

Tuesday, October 16, 2018 | update

CD Projekt: reduce (upgraded)

CDR PW; CDR.WA | IT, Poland

Fantastic Future More Than Priced In

Previews of CD Projekt's next big release, *Cyberpunk 2077* (C2077) during the E3 Expo and online, have been a resounding success, with the game garnering more interest than the Company's previous major production, *The Witcher 3*. As the CD Projekt RED studio continues to gain worldwide recognition, we expect the new game to sell as many as 14.6 million copies in 2020, driven by an increasing share of digital downloads. Based on C2077's current development status, gleaned from public statements by CD Projekt executives, we have changed the expected release date for the game from 2019 to 2020. We assume that by expanding its development teams CD Projekt can shorten the intervals between major future releases to a projected two years. Alongside working on C2077, CD Projekt's other main focus this year is on *Gwent*, a card game within The Witcher universe, and its single-player campaign *Thronebreaker: The Witcher Tales*. After raising our expectations as to average FCF in 2018-2027 to PLN 662m (versus PLN 370m generated from The Witcher 3) and after taking into account CD Projekt's creative resources and earnings capabilities, resulting in a target price raise to PLN 136.30, we nevertheless issue a reduce rating for CDR stock as we feel the future potential is more than priced in.

Strong sales potential of Cyberpunk 2077

Sales of The Witcher 3 during the critical first two weeks following release far exceeded the numbers reached by the world's best-known gaming productions like Destiny, Fallout 4, Call of Duty: WWII, and Far Cry 5. Looking at the anticipation CD Projekt has been able to build within the gaming community with teasers for C2077, we reckon the new production can reach the sales volumes of the most established top-selling games, and beat the preorder sales of The Witcher 3.

The rise of digital distribution

Sales of video games are going increasingly digital, as reflected in the sales numbers reported by the Steam digital distribution platform, whose revenue in 2017 posted a 22% jump to \$4.3 billion, with a 28% boost in users. Digital distribution can increase margins for video game developers versus traditional sales channels, and it extends the sales cycles for video games, as well as expanding customer reach.

Below-average future FCF yield

CD Projekt has built itself up to the status of an established game developer with worldwide recognition, comparable to major studios like EA, Take Two, ATVI, Ubisoft, and Capcom. As a result, we predict it will generate free cash flow in the period from 2018 to 2027 twice as high as the FCF achieved in the first year from The Witcher release. At the same time, with the projected 2019-2021 FCF yield at an average 3.2% against 4.8% forecast for the peer group, CDR stock looks overvalued to us at the current level.

(PLN m)	2016	2017	2018P	2019P	2020P
Revenue	583.9	463.2	472.6	471.6	1,566.4
EBITDA	307.9	245.8	214.0	185.0	930.2
EBITDA margin	52.7%	53.1%	45.3%	39.2%	59.4%
EBIT	303.6	240.9	208.8	179.3	923.9
Net income	250.5	200.3	179.3	163.8	822.4
P/E	60.3	75.4	84.2	92.2	18.4
P/CE	59.3	73.6	81.9	89.1	18.2
P/B	19.4	17.1	14.2	12.5	7.7
EV/EBITDA	47.1	58.8	67.5	77.9	14.6
DPS	0.00	1.10	0.00	0.00	0.00
DYield	0.0%	0.7%	0.0%	0.0%	0.0%

Current Price	PLN 158.60
Target Price	PLN 136.30
Market Cap	PLN 15,245m
Free Float	PLN 9,917m
ADTV (3M)	PLN 116m

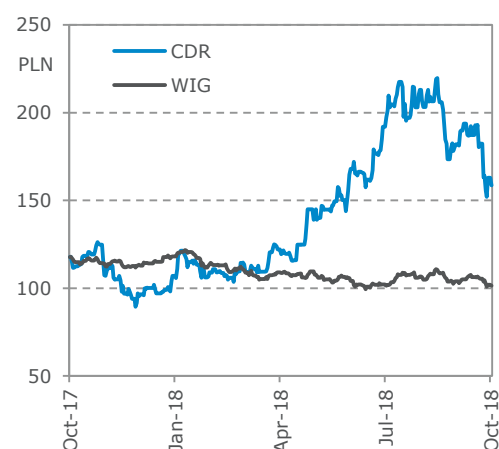
Ownership

Marcin Iwiński	12.64%
Michał Kiciński	10.91%
Piotr Nielubowicz	6.38%
AVIVA OFE	5.02%
Others	65.05%

Business Profile

Game development is a project-based business where the success of each release is determined by the skills of each studio as well as its brand recognition, budget, and marketing strategy. Developers creating the next installments of already popular games are subject to less severe investment risks.

CDR vs. WIG



Company	Target Price		Rating	
	new	old	new	old
CD Projekt	136.30	90.60	reduce	sell

Company	Current Price	Target Price	Upside/Downside
CD Projekt	158.6	136.3	-14.1%

Forecast Update	2018E	2019E	2020E
Revenue	-4.7%	-70.8%	+26.2%
EBITDA	-13.7%	-77.4%	+26.4%
Net profit	-9.5%	-75.4%	+27.9%

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Forecast Update

We have raised our earnings expectations for CD Projekt after taking into consideration the sales numbers generated by rival video game developers, and based on the positive reception by the gaming community of the *Cyberpunk 2077* ("Cyberpunk") gameplay demo. At the same time, **given the time and resources needed to develop a game as complex as Cyberpunk, we pushed our prediction as to the game's release date back by one year, from 2019 to 2020.** Further, we have **adjusted our FY2018 estimates to reflect lower-than-expected sales in H1 2018 of *Gwent: The Witcher Card Game*.** Finally, looking at CD Projekt's cash and development resources, we assume the Company will release four AAA games during our 10-year forecast period through 2027 (*Cyberpunk*, *Cyberpunk Online*, a *The Witcher* franchise game, and a new AAA production).

Summary of forecast changes

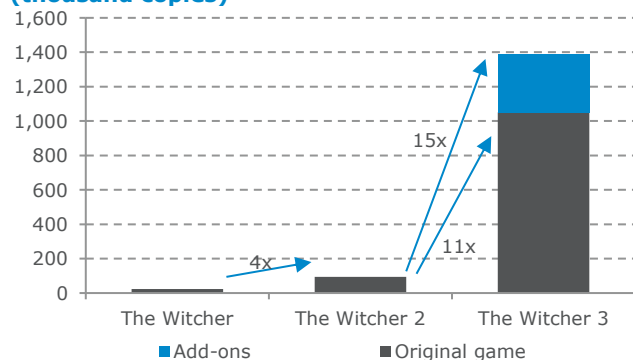
(PLN m)	2019E			2020E		
	old	new	change	old	new	change
Revenue	1590	472	-70%	1229	1,566	27%
EBITDA	710	185	-74%	810	930	15%
margin	45%	39%	-5.4p.p.	66%	59%	-6.5p.p.
EBIT	242	179	-26%	803	924	15%
Pre-tax income	244	202	-17%	812	1,015	25%
Net income	198	164	-17%	658	822	25%

Source: CD Projekt, E – estimates by Dom Maklerski mBanku

Stage Set For All-Time Sales Record

The **fantastic feedback received by the *Cyberpunk 2077* demo** during the E3 Expo and online indicates that, with smart marketing, using the momentum and brand recognition gained with *The Witcher* franchise, CD Projekt is poised potentially massive sales expansion with the future releases. The **evolution of the CD Projekt RED studio as a globally-recognized gaming brand** is best illustrated by the sales numbers for the consecutive installments of *The Witcher* series, with **each installment selling more copies than its predecessor**:

Cumulative sales of *The Witcher* volumes 1 to 3 (thousand copies)

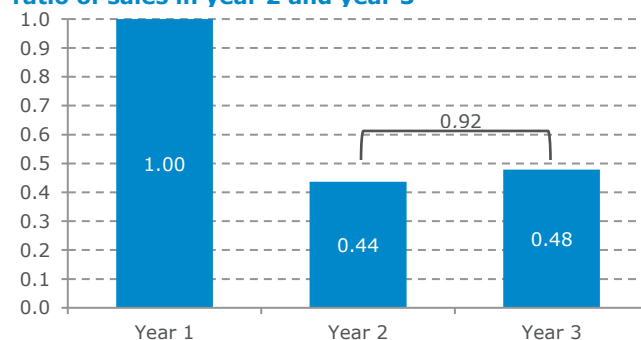


Source: CD Projekt, Dom Maklerski mBanku

CD Projekt has built up brand awareness and an increasing following by offering consistently high-quality gaming experience. The Company has calculated that the cumulative sales of *The Witcher 3* and add-ons in years 2 and 3 from release were equivalent to 91.5% of year-1 sales, fueled by fast-paced growth in digital downloads and follow-up DLC and expansion pack releases.

Digital downloads extend the shelf life of video games.

The *Witcher 3* sales in first year from release as a ratio of sales in year 2 and year 3



Source: CD Projekt, Dom Maklerski mBanku

Released in 2015, *The Witcher 3* brought in lower sales revenue in its first month from release than comparable high-rated single-player role-playing games (RPGs) even though it was made available for three platforms at once. The first few months from release, when a game is sold at full price, are crucial to revenues.

First-month sales of single-player RPGs

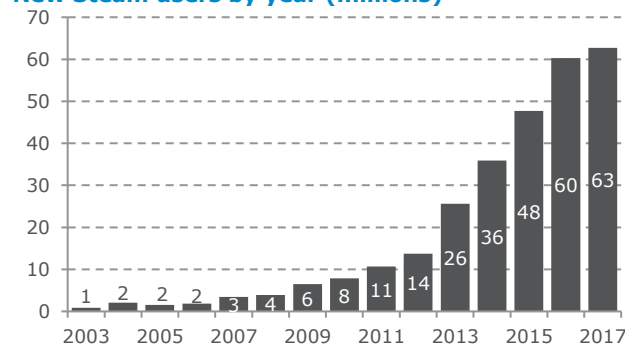
	M1. revenue (US\$ m)	Release Year	Platforms	Metascore
The Witcher 3	69	2015	PS4, X1, PC	92
Uncharted 4	56	2016	PS4	93
God of War	131	2018	PS4	94

Source: CD Projekt, Dom Maklerski mBanku

Steam Marketplace as a Sales Driver

Steam is the largest digital distribution platform for PC games, generating sales revenue of US \$4.3 billion in 2017, an increase of 22% from the prior-year sales of \$3.5 billion achieved thanks to an increasing number of users, up 27.6% to 291 million. These numbers are a good indication of **the rise of digital downloads as a revenue driver for the video game industry.**

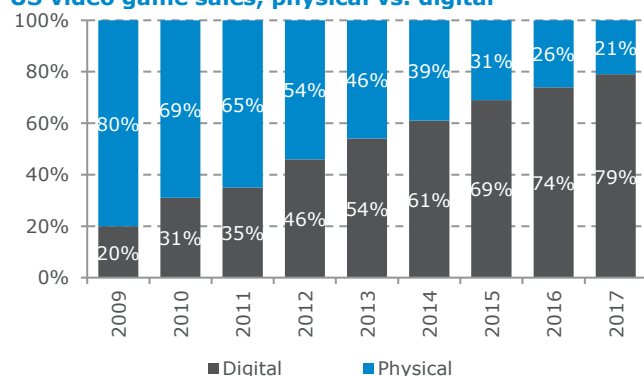
New Steam users by year (millions)



Source: SteamSpy, Dom Maklerski mBanku;

The rate at which Steam adds new users accelerated markedly in 2014, a reflection of how quickly game distribution shifts on line. According to the statistics portal Statista, **the share of downloads in total video game sales in the US increased from 20% in 2009 to 79% in 2017.**

US video game sales, physical vs. digital



Source: Statista, Dom Maklerski mBanku

Digital has many advantages for consumers (easy access, lower prices) as well as publishers (broader reach, easier communications, higher bottom line). According to our calculations, **the average revenue from a digital download tops revenues from physical copies by about 20%**. In the estimates for CD Projekt, we assumed that the Company will sell 10% of its releases via its own digital platform GOG.com at 100% margins, however keep in mind that **sales via the platform of downloadable content for The Witcher 3 far exceeded this ratio, resulting in higher sales profits.**

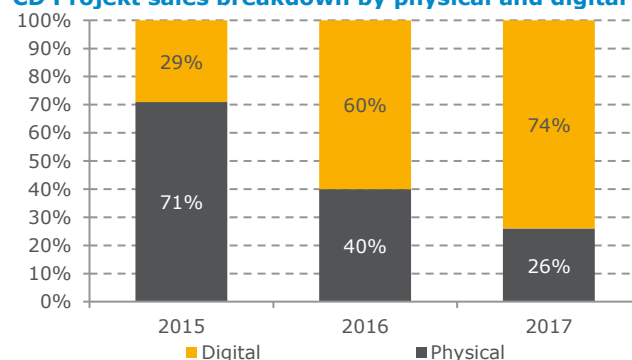
Average unit revenue of a video game developer from physical versus digital sales

(US\$)	Physical revenue	Digital revenue
Average list price ex. VAT	54.0	54.0
Retail margin	10.8	
Product placement	2.2	
Distributor's margin	8.2	
Digital platform fee (30%)		14.6
Unit revenue	33	39.4
Unit revenue as % of list price	61%	73%

Source: CD Projekt, Dom Maklerski mBanku

CD Projekt revealed that digital downloads accounted for approximately 29% of the total sales of The Witcher 3 in the year of release. Digital kept sales of the game high in subsequent years even as time passed. **A recent example of the rapid shift to digital is Far Cry 5 by Ubisoft, which earned \$310m in the week of release** (less commissions to distributors), **with digital sales accounting for 50% of the 5 million copies sold in the period.**

CD Projekt sales breakdown by physical and digital



Source: CD Projekt, Dom Maklerski mBanku

We have analyzed how CD Projekt's revenues can change depending on sales volume and the percentage of copies sold through digital channels. The underlying assumptions are an average sales price per copy of \$54, a digital sales margin of 73% (assuming a 10% share of GOG.com in the digital distribution volume), and a USDPLN exchange of 3.7. The conclusion is that **if digital downloads had accounted for 50% of The Witcher 3's sales in year one, versus the 30% actual share, this would provide a 34% boost to revenue, with the total sales reaching PLN 804m.**

Sensitivity analysis: The Witcher 3 revenue depending on volume and share of digital downloads

		digital as a pct. of total sales						
volume (million copies)		30%	35%	40%	45%	50%	55%	60%
	8	534	579	624	670	715	760	805
	9	601	652	702	753	804	855	906
	10	667	724	780	837	893	950	1,006
	11	734	796	858	921	983	1,045	1,107
	12	801	869	936	1,004	1,072	1,140	1,208
	13	868	941	1,015	1,088	1,161	1,235	1,308
	14	934	1,013	1,093	1,172	1,251	1,330	1,409

Source: CD Projekt, Dom Maklerski mBanku

A practice used by some studios is to **bypass Steam** and its 30% sales cut by launching games on their own **digital service to keep 100% of the revenue**. An example of this is Bethesda, which recently announced it would be releasing its upcoming new game, *Fallout 76*, exclusively on its own launcher, with a Steam release coming at a later date. Other examples include Epic Games, which has ditched both Steam and Google Play and sells its *Fortnite* game via its own Website, and Microsoft with *Minecraft*. Looking at the global trends, we assume in our baseline scenario that **GOG.com will account for 10% of total digital sales for future AAA games, and 60% for add-ons, but we see potential for more growth in digital downloads.**

Sales overview for selected PC and console games

Name	Release year	Million copies sold	Revenue (US\$ m)	Period Analyzed	Metascore**	Platforms
Call of Duty: Ghosts	2013	16.7*	1,000	First 24h	74	PC/PS3/PS4/X360/XONE
Destiny	2014	8.3*	500	First 24h	75	PS3/PS4/X360/XONE
Fallout 4	2015	12	720*	First 24h	86	PC/PS4/XONE
GTA V	2013	13.3*	800	First 24h	97	PS3/X360
Call of Duty: Infinite Warfare	2016	4.2*	250	3 days	76	PC/PS4/XONE
Call of Duty: WWII	2017	8.3*	500	3 days	77	PC/PS4/XONE
God of War	2018	3.1	186*	3 days	94	PS4
Far Cry 5	2018	2.5	165*	5 days	81	PC/PS4/XONE
Far Cry 5	2018	5.0	330	1 week	81	PC/PS4/XONE
Tom Clancy's The Division	2016	5.5	330*	1 week	80	PC/PS4/XONE
Halo 5	2015	5.0	300*	1 week	84	XONE
Uncharted 4	2016	2.7	162*	1 week	93	PS4
The Witcher 3: Wild Hunt	2015	4.0	240*	2 weeks	92	PC/PS4/XONE
God of War	2018	5.0	300*	1 month	94	PS4
The Witcher 3: Wild Hunt	2015	6.0	360*	6 weeks	92	PC/PS4/XONE
Far Cry 4	2014	8.0	150	1 year	82	PC/PS4/XONE
Uncharted 4	2016	8.7		1 year	93	PS4
Call of Duty: WWII	2017		1,000	1 year	77	PC/PS4/XONE

Source: Studios, Dom Maklerski mBanku; *estimate **Metacritic score

A Look at The Witcher 3 Sales Numbers

The Witcher 3 sold fewer copies in its first week than comparable releases from top studios despite comparable quality and high ratings. In our assessment, the **main factors shaping the success of a video game include its quality, the marketing behind it, efficient distribution, user familiarity with a game franchise or series, availability for various gaming platforms, and brand awareness**. In case of **Cyberpunk 2077**, most of these factors (except for user familiarity, which is bound to be low since this is a brand new game) **should have improved since The Witcher**, which has been hugely responsible for CD Projekt's growth as a brand. **The Cyberpunk trailer unveiled during the E3 Expo earlier this year was the most viewed of the E3 video, with overwhelmingly positive feedback, and CD Projekt keeps building anticipation for the game**, including in the world's largest gaming market of the United States.

Sales of The Witcher 3 amounted to 4 million copies within two weeks from release, rising to 6 million after six weeks. The initial two-week numbers came close to the ones generated by *God of War* (with 3.1 million copies sold just for PS4) but trailed *Far Cry 5* (which sold 5 million copies for all platforms in week one). **For Cyberpunk 2077, we predict initial sales numbers on a par with those generated by Fallout 4** (with 12 million copies for all platforms sold in the first week). Upcoming releases from other studios, including *Red Dead Redemption 2*, out on October 26th, and *Fallout 76*, slated for release on November 14th, can provide a better sense of Cyberpunk's sales potential.

Estimated revenues from top-selling games (via Steam)

(US\$ m)	2015	2016	2017
PU Battleground			600
Counter Strike: Global Offensive	55	67	120
GTA V	161	74	83
Sid Meier's Civilization VI		79	39
The Witcher 3: Wild Hunt	39	31	38
Tom Clancy's Rainbow Six Siege		26	30
Dark Souls III		64	24
Rocket League	30	33	23
Fallout 4	123	35	

Source: Steam Spy, Dom Maklerski mBanku

The Witcher 3 was a top-12 title on Steam for three years running. A comparison of Steam Spy sales statistics for the Witcher 3 and Fallout 4 shows that while sales of the former evolved at a steady pace, with volumes rising as the price fell, the latter achieved peak volume in the first year from release. This is testament to **CD Projekt's successful marketing strategy** (including follow-up downloadable content releases and regular updates on the status of development of Gwent: The Witcher Card Game) which **kept interest in the game active even as it became old news** by industry standards. **For Cyberpunk 2077, we again predict that sales will follow a similar pattern to Fallout 4, with positive effects on the game's overall sales.**

A Solid Pipeline of Releases Ahead

CD Projekt's **next planned release is Gwent: The Witcher Card Game**, alongside its single-player campaign, **Thronebreaker: The Witcher Tales**, slated to launch for PC on October 23rd, 2018, followed by a PS4 and an Xbox One release on December 4th. The suggested retail price is \$29.99 or PLN 99.99 or EUR 25.89.

In a statement during the E3 trailer presentation, CD Projekt said that when it comes to Cyberpunk 2077 the plan is for the game to have at least as much content as The Witcher 3, and that it will "take time" to deliver the kind of quality

its teams are committed to pursuing, prompting us to move the expected premiere date back from 2019 to 2020. **We assume CD Projekt will release the first add-on to Cyberpunk one year after the premiere, as well as launching online content for Cyberpunk as hinted in recent statements.**

CD Projekt's tentative production pipeline

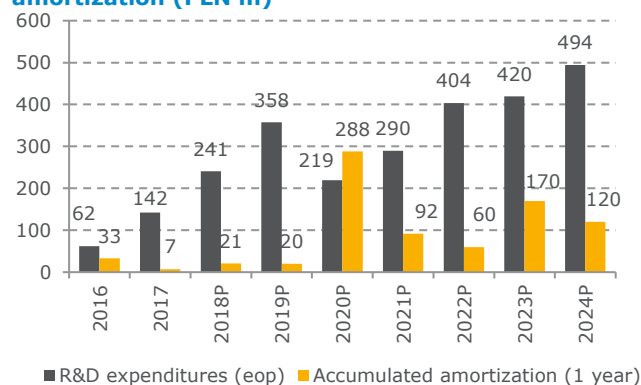
	Release	Expected first-year sales (PLN m)
Thronebreaker	2018	132.3
Cyberpunk 2077+add-ons	2020	1,123.1
Cyberpunk Online	2021	833.8
A The Witcher game	2023	1,368.2
Next AAA game	2025	1,398.2

Source: CD Projekt, Dom Maklerski mBanku

When it comes to CD Projekt's **plans after Cyberpunk**, we reckon the Company might want to **go back to the beloved The Witcher franchise with the subsequent AAA release, which based on production cycles to date might come out come time in 2025.** We assume CD Projekt can shorten the game development process with future releases by expanding its teams.

Larger teams might be part of the reason why CD Projekt is spending more per quarter this year (PLN 22m on average in H1) on game development than it did in the quarters preceding The Witcher release (PLN 7.1m per quarter in H1 2015). To us, this indicates that the Company has already started work on the online component for Cyberpunk which we assume will follow the main game. We predict development expenses will continue to increase in the periods ahead, underpinned by pay pressures, but with larger teams CD Projekt gains the capacity to release new productions faster, at presumed target intervals of two years, and it can work on more than one project at once.

Projection of annual R&D expenditures and their amortization (PLN m)



Source: CD Projekt, Dom Maklerski mBanku

We assume that Cyberpunk 2077 and subsequent games will cost much more in all to develop than The Witcher 3, with the respective expenses estimated at about PLN 250m vs. PLN 96m.

Estimated costs per game

Game	Release	Estimated production costs (PLN m)
Thronebreaker	2018	20.0
Cyberpunk 2077+add-ons	2020	280.0
Cyberpunk Online	2021	200.0
A The Witcher game	2023	250.0
Next AAA game	2025	250.0

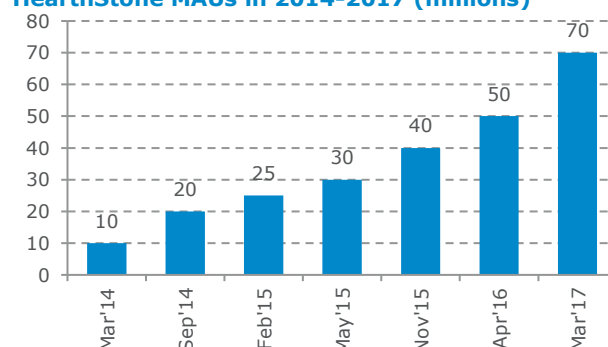
Source: CD Projekt, Dom Maklerski mBanku

Gwent: Homecoming

Gwent: The Witcher Card Game, set for an official release on October 23rd, is an overhauled version of the already-available free-to-play version of the game (the overhaul project based on tester insight has been given the codename "Homecoming"). Looking at tester comments, **the overhauled version of Gwent will be more mobile-friendly than the original design, indicating potential to boost user numbers and maximize monetization.**

The game that is in direct competition to Gwent is the **Hearthstone** card game by Blizzard Activision. **Hearthstone added monthly active users (MAU) at double-digit rates** between relative April 2016, when it crossed the 50 million MAU mark, and March 2017, **in line with the increasing popularity of collective card games.** The estimated MAU numbers for Gwent at the moment are much lower than Hearthstone's, but they can be expected to improve after the official release of the overhauled version.

HearthStone MAUs in 2014-2017 (millions)



Source: Statista, estimates by Dom Maklerski mBanku

Gwent seems to have overcome the poor initial reviews of its testers posted on Reddit, with increasingly enthusiastic comments recently indicating that the changes introduced as part of the Homecoming project are successful. **In any event, Gwent's single-player campaign, Thronebreaker, which is set in the Witcher world, is likely to sell well by generating interest among the fans of the original game.**

Sales volume and revenue projection for CD Projekt's 2018-2025 releases

	2017	2018P	2019P	2020P	2021P	2022P	2023P	2024P	2025P
Volume (million copies)									
The Witcher 3 + add-ons	4.1	2.2	1.9	1.6	1.4	1.4	1.2	0.0	0.0
Cyberpunk 2077 + add-ons				14.6	6.8	4.5	2.3	2.3	2.2
Cyberpunk Online					8.0	4.0	2.5	1.5	1.5
New The Witcher game							12.0	5.0	2.5
Next AAA game									12.5
Revenue (PLN m)									
The Witcher 3 + add-ons	287.6	195.5	112.4	104.3	89.8	89.1	75.0		
Gwent + add-ons	42.6	132.3	197.8	131.0	131.5	137.7	144.2	151.1	158.3
Cyberpunk 2077 + add-ons				1,123.1	489.0	277.6	160.2	158.2	126.6
Cyberpunk Online					833.8	383.0	211.4	113.4	103.7
New The Witcher game							1,368.2	478.8	211.4
Next AAA game									1,398.2

Source: CD Projekt, Dom Maklerski mBanku;

FCF Yield Below Average

CD Projekt is expected to generate free cash flow of PLN 699m in 2019 and PLN 1,041m in 2020 according to our forecasts – **estimates which are 1.9x and 2.8x, respectively, lower than the free cash flow registered in 2015, the year of The Witcher 3 release. Moreover, our forecasts indicate the Company's FCF yields in the next three years will be low compared to the yields offered by the competition.**

FCF yield projection: CD Projekt versus peers

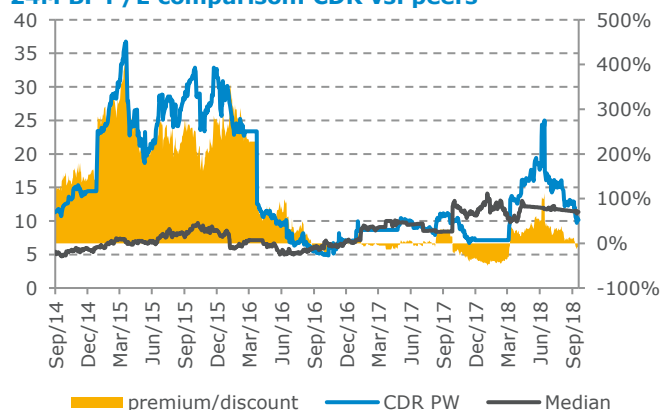
	2019P	2020P	2021P
Activision Blizzard	4.4%	4.9%	6.0%
Electronic Arts	5.1%	5.8%	6.2%
Take Two	5.1%	3.9%	4.1%
Ubisoft	3.2%	3.8%	4.6%
Median	4.8%	4.4%	5.3%
CD Projekt	0.9%	3.9%	5.0%

Source: Bloomberg, Dom Maklerski mBanku

EV/EBITDA Discount

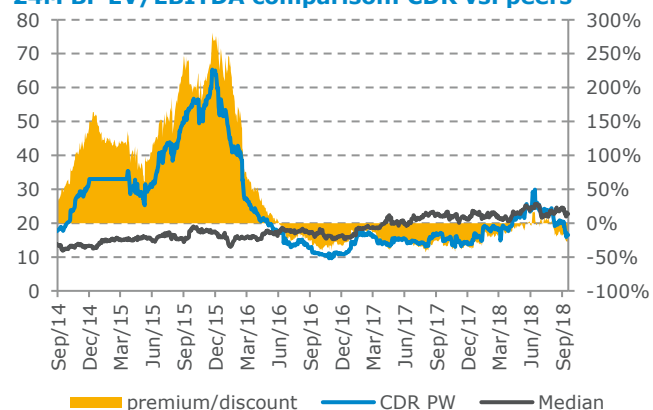
Compared to the multiples of comparable companies (Activision Blizzard, Capcom, Take Two, Ubisoft, Electronic Arts), **CD Projekt's blended forward 24-month price-earnings ratio shows a 10% premium, but the BF 24M EV/EBITDA ratio displays a discount of 16.4%.**

24M BF P/E comparison: CDR vs. peers



Source: Bloomberg, Dom Maklerski mBanku

24M BF EV/EBITDA comparison: CDR vs. peers



Source: Bloomberg, Dom Maklerski mBanku

Our Forecasts vs. Analysts' Consensus

Our predictions as to CD Projekt's earnings performance in 2018-2020P show **marked differences** when compared to the consensus estimates. The reason behind **our more optimistic outlook for FY2018** is an assumption of higher revenues from Thronebreaker, and the **disconnect in FY2019 forecasts** is due to the market's assumption that CD Projekt will release Cyberpunk 2077 as soon as next

year. Our **outlook for FY2020** is based on more conservative assumptions as to Cyberpunk's earnings potential. **In order to achieve the consensus revenue figure, CD Projekt would have to sell 17.5 million copies of Cyberpunk in 2020 versus 14.6 million copies anticipated by us.**

2018-2020 earnings projections: mBank vs. market consensus

(PLN m)	2018P			2019P			2020P		
	mBank	Consensus	differ.	mBank	Consensus	differ.	mBank	Consensus	differ.
Revenue	472.6	438.0	+8%	471.6	1 208.7	-61%	1 566.4	1 829.4	-14%
EBIT	208.8	170.9	+22%	179.3	629.2	-71%	923.9	1 246.6	-26%
EBITDA	214.0	191.9	+12%	185.0	811.3	-77%	930.2	1 452.0	-36%
Net profit	179.3	150.0	+20%	163.8	530.9	-69%	822.4	971.9	-16%

Source: Bloomberg, Dom Maklerski mBanku

Valuation

We used DCF analysis and relative valuation to assess the value of CD Projekt. The DCF model yielded a per-share valuation of PLN 134.00 per share, and the per-share value obtained with multiples comparison amounted to PLN 114.20, implying a target price 9 months out of PLN 136.30.

(PLN)	weight	price
Relative Valuation	50%	114.20
DCF Analysis	50%	134.00
	price	128.10
9M target price		136.30

DCF Valuation: Assumptions

- Cash flows is discounted to their present value as of 16 October 2018. Equity value calculations factor in net debt as of 31 December 2017.
- Average annual CAPEX assumed at PLN 10.8m.
- Terminal value is calculated using estimated average 2018-27 free cash flow at PLN 662m.
- The annual tax rate is 19% in the forecast period.
- Risk-free rate is 3.5% (yield on Polish 10Y Treasuries).
- We assume that FCF after FY2025 will grow at an annual rate of 4.0%.
- Beta=1.0x.

Earnings projection by operating segment

(PLN m)	2015	2016	2017	2018P	2019P	2020P	2021P	2022P	2023P
Videogame Development									
Revenue	697.0	475.8	330.3	336.1	319.5	1,399.1	1,590.5	914.1	2,017.8
COGS	-148.6	-48.6	-13.7	-28.6	-28.8	-326.7	-136.0	-85.3	-225.8
Gross profit	548.4	427.2	316.6	307.5	290.7	1,072.4	1,454.5	828.8	1,792.0
Selling expenses	-40.1	-83.0	-70.0	-70.6	-83.1	-123.4	-131.6	-113.8	-149.5
General & administrative expenses	-21.4	-17.0	-26.5	-27.1	-27.9	-28.7	-29.6	-30.5	-31.4
Other operating gains/losses	-40.5	-3.0	2.5	0.2	0.0	0.0	0.0	0.0	0.0
EBIT	446.4	324.3	222.5	210.0	179.7	920.3	1,293.3	684.5	1,611.1
GOG.com									
Revenue	115.8	133.5	169.6	141.2	152.1	167.3	184.0	193.2	202.9
COGS	-76.1	-88.9	-107.3	-100.7	-111.1	-122.2	-134.4	-141.1	-148.2
Gross profit	39.7	44.6	62.3	40.5	41.0	45.1	49.6	52.1	54.7
Selling expenses	-21.2	-34.1	-38.3	-35.4	-35.4	-35.4	-35.4	-35.4	-35.4
General & administrative expenses	-5.2	-3.8	-5.9	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Other operating gains/losses	0.1	-0.3	0.4	-0.3	0.0	0.0	0.0	0.0	0.0
EBIT	13.4	6.4	18.4	-1.2	-0.4	3.7	8.2	10.7	13.3
Other, Intercompany Eliminations									
Revenue	-14.8	-25.4	-36.7	-4.7	0.0	0.0	0.0	0.0	0.0
COGS	14.1	23.6	38.8	3.1	0.0	0.0	0.0	0.0	0.0
Gross profit	-0.7	-1.9	2.2	-1.5	0.0	0.0	0.0	0.0	0.0
Selling expenses	-0.8	-24.7	-2.3	1.4	0.0	0.0	0.0	0.0	0.0
General & administrative expenses	-34.2	-0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Other operating gains/losses	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBIT	-35.6	-27.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DCF Model

(PLN m)	2018P	2019P	2020P	2021P	2022P	2023	2024	2025	2026	2027	2027P+
Revenue	473	472	1,566	1,775	1,107	2,221	1,142	2,282	1,210	779	
change	2.0%	-0.2%	232.1%	13.3%	-37.6%	100.5%	-48.6%	99.9%	-47.0%	-35.7%	
EBITDA	214	185	930	1,308	702	1,631	654	1,637	676	378	
EBITDA margin	45.3%	39.2%	59.4%	73.7%	63.4%	73.4%	57.3%	71.8%	55.9%	48.5%	
D&A	5.2	5.7	6.2	6.5	6.6	6.7	6.8	6.9	7.0	7.1	
EBIT	209	179	924	1,301	695	1,624	647	1,631	669	371	
EBIT margin	44.2%	38.0%	59.0%	73.3%	62.8%	73.1%	56.7%	71.5%	55.3%	47.6%	
Tax on EBIT	39.7	34.1	175.5	247.3	132.1	308.6	122.9	309.8	127.2	70.5	
NOPLAT	169	145	748	1,054	563	1,316	524	1,321	542	300	

CAPEX	-15.8	-9.1	-10.0	-11.0	-12.1	-13.3	-14.6	-6.9	-7.0	-7.1	
Working capital	-11.5	0.0	-45.9	-8.7	28.0	-46.7	45.2	-47.8	44.9	18.1	

FCF	147.0	141.9	698.8	1,041.0	585.6	1,262.4	561.5	1,273.0	587.0	318.4	661.7
WACC	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Discount factor	98.3%	90.6%	83.5%	77.0%	70.9%	65.4%	60.2%	55.5%	51.2%	47.2%	
PV FCF	144.5	128.6	583.4	801.1	415.3	825.3	338.3	706.9	300.4	150.2	

WACC	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Cost of debt	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Risk-free rate	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	
Credit risk premium	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Effective tax rate	19.5%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	
Net debt / EV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Cost of equity	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	
Risk premium	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Beta	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	

FCF growth after the forecast period	4.00%
Terminal value	14,703
Present value of terminal value	8,165
Present value of FCF in the forecast period	3,943
Enterprise value	12,108
Net debt	-647
Minority interests	0
Equity value	12,755
Number of shares (millions)	95.2
Equity value per share (PLN)	134.0
9M cost of equity	6.4%
9M target price (PLN)	142.5
EV/EBITDA ('18) at target price	51.9
P/E ('18) at target price	67.8
TV / EV	67%

Sensitivity Analysis

	FCF growth after the forecast period				
	1.0%	1.5%	2.0%	2.5%	3.0%
WACC -1.0 pp	136.6	144.9	155.0	167.6	183.8
WACC -0.5 pp	129.4	137.1	146.5	158.3	173.5
WACC	125.9	133.4	142.5	153.9	168.6
WACC +0.5 pp	122.6	129.9	138.7	149.7	163.9
WACC +1.0 pp	116.4	123.1	131.4	141.7	155.0

Relative Valuation

The relative valuation model is a comparison of CD Projekt's earnings multiples and the multiples of a peer group of top international game developers. It uses 24-month blended forward P/E and EV/EBITDA ratios to reflect the potential of future new releases (each of the comparable companies has plans to release at least one game in the next two years).

The peer group consists of five companies: Activision Blizzard, the creator of *Warcraft*, *World of Warcraft*, *Hearthstone*, *Starcraft*, *Diablo*, and *Overwatch*, Capcom (*Resident Evil*, *Dino Crisis*, and *Street Fighter*), Take Two (*GTA*, *Bioshock*, *Max Payne*, *Civilization*, and *Red Dead*

Redemption). Ubisoft (*Assassin's Creed*, *Far Cry*, *Prince of Persia*, *Tom Clancy's Ghost Recon*), and Electronic Arts (*Battlefield*, *Titanfall*, *Dragon Age*, owner of the digital distribution service Origin).

The valuation multiples CD Projekt are based on 2018-2020 projected net profit and EBITDA figures. We assigned a 90% weight in the final valuation to the EV/EBITDA multiple to reflect CD Projekt's comfortable cash position, sufficient to cover the full costs of game production without incurring debt. The weighted average of the two ratios analyzed implies a per-share value of PLN 114.2.

Multiples Comparison

			24M Blended Forward P/E	24M Blended Forward EV/EBITDA	CDR 2018-2020E average financials		
	Price	LCU			Net Profit	EBITDA	Net Debt
ACTIVISION BLIZZARD	75.3	USD	11.1	19.0	493.1	557.6	-1,110.3
CAPCOM	2621	JPY	7.2	14.9			
TAKE TWO INTEREACTIVE	127.3	USD	8.2	18.9			
UBISOFT ENTERTAINMENT	86.5	EUR	4.5	18.0			
ELECTRONIC ARTS	105.6	USD	10.4	19.3			
Median			8.2	18.9			
Implied CDR multiples			42.5	122.2			
Multiple weight			10%	90%			
Implied value of CDR			114.2				

Income Statement

(PLN m)	2015	2016	2017	2018P	2019P	2020P	2021P	2022P	2023P
Revenue	798.0	583.9	463.2	472.6	471.6	1,566.4	1,774.5	1,107.3	2,220.7
change	729.6%	-26.8%	-20.7%	2.0%	-0.2%	232.1%	13.3%	-37.6%	100.5%
COGS	-210.6	-114.0	-82.2	-126.1	-139.9	-448.9	-270.4	-226.4	-374.0
Gross profit	587.4	469.9	381.0	346.5	331.7	1,117.5	1,504.1	880.9	1,846.7
gross profit margin	73.6%	80.5%	82.3%	73.3%	70.3%	71.3%	84.8%	79.6%	83.2%
Selling expenses	-62.1	-141.8	-110.7	-104.7	-118.5	-158.8	-167.0	-149.3	-185.0
General and administrative expenses	-60.8	-21.3	-32.2	-32.9	-33.9	-34.7	-35.6	-36.5	-37.4
Other operating income/expenses	-40.3	-3.2	2.8	-0.1	0.0	0.0	0.0	0.0	0.0
EBIT	424.2	303.6	240.9	208.8	179.3	923.9	1,301.5	695.2	1,624.3
change	6797.4%	-28.4%	-20.6%	-13.3%	-14.1%	415.2%	40.9%	-46.6%	133.7%
EBIT margin	53.2%	52.0%	52.0%	44.2%	38.0%	59.0%	73.3%	62.8%	73.1%
Financing gains / losses	-2.6	8.3	6.5	14.4	22.9	91.0	178.1	288.1	359.5
Pre-tax profit	421.6	311.9	247.4	223.2	202.2	1,015.0	1,479.5	983.3	1,983.8
Discontinued operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tax	-79.2	-61.4	-47.1	-44.0	-38.4	-192.6	-280.5	-186.1	-376.0
Minority interests	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit	342.4	250.5	200.3	179.3	163.8	822.4	1,199.0	797.2	1,607.8
change	6470.2%	-26.8%	-20.1%	-10.5%	-8.7%	402.2%	45.8%	-33.5%	101.7%
margin	42.9%	42.9%	43.2%	37.9%	34.7%	52.5%	67.6%	72.0%	72.4%
D&A	5.1	4.2	4.9	5.2	5.7	6.2	6.5	6.6	6.7
EBITDA	429.3	307.9	245.8	214.0	185.0	930.2	1,308.0	701.8	1,631.0
change	4510.6%	-28.3%	-20.1%	-13.0%	-13.5%	402.8%	40.6%	-46.3%	132.4%
EBITDA margin	53.8%	52.7%	53.1%	45.3%	39.2%	59.4%	73.7%	63.4%	73.4%
Shares at year-end (millions)	95.0	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2
EPS	3.6	2.6	2.1	1.9	1.7	8.6	12.6	8.4	16.9
ROA	75.4%	32.7%	21.6%	17.1%	13.7%	49.2%	45.9%	23.4%	36.8%
ROE	100.5%	38.8%	24.1%	18.4%	14.4%	51.9%	48.2%	24.1%	37.9%

Balance Sheet

(PLN m)	2015	2016	2017	2018P	2019P	2020P	2021P	2022P	2023P
ASSETS	659.2	875.0	981.5	1,119.4	1,267.8	2,076.0	3,144.1	3,676.1	5,052.5
Fixed assets	138.0	170.6	255.5	371.7	491.7	357.1	431.8	551.3	574.0
Property, plant and equipment	9.4	14.4	18.8	20.5	23.9	27.6	32.1	37.6	44.2
Goodwill	47.9	47.1	46.9	52.3	52.3	52.3	52.3	52.3	52.3
Expenditures on development projects	33.6	62.0	142.5	241.1	357.7	219.3	289.6	403.5	419.6
Intangible assets	46.4	46.4	46.4	56.4	56.4	56.4	56.4	56.4	56.4
Prepayments	0.5	0.2	0.0	1.0	1.0	1.0	1.0	1.0	1.0
Other	0.2	0.5	0.9	0.5	0.5	0.5	0.5	0.5	0.5
Current assets	521.2	704.3	726.0	747.7	776.1	1,718.9	2,712.3	3,124.8	4,478.5
Inventory	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Receivables	87.7	71.6	46.3	44.2	44.1	146.5	165.9	103.6	207.7
Cash and cash equivalents	393.6	597.2	647.5	661.6	690.2	1,530.5	2,504.5	2,979.3	4,228.9
Other	39.2	35.2	31.9	41.6	41.6	41.6	41.6	41.6	41.6
(PLN m)	2015	2016	2017	2018P	2019P	2020P	2021P	2022P	2023P
EQUITY AND LIABILITIES	659.2	875.0	981.5	1,119.4	1,267.8	2,076.0	3,144.1	3,676.1	5,052.5
Equity	513.7	776.9	882.9	1,060.7	1,209.2	1,960.9	3,018.3	3,584.7	4,903.6
Minority interests	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long-term liabilities	3.6	8.3	4.1	13.2	13.2	13.2	13.2	13.2	13.2
Loans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	3.6	8.3	4.1	13.2	13.2	13.2	13.2	13.2	13.2
Current liabilities	141.9	89.7	94.5	45.4	45.4	101.9	112.6	78.2	135.7
Loans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trade creditors	22.6	28.0	37.4	24.4	24.3	80.8	91.6	57.1	114.6
Other	119.3	61.8	57.1	21.1	21.1	21.1	21.1	21.1	21.1
Debt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net debt	-393.6	-597.2	-647.5	-661.6	-690.2	-1,530.5	-2,504.5	-2,979.3	-4,228.9
(Net debt / Equity)	-76.6%	-76.9%	-73.3%	-62.4%	-57.1%	-78.1%	-83.0%	-83.1%	-86.2%
(Net debt / EBITDA)	-0.9	-1.9	-2.6	-3.1	-3.7	-1.6	-1.9	-4.2	-2.6
BVPS	5.4	8.2	9.3	11.1	12.7	20.6	31.7	37.6	51.5

Cash Flow

(PLN m)	2015	2016	2017	2018P	2019P	2020P	2021P	2022P	2023P
Cash flow from operating activities	371.6	259.5	231.7	147.3	166.6	979.7	1,110.7	603.7	1,378.4
Pre-tax income	342.4	250.5	200.3	179.3	163.8	822.4	1,199.0	797.2	1,607.8
D&A	5.1	4.2	4.9	5.2	5.7	6.2	6.5	6.6	6.7
Working capital	20.1	-21.8	32.8	-44.4	0.0	-45.9	-8.7	28.0	-46.7
Other	3.9	26.5	-6.3	7.2	-2.9	197.0	-86.1	-228.1	-189.5
Cash flow from investing activities	-12.4	-60.4	1,001.4	497.0	-145.7	-159.6	-173.2	-186.0	-199.4
CAPEX	-15.1	-12.0	-13.4	-15.8	-9.1	-10.0	-11.0	-12.1	-13.3
Expenditures on development projects	0.0	-55.6	-76.6	-115.2	-136.6	-149.6	-162.3	-174.0	-186.1
Other	2.7	7.2	1,091.4	628.0	0.0	0.0	0.0	0.0	0.0
Cash flow from financing activities	-0.4	4.5	-101.8	-0.2	0.0	0.0	0.0	0.0	0.0
Loans	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends	0.0	0.0	-101.2	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	4.5	-0.6	-0.2	0.0	0.0	0.0	0.0	0.0
Change in cash (eop)	358.9	203.6	1,131.3	644.0	20.9	820.1	937.5	417.6	1,179.0
Cash at period-end	393.6	217.4	-136.6	-17.4	11.2	851.6	1,825.5	2,300.4	3,550.0
DPS (PLN)	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
FCF	369.9	227.6	221.1	147.0	141.9	698.8	1,041.0	585.6	1,262.4
(CAPEX/Sales)	1.9%	2.1%	2.9%	3.3%	1.9%	0.6%	0.6%	1.1%	0.6%

Trading Multiples

	2015	2016	2017	2018P	2019P	2020P	2021P	2022P	2023P
P/E	44.0	60.3	75.4	84.2	92.2	18.4	12.6	18.9	9.4
P/CE	43.3	59.3	73.6	81.9	89.1	18.2	12.5	18.8	9.4
P/B	29.3	19.4	17.1	14.2	12.5	7.7	5.0	4.2	3.1
P/S	18.9	25.9	32.6	32.0	32.0	9.6	8.5	13.6	6.8
FCF/EV	2.5%	1.6%	1.5%	1.0%	1.0%	5.1%	8.3%	4.8%	11.6%
EV/EBITDA	34.2	47.1	58.8	67.5	77.9	14.6	9.6	17.3	6.7
EV/EBIT	34.6	47.8	60.0	69.2	80.4	14.7	9.7	17.4	6.7
EV/S	18.4	24.8	31.2	30.6	30.6	8.7	7.1	10.9	4.9
DYield	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Price (PLN)	158.60	158.60	158.60	158.60	158.60	158.60	158.60	158.60	158.60
Shares at year-end (millions)	95.0	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2
MC (PLN m)	15,059	15,101	15,101	15,101	15,101	15,101	15,101	15,101	15,101
Minority interests (PLN m)	0	0	0	0	0	0	0	0	0
EV (PLN m)	14,665	14,504	14,453	14,439	14,411	13,570	12,596	12,121	10,872

List of abbreviations and ratios contained in the report:

EV – net debt + market value
EBIT – Earnings Before Interest and Taxes
EBITDA – EBIT + Depreciation and Amortisation
P/CE – price to earnings with amortisation
MC/S – market capitalisation to sales
EBIT/EV – operating profit to economic value
P/E – (Price/Earnings) – price divided by annual net profit per share
ROE – (Return on Equity) – annual net profit divided by average equity
P/BV – (Price/Book Value) – price divided by book value per share
Net debt – credits + debt papers + interest bearing loans – cash and cash equivalents
EBITDA margin – EBITDA/Sales

OVERWEIGHT (OW) – a rating which indicates that we expect a stock to outperform the broad market
NEUTRAL (N) – a rating which indicates that we expect the stock to perform in line with the broad market
UNDERWEIGHT (UW) – a rating which indicates that we expect the stock to underperform the broad market

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BUY – we expect that the rate of return from an investment will be at least 15%
ACCUMULATE – we expect that the rate of return from an investment will range from 5% to 15%
HOLD – we expect that the rate of return from an investment will range from -5% to +5%
REDUCE – we expect that the rate of return from an investment will range from -5% to -15%
SELL – we expect that an investment will bear a loss greater than 15%
Recommendations are updated at least once every nine months.

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mBank issued the following recommendations for CD Projekt in the 12 months prior to publication:

recommendation	sell	sell
date issued	2018-04-06	2018-02-02
target price (PLN)	90.80	90.00
price at rating date	114.90	115.00

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