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COMPANY UPDATE / ESTIMATE CHANGE / RATING CHANGE

Take-Two Interactive Software, Inc.

TTWO — NASDAQ — Underperform-3

Strong 4Q Results; Lowering Rating to Underperform Based on Valuation

Key Metrics

TTWO - NASDAQ (as of 6/1/17)		$78.12
Price Target		N/A
52-Week Range		$35.00 - $79.58
Shares Outstanding (mil) (basic)		102
Market Cap. ($ mil)		$7,960
3-Mo. Average Daily Volume		1,947,449
Institutional Ownership		98%
Total Debt/Total Capital (3/17)		20%
ROE (TTM ended 3/17)		30%
Book Value/Share (3/17)		$9.85
Price/Book Value		7.9x
Annual Dividend & Yield	Nil	Nil
EBITDA Margin, estim. (TTM ended 3/17)		21%

EPS FY 3/31 (non-GAAP figures)

	FY17	Prior FY18E	Current FY18E	Prior FY19E	Current FY19E
1Q	($0.34)		$0.19		
2Q	$0.66		$0.56		
3Q	$0.99		$0.65		
4Q	$0.68		$0.15		
Year	$2.10	$2.60	$1.55		$4.05
P/E	37.2x		50.4x		19.3x

Note: Quarterly EPS figures may not add to annual figure due to rounding & differing treatment of convertible securities from quarter to quarter.

Revenue ($mm) (non-GAAP figures)

	FY17	Prior FY18E	Current FY18E	Prior FY19E	Current FY19E
1Q	$273		$275		
2Q	$479		$460		
3Q	$745		$470		
4Q	$407		$285		
Year	$1,904	$2,200	$1,490		$2,550

Company Description: *Take-Two Interactive Software, Inc. is a global developer, marketer, distributor, and publisher of interactive entertainment software games for the PC and a variety of game systems. Popular franchises include Grand Theft Auto, Red Dead, BioShock, Borderlands, Civilization, NBA 2K, WWE 2K, and XCOM. The company is headquartered in New York City and its website address is www.take2games.com.*

Investment Highlights

- **We are lowering our rating on TTWO to Underperform from Neutral based on valuation.** For the calendar year-to-date period, TTWO shares are up 58%, leading to a rise in valuation. Averaging our FY18 and FY19 EPS estimates due to the lumpy earnings nature of the successive years, the resulting P/E multiple is 28x. The multiple on a five-year average EPS figure is about 33x. These valuations are above historical averages and seem to reflect high expectations, in our view. We believe a profit taking strategy could be prudent for existing TTWO investors.
- **Fiscal 4Q results were above expectations.** Non-GAAP revenues (adjusted for the change in deferred revenues) were $407 million compared to $342 million in the year ago period, up 19%. The street consensus estimate was $355 million. Revenues came from a variety of videogames released in previous quarters, with digitally delivered content growing 43%. Key franchises included *Mafia*, *Grand Theft Auto*, and *NBA 2K*, among others. Non-GAAP EPS of $0.68 increased from $0.46 a year ago. The street consensus EPS estimate was $0.57.
- **Financial guidance reflected a key release date change.** *Red Dead Redemption 2*, a highly anticipated game originally slated for Fall 2017 is now expected to debut in Spring 2018, as the development team wanted more time to enhance the game (and likely its sales prospects). This leads to sharp reductions to our FY18 forecast, but a significant rebound in our FY19 figures.
- **We remain mindful of TTWO's improving fundamentals related to the growing strength of its franchises and the product pipeline.** We will monitor business conditions and stock valuations for more attractive risk/reward conditions.

Note Important Disclosures on Pages 6-7.
Note Analyst Certification on Page 6.

Exhibit 1
Non-GAAP Statements of Income (figures in thousands except per share data and percentages)

	Three Months Ended			Fiscal Year Ended		
	3/31/17	3/31/16	% chg	3/31/17	3/31/16	% chg
Net Revenues	$407,127	$342,512	18.9%	$1,903,946	$1,560,626	22.0%
Gross Profit	218,225	159,094	37.2%	900,679	721,679	24.8%
Income from Operations	98,609	49,497	99.2%	300,498	238,212	26.1%
Net Income	$79,223	$51,715	53.2%	$238,728	$218,298	9.4%
Diluted Earnings Per Share*	**$0.68**	**$0.46**	47.9%	**$2.10**	**$1.96**	7.2%
Avg. Diluted Shares Outst.	117,200	114,496	2.4%	115,900	114,161	1.5%
% of Net Revenue:			bp chg.			bp chg.
Gross Profit	53.60%	46.45%	715	47.31%	46.24%	106
Income from Operations	24.2%	14.5%	977	15.8%	15.3%	52
Net Income	19.5%	15.1%	436	12.5%	14.0%	(145)

Note: Non-GAAP presentation excludes items such as business reorganization and restructuring expenses, stock-based compensation, professional and legal fees, and the income tax effects of these items.

* EPS for all periods shown above reflect add-back of interest expense and additional shares outstanding assuming the conversion of a convertible security.

Source: Take-Two Interactive Software, Inc. Note: March fiscal year

Further comments on fiscal 4Q results. We were impressed with TTWO's fiscal 4Q, as results exceeded our expectations. We were particularly impressed by the results considering there were no major new videogame releases in the period. Instead, the bulk of the quarter's revenues came from previously released titles such as *Mafia III* (October 2016 release) and games from franchises such as *Grand Theft Auto*, *NBA 2K*, *WWE 2K*, and *Sid Meier's Civilization*. Digitally delivered revenues grew 43%, a reflection of industry trends and TTWO's product portfolio. Products with meaningful digital revenues included *Grand Theft Auto V*, *Grand Theft Auto Online*, *NBA 2K17*, and *Mafia III*, among others. Non-GAAP EPS of $0.68 were above the year ago figure of $0.46, our estimate of $0.53, street consensus of $0.57, and company guidance of $0.49-$0.56.

Financial condition. The balance sheet remained solid, in our view. Cash, cash equivalents, and short-term investments at March 31, 2017, were $1.392 billion. Inventories and accounts receivable were at reasonable levels, in our view. The current ratio was 1.3-to-1. Long-term debt (primarily a convertible note) booked on the balance sheet stood at roughly $252 million, about 20% of total capitalization. Shareholders' equity at quarter end was $1.003 billion.

Outlook. We continue to view TTWO's outlook favorably and believe it has some of the highest quality videogame franchises in the industry. We particularly like that the portfolio has grown in size, quality, and profitability over the years. The biggest franchise continues to be *Grand Theft Auto*, and we believe it will be important every year due to catalog sales of older titles and online revenue generation from *GTA Online*. We are comfortable with a potential release pattern that could bring a new full-length *GTA* console game perhaps every five or six years; the most recent full-length game release was *GTA V* in September 2013. Meanwhile, *NBA 2K*, *Mafia*, *BioShock*, and *Red Dead* have grown into major franchises for TTWO and have produced some of the company's best games to date, in our view.

A major news item contained within the press release discussing 4Q results was the move of the highly anticipated *Red Dead Redemption 2* from Fall 2017 to Spring 2018. This translates to a major revenue and earnings shift from TTWO's FY18 into its FY19 period. Although product delays in this industry often have a tendency to negatively impact stock prices, we believe this move is a net positive in that the extra development time is likely to result in higher game quality and ultimately greater sales, in our view. We have the utmost confidence in the game's development team, Rockstar Games, who we consider to be the best in the industry. We have adjusted our financial model accordingly. We expect *Red Dead Redemption 2* to possibly become the company's second-best selling title of all time, behind *Grand Theft Auto V*. The *Red Dead* franchise last made an appearance in 2010 with the critically acclaimed *Red Dead Redemption*. We believe the combination of pent-up demand, effective marketing, and the high quality reputation of developer Rockstar Games bode well for this future game.

With the move, the FY18 product pipeline looks a bit bare relative to past years (see Exhibit 2 below). As a result, we believe revenues and earnings should be down considerably compared to the just concluded FY17 year. However, we expect a significant rebound in FY19.

Exhibit 2
Near-term Product Pipeline (selected titles only)

Title	Platform	Release Date
Mafia III: Stones Unturned (new downloadable content)	multi-platform	May 30, 2017
Mafia III: Sign of the Times (new downloadable content)	multi-platform	Summer 2017
WWE 2K18	tba	Fall 2017
NBA 2K18	multi-platform	September 19, 2017
Red Dead Redemption 2	PlayStation 4, Xbox One	Spring 2018 ~

~ represents TTWO's FY19 year

Source: Take-Two Interactive Software, Inc. Note: March fiscal year

E-sports becoming a growing proposition. Competitive gaming (participating and viewing) is a recent industry trend, and TTWO seemingly has a franchise well-suited to explore new business models, that being *NBA 2K*. The company recently created a competitive gaming league with the National Basketball Association, with a debut set for 2018. The league will consist of teams operated by actual NBA franchises and will feature videogame competitions patterned after the NBA regular and playoff seasons, as well as a championship matchup. At this time, we find economics of such an endeavor difficult to incorporate into our financial model, but we do consider this a positive long-term development with significant potential.

Guidance. Management initiated guidance for FY18, with a key factor being *Red Dead Redemption 2* moving into early FY19 from the previous plan of mid-FY18. We consider this to be one of the company's biggest and best franchises. We have high expectations for the game, as great effort has been spent on the project by its developers, TTWO's acclaimed *Rockstar Games*.

Non-GAAP revenues for FY18 are expected at \$1.417-\$1.517 billion. Our new non-GAAP revenue estimate for FY18 is \$1.490 million. This is well below our previous figure of \$2.200 billion, which reflected inclusion of *Red Dead Redemption 2*. We calculate non-GAAP EPS guidance to be in a range of \$1.39-\$1.65, based on forecasted data supplied by the company. Our new non-GAAP EPS estimate for the year is \$1.55 compared to our previous estimate of \$2.60.

Management also commented generally on FY19 (twelve months ending March 31, 2019), given that the year is expected to include a landmark event—the long awaited release of *Red Dead Redemption 2*—and another major though unannounced title from the company's 2K label. We have assumed a release date of April/May 2018 for *Red Dead Redemption 2*. Non-GAAP revenues for FY19 are expected to exceed $2.500 billion. Our estimate is $2.550 billion. No specific guidance was given for non-GAAP EPS, yet we are initiating an estimate of $4.05.

Valuation. We previously found a historical price/earnings multiple analysis for TTWO not very meaningful due to an erratic earnings history that included some past net losses. The company had found profitability a bit challenging and often elusive in years without a new, full-length *GTA* game. This is no longer the case. We have been impressed with the development of the product portfolio, which now includes roughly a dozen major franchises. Furthermore, catalog sales of older *GTA* games and recurring revenues from *GTA Online* each year can help the company smooth its earnings. We have been impressed with earnings following a "spike" FY14 year when the *GTA V* launch helped lead non-GAAP EPS to a record $4.26.

Although the company is now typically profitable in years without a new *GTA* game, we prefer to look at price/earnings ratios over a multi-year period rather than any single year. Moreover, we believe the multi-year period should include at least one year of a full-game release from either the *GTA* or *Red Dead* franchise since such releases are likely to represent meaningful boosts to earnings and are expected to be a recurring part of TTWO's future.

TTWO shares are currently trading at 50.4x our FY18 EPS estimate (below average product release year) and 19.3x our FY19 estimate (above average product release year). This translates to an approximate 28x multiple on an average EPS figure for those two fiscal years.

Although we are comfortable with a two-year time average EPS figure, we believe a longer time frame adds insight. TTWO shares are trading at 33.0x an average EPS figure of $2.37 for the five-year period of FY14-FY18 (includes *GTA V* release in FY14) and 33.5x an average EPS figure of $2.33 for the five-year period of FY15-FY19 (includes the expected *Red Dead Redemption 2* release in FY19).

Over the past ten years, TTWO valuations have been in a wide range due to a volatile earnings history, yet a median P/E multiple for that time frame is just over 20x. The S&P 500 is currently trading at 18.3x expected forward earnings.

Opinion. Substantial price appreciation of late has led to a rich valuation, in our view. For the calendar year-to-date period, TTWO shares are up 58% compared to a 9% gain for the S&P 500 and a 16% rise for the S&P Consumer Discretionary sector. We remain mindful of TTWO's improving fundamentals related to growing diversification of the product portfolio, as well as the upcoming release slate. However, we simply find the current valuation excessive and the risk/reward outlook below our liking as high expectations are seemingly built into the current price, in our view.

We continue to believe the company and the videogame industry have bright long-term futures. We would consider a more favorable rating on TTWO at a lower valuation, given no change in company fundamentals.

Suitability. Our Suitability rating on TTWO is 3 on a 1-to-4 scale (1=most conservative, 4=most aggressive). This reflects the company's earnings history, product portfolio, and financial condition, among other factors. Recent improvements in earnings quality (such as profitability in years without a new, full-length *GTA* game) have led us to consider a more conservative Suitability rating, yet we maintain our 3 rating at this time due largely to market capitalization and balance sheet factors.

Risks. In addition to the importance of the *Grand Theft Auto* franchise, other investment considerations include general risks associated with a hit-driven business; the pace of production on games in development; overall debt levels; legal risks; potential uses for the company's current cash balance and future cash flow; the industry's hardware replacement cycle including supply and demand for consoles; creative and financial abilities to bring popular games to market; healthy relationships with the major hardware manufacturers; and general economic and consumer spending conditions.

Exhibit 3
Non-GAAP Statements of Income (figures in thousands except per share data and percentages)

	FY14	FY15	FY16	FY17	*FY18E*
Net Revenue	$2,413,720	$1,668,765	$1,560,626	$1,903,946	*$1,490,000*
Total Cost of Sales	1,411,176	861,008	838,947	1,003,267	*697,000*
Gross Profit	1,002,544	807,757	721,679	900,679	*793,000*
Total Oper. Expenses	468,501	498,214	483,467	600,181	*555,000*
Operating Income	534,043	309,543	238,212	300,498	*238,000*
Interest Expense & Other	10,800	14,417	6,700	(5,564)	*3,000*
Pre-tax Income	523,243	295,126	231,512	306,062	*235,000*
Income Taxes, estim.	12,521	75,882	13,214	67,334	*51,700*
Net Income	$510,722	$219,244	$218,298	$238,728	*$183,300*
Non-GAAP Diluted EPS	$4.26	$1.98	$1.96	$2.10	*$1.55*
Avg. Shares Used in EPS Calc.	122,608	106,822	110,424	115,900	*119,700*
% Yr Over Yr Chg.					
Total Revenue	97.5%	(30.9%)	(6.5%)	22.0%	*(21.7%)*
Gross Profit	94.5%	(19.4%)	(10.7%)	24.8%	*(12.0%)*
Total Operating Expenses	0.4%	6.3%	(3.0%)	24.1%	*(7.5%)*
Operating Income	998.9%	(42.0%)	(23.0%)	26.1%	*(20.8%)*
Net Income	1443.9%	(57.1%)	(0.4%)	9.4%	*(23.2%)*
% of Net Revenue:					
Gross Profit	41.54%	48.40%	46.24%	47.31%	*53.22%*
Total Oper. Expenses	19.41%	29.86%	30.98%	31.52%	*37.25%*
Operating Income	22.13%	18.55%	15.26%	15.78%	*15.97%*
Net Income	21.16%	13.14%	13.99%	12.54%	*12.30%*

Note: Presentation of earnings per share (EPS) is a function of the potential dilutive/anti-dilutive impact of a convertible note in each period. Our annual EPS figures for the presented years assume conversion of the note due to projected levels of profitability. This has the effect of increasing the fully diluted share count and adding back related annual interest, net of tax. Some periods, such as FY13 (not shown in the exhibit above), may not reach the profitability threshold and therefore would not reflect conversion.

Source: Take-Two Interactive Software, Inc. and Hilliard Lyons estimates Note: March fiscal year

Additional information is available upon request.

Prices of other stocks mentioned: Microsoft Corp. - MSFT - $70.10 - Neutral
Sony Corp. - SNE - $36.51
WWE, Inc. - WWE - $20.91 - Neutral

Analyst Certification

I, Jeffrey S. Thomison, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject company(ies) and its (their) securities. I also certify that I have not been, am not, and will not be receiving direct or indirect compensation in exchange for expressing the specific recommendation(s) in this report.

Important Disclosures

Hilliard Lyons' analysts receive bonus compensation based on Hilliard Lyons' profitability. They do not receive direct payments from investment banking activity.

Investment Ratings

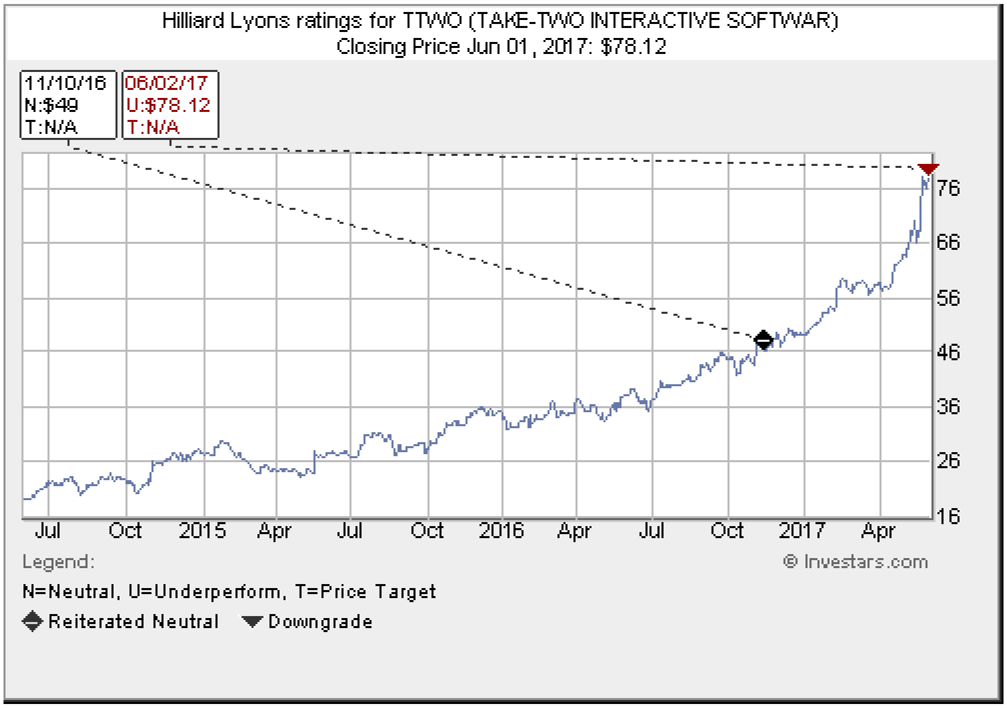
Buy - We believe the stock has significant total return potential in the coming 12 months.
Long-term Buy - We believe the stock is an above average holding in its sector, and expect solid returns to be realized over a longer time frame than our Buy rated issues, typically 2-3 years.
Neutral - We believe the stock is an average holding in its sector, is currently fully valued, and may be used as a source of funds if better opportunities arise.
Underperform - We believe the stock is vulnerable to a price set back in the next 12 months.

Suitability Ratings

1 - A large cap, core holding with a solid history
2 - A historically secure company which could be cyclical, has a shorter history than a "1" or is subject to event driven setbacks
3 - An above average risk/reward ratio could be due to small size, lack of product diversity, sporadic earnings or high leverage
4 - Speculative, due to small size, inconsistent profitability, erratic revenue, volatility, low trading volume or a narrow customer or product base

	Hilliard Lyons Recommended Issues		Investment Banking Provided in Past 12 Mo.	
Rating	# of Stocks Covered	% of Stocks Covered	Banking	No Banking
Buy	32	26%	13%	88%
Hold/Neutral	79	64%	8%	92%
Sell	12	10%	0%	100%

As of 8 May 2017



Note: Price chart is current as of most recent calendar quarter end. Price targets accompanying Buy ratings reflect a one year time period while price targets accompanying Long-term Buy ratings reflect a two to three year time period.

Other Disclosures

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