	-204	-100	-100	-100	-100
Change in Cash	-152	-134	219	-57	-217	-132
Cash at the end of period	412	278	497	440	223	91
DPS (PLN)	5.00	1.00	1.00	1.00	1.00	1.00
Y/Y growth ratios						
Revenues	-58%	7%	28%	-31%	-19%	-19%
EBITDA	-76%	47%	43%	-39%	-33%	-36%
EBIT	-80%	62%	18%	-31%	-36%	-43%
Net profit	-82%	66%	26%	-31%	-35%	-42%
EPS	-83%	74%	24%	-31%	-35%	-42%
Margins						
EBITDA	38.0%	51.9%	58.2%	51.4%	42.7%	33.8%
EBIT Margin	26.2%	39.6%	36.7%	37.1%	29.6%	21.0%
Net Margin	23.5%	36.4%	35.9%	36.3%	29.3%	21.0%
ROE	11.0%	17.1%	18.5%	11.8%	7.4%	4.3%
Balance Sheet Ratios						
BVPS (PLN)	18.1	20.4	23.4	25.4	26.4	26.5
Net debt/EBITDA	-3.4	-2.2	-1.9	-2.7	-3.2	-2.8
Bank Debt/Equity	n/a	n/a	n/a	n/a	n/a	n/a

Source: Pekao Equity Research



THIS REPORT WAS COMPLETED ON 06 MARCH 2024 AT 17:00 CET.
THIS REPORT WAS FIRST DISTRIBUTED ON 07 MARCH 2024 AT 07:00 CET.
THE CONTENTS OF THIS REPORT HAVE NOT BEEN REVIEWED BY ANY OF THE COMPANIES MENTIONED HEREIN.

DISCLAIMER

RESPONSIBILITY FOR THE CONTENT OF THIS PUBLICATION:

Pekao Brokerage Office (BM) is an organizationally separated unit of Bank Polska Kasa Opieki S.A., based in Warsaw, ul. Żubra 1, 01-066 Poland. Bank Polska Kasa Opieki Spółka Akcyjna with its seat in Warsaw, at ul. Grzybowska 53/57, 00-844 Warsaw, Poland, entered in the register of entrepreneurs in the District Court for the Capital City of Warsaw in Warsaw, XIII Commercial Division of the National Court Register, KRS: 0000014843, NIP: 526-00-06-841, REGON: 000010205, share capital (entirely paid) in the amount of PLN: 262 470 034.

BM is supervised by Polish Financial Supervision Authority, ul. Piękna 20, 00-549 Warsaw, Poland and is subject to regulations issued by the Financial Supervision Authority as well as by certain other regulators in the European Union.

The investment analysis is addressed to clients who have entered into an investment research agreement with BM, it is not a general investment advice, nor an investment recommendation provided as part of the investment advisory service, nor a part of portfolio management service. The analysis is given without taking into consideration the needs and circumstances of the Client, in particular when preparing the analyses BM does not examine the Client's investment objectives, level of risk tolerance, time horizon as well as the financial situation of the Clients nor does it assess the suitability of the service.

The investment analysis is based on information obtained from, or are based upon public information sources that we consider to be reliable but for the completeness and accuracy of which we assume no liability. All estimates, projections, forecasts and opinions included in the report represent the independent judgment of the analysts as of the date of the issue. We reserve the right to modify the views expressed herein at any time without notice. Moreover, we reserve the right not to update this information or to discontinue it altogether without notice. While preparing the investment analysis, the company's compliance with the "Best Practices of WSE Listed Companies 2021" was taken into account, based on the GPW IT tool "Best Practices Scanner" - [Microsoft Power BI](#)

This investment analysis is for information purposes only and does not constitute an offer to buy, sell or subscribe to any financial instrument on any financial market. It is also not an advertisement.

BM is not responsible for the consequences of investment decisions made on the basis of the investment analysis. The investment analysis does not give any guarantee that a given strategy or price projection is appropriate for a specific Client, and when using it one should not resign from conducting an independent assessment and taking into account risk factors other than those presented. The securities discussed may fluctuate in price or value. Investors may get back less than they invested. Changes in rates of exchange may have an adverse effect on the value of investments. Furthermore, past performance is not necessarily indicative of future results. In particular, the risks associated with an investment in the financial instrument or security under discussion are not explained in their entirety. The use of BM services involves investment risk, described in detail on the website www.pekao.com.pl/biuro-maklerskie

RECOMMENDATION INFORMATION

This investment analysis is a general recommendation.

This recommendation is an investment research within the meaning of Art. 36 sec. 1 of the Commission Delegated Regulation (EU) 2017/565 and was prepared in accordance with legal requirements ensuring the independence of investment research.

The list of all recommendations on any financial instrument or issuer that were disseminated by BM during the preceding 12-month period, as well as information on the percentage of all investment recommendations issued by the BM, which constitute "buy", "hold", "sell" or equivalent recommendations in the last 12 months, and information about the number of recommendations that can be assigned to each of the above categories, is available at: www.pekao.com.pl/biuro-maklerskie/ratings

This document may not be distributed in Australia, Canada, Japan or the United States, United Kingdom, or any other jurisdiction where such distribution would violate the applicable laws of that jurisdiction or require registration in that jurisdiction.

POTENTIAL CONFLICTS OF INTERESTS:

Current potential conflicts of interests involve following stocks (see definition of keys below):

AB S.A. 3; Alior 3; Allegro 3; Astarta S.A. 3; Asseco Poland 3, 4; CCC 3; CD Projekt 3, 4; Cyfrowy Polsat 3, 4; Dino Polska 3; ENEA 3; ENERGA 3; GPW 3, 4; JSW 3; KGHM 3; LPP 3; Lotos 3; LW Bogdanka 4; mBank 4; Mercator 3; Orange Polska 3, 4; PGE 3; PGNiG 3, 4; PKN Orlen 3; PKO BP 3; PKP Cargo 4; Play 3; Santander Bank Polska 3; Tauron PE 3; Stalprodukt S.A. 3; WP Holding 4;

Glossary:

Key 1: Issuer owns at least 5% of the capital stock of Bank Pekao S.A.

Key 2: BM and/or any legal person part of the same group belonged to has been lead manager or co-lead manager (gwarantem lub współgwarantem) over the previous 12 months of a publicly disclosed offer of financial instruments of the issuer.

Key 3: BM and/or any legal person part of the same group is a market maker or liquidity provider in the financial instruments of the issuer.

Key 4: The analyzed company and BM, and/or any related legal person have concluded an investment research agreement.

Key 5: The analyst or his/her related person is on the supervisory/management board of the company they cover.

Key 6: BM holds a net long position exceeding 0.5% of the total issued share capital of the issuer.

Key 7: BM holds a net short position exceeding 0.5% of the total issued share capital of the issuer.

Analyses may refer to one or several companies in their analyses. In some cases, the analyzed issuers have actively supplied information for this analysis. The investment analysis has not been disclosed to any security issuer prior to its first publication.

The remuneration of BM or persons working for BM, and who were involved in producing the recommendation, is not directly tied to transactions in services of BM set out in Sections A and B of Annex I to Directive 2014/65/EU or other type of transactions BM or any legal person part of the same group performs, or to trading fees BM or any legal person that is part of the same group receives.

Information on the possession of financial instruments or their derivatives by persons participating in the process of preparation of investment recommendation or information that the person making the recommendation is not in possession of such instruments:

Analyst	Position	Financial instrument	Number of instruments	Exposure (long/short)	Average transactions price	Transactions dates
Emil Popławski	Analyst	CD Projekt	0	n/a	n/a	n/a

BM and/or other legal person part of the same group may regularly trade shares of the analyzed company. BM and/or other related legal persons may hold significant open derivative positions on the stocks of the company. Banks and other legal persons in the Pekao Group may have handed out substantial loans to the analyzed company. BM and/or other related legal persons may have a significant financial interest relating to the analyzed company or may have such at any future point of time. Due to the fact that BM and/or any related legal person are entitled, subject to applicable law, to perform such actions at any future point in time which may lead to the existence of a significant financial interest, it should be assumed for the purposes of this information that BM and/or any related legal person will in fact perform such actions which may lead to the existence of a significant financial interest relating to the analyzed company.

The analyzed company and BM and/or any legal person part of the same group may have concluded an agreement relating to the provision of services of investment firms set out in Sections A and B of Annex I to Directive 2014/65/EU of the European Parliament and of the Council in the previous 12 months, in return for which BM and/or such legal person part of the same group received a consideration or promise of consideration or intends to do so. Due to the fact that BM and/or any legal person part of the same group are entitled to conclude, subject to applicable law, an agreement on services relating to the provision of services of investment firms set out in Sections A and B of Annex I to Directive 2014/65/EU of the European Parliament and of the Council with the analyzed company at any future point in time and may receive a consideration or promise of consideration, it should be assumed for the purposes of this information that BM and/or any legal person part of the same group will in fact conclude such agreements and will in fact receive such consideration or promise of consideration.

To prevent or remedy conflicts of interest, BM and/or other legal person part of the same group have established the organizational arrangements required from a legal and supervisory aspect, adherence to which is monitored by its compliance department. Conflicts of interest arising are managed by legal and physical and non-physical barriers designed to restrict the flow of information between one area/department of BM and/or other related legal persons with them. In particular, Investment Banking units, including corporate finance, capital market activities, financial advisory and other capital raising activities, are segregated by physical and non-physical boundaries from sales units, as well as the research department. Disclosure of known and potential conflicts of interest and other material interests is made in the research. Analysts are supervised and managed on a day-to-day basis by line managers who do not have responsibility for investment banking activities, including corporate finance activities, or other activities involving offering of securities.

METHODS USED TO FORMULATE OUR RECOMMENDATIONS:

Our company valuations are based on two valuation methods selected from among the following: discount model, multiples-based model or asset-based valuation method.

Discount models are characterized by simultaneous and comprehensive consideration of key determinants of intrinsic value, e.g. operating cash flow, capex, cost of capital (WACC). They are theoretically appealing and provide a direct computation of intrinsic value. However, discount model valuations are highly sensitive to changes in assumptions, particularly the risk free rate and terminal growth rate. Moreover, projections cannot be stated with certainty; unforeseen future events can cause income or earnings projections to be invalid.

Multiples-based models are based on the analysis of the valuation multipliers of a given company in relation to other similar companies in the industry. Among strengths of multiplier models we can highlight their simplicity, as they are easy to compute as well as to understand. Moreover, only the key statistics for investors are chosen for valuation. On the other hand, multiples are based on historic data or near-term forecasts. Valuations based on multiples will therefore fail to capture differences in projected performance over the longer term. Finally, it may be problematic to select a suitable peer group.

Asset-based models can be used even if a company has a brief record of earnings or its future existence is uncertain. However, it may be challenging to determine market value of some assets, particularly intangibles. Additionally, asset-based models do not take into account future changes in financial results, nor do they include non-balance sheet items, such as know-how.

Valuation models are dependent on macroeconomic factors, such as interest rates, exchange rates, raw materials, and on assumptions about the economy. Furthermore, market sentiment affects the valuation of companies. The valuation is also based on expectations that might change rapidly and without notice, depending on developments specific to individual industries. Our recommendations and target prices derived from the models might therefore change accordingly.

The investment ratings generally relate to a 12-month horizon. They are, however, also subject to market conditions and can only represent a snapshot. The ratings may in fact be achieved more quickly or slowly than expected, or need to be revised upward or downward. In the tables and charts throughout this report, we designate the years with an "E" to denote that the figures presented are forecasts and estimates.

Definition of ratings used in our publications:

We currently use a three-tier recommendation system for the stocks in our formal coverage: Buy, Hold, or Sell (see definitions below):

A **Buy** is applied when the expected total return over the next twelve months is higher than 15%.

A **Hold** is applied when the expected total return over the next twelve months is within the range of 0% to 15%.

A **Sell** is applied when the stock's expected total return over the next twelve months is negative.

We employ three further categorizations for stocks in our coverage:

Restricted: A rating and/or financial forecasts and/or target price is not disclosed owing to compliance or other regulatory considerations such as blackout period or conflict of interest.

Coverage in transition: Due to changes in the research team, the disclosure of a stock's rating and/or target price and/or financial information are temporarily suspended. The stock remains in the research universe and disclosures of relevant information will be resumed in due course.

Under review: A rating and/or financial forecasts and/or target price is at the moment under revision of an analyst and the previous rating and/or financial forecasts and/or target price should not be relied on.

Not rated: We do not issue company-specific recommendations and we do not plan to issue them in the foreseeable future.