COWEN

EQUITY RESEARCH

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■ Media: Video Games

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INDUSTRY UPDATE

VIDEO GAMES AND COVID: IN WHICH WE STATE THE OBVIOUS

THE COWEN INSIGHT

We expect video game sector fundamentals to fare far better than the market average during the current COVID-related extraordinary measures, and during any possible resulting recession. As such, we think the sector is a (relatively) good place to weather market volatility. Top picks are ZNGA, EA, GLUU, and TTWO (in that order).

Near-Term Demand Should, if Anything, Be Helped By Containment Measures. Since video games are almost exclusively played at people's homes or on mobile devices, any confinement of people to their homes would tend to increase engagement. Indeed, anecdotal evidence from increased network traffic at Telecom Italia suggests precisely that. Additionally, because video games represent a very high value-to-price proposition, we expect the industry could also benefit from freed up consumer dollars as vacations, dining out, and event attendance wanes.

Ability to Work from Home Suggests Pipeline Impacts Should Be Minor. Several studios/companies have already announced they are sending their employees to work from home; thus far, all have indicated they have prepared for this eventuality and don't see any serious impact to near-term content/pipeline plans. While an extended period of enforced social distancing would likely result in some lost productivity, we still think that industry productivity is likely to fare very well compared to most other entertainment options (where for instance, most TV and movie studios have completely shut down production).

Historically, Sector Fundamentals Have Held Up Well in Recessions. In both 2001 and 2008-09, the industry enjoyed healthy overall growth in both software and hardware sales despite a negative economic environment. Again, we think the very strong value-to-price proposition of video games makes it much less sensitive to recessionary pressures than more expensive entertainment options, as substitution effects help offset any direct demand destruction. In the event that the COVID outbreak does lead to a recession, we think current earnings estimates would likely see modest pressure at most, and for now we are maintaining estimates on all our covered companies.

VIDEO GAMES: FUNDAMENTALS SHOULD STAY SOUND DESPITE PANDEMIC

While all stocks are getting caught in the current downdraft, some companies are going to see less impact to fundamentals than others. We believe that the video game sector rather uniquely is poised to see very little disruption to results over the next 12 months in all but the most severe (read: the stock market will be the least of our problems) scenarios. As such, we view the sector as a logical place to favor in the current volatile market environment.

We think there are three factors investors need to consider given the impact COVID-19:

1) How the pandemic might affect demand for a company's products

2) How the pandemic might affect a company's ability to supply its products

3) How a pandemic-driven recession might affect a company's financial results and stability

On all three counts, we think the video game industry should fare quite well, particularly relative to other investment options.

Demand: Stay-At-Home Measures Are, If Anything, a Positive

As video games are almost exclusively consumed either (a) at home or (b) on mobile devices, if people are confined to their homes on a part- or full-time basis, we would expect time spent on video games to increase. In Italy, where the COVID outbreak is further along, Telecom Italia recently indicated "an increase of more than 70% of Internet traffic over our landline network, with a big contribution from online gaming such as *Fortnite*," So, in the near-term at least, we would expect containment measures to be (if anything) a positive for engagement across the industry.

How that might translate into spending is a somewhat different question, particularly with people potentially reducing overall spending due to uncertainty about how long containment measures might last. In this context, however, we view video gaming's status as a very high value/price entertainment option to be a real strength. People are much less likely to be spending money on travel, expensive dinners, concerts, etc., and that could free up dollars to be spent on the much lower-cost option of video gaming. While we wouldn't go so far as to say that video game spending will benefit from the current extraordinary circumstances, we believe that demand is likely to remain quite robust.

Supply: Industry Signaling That Work-from-Home Should Have a Relatively Modest Impact on Flow of Content

Two companies we pay attention to – Glu Mobile and Bungie – have already instituted firm-wide work from home policies. Here are their respective statements to investors and their player communities:

> [Glu] As part of the company's business continuity planning, Glu has prepared for remote work. All employees are being supported with the appropriate

> technology and tools needed to succeed during this time. All live games in Glu's portfolio will function without interruption. Additionally, the upcoming launches of *MLB Tap Sports Baseball 2020* and *Disney Sorcerer's Arena* remain on track.
>
> [Bungie] While health and safety are our top priority, we also recognize the importance of maintaining the continuity of our regular Bungie business operations and have rapidly built a remote work infrastructure to best support this. This includes delivering on our current content plans, the maintenance and upkeep of *Destiny 2,* as well as continuing development of the game. Today, we have activated this fully remote work infrastructure and policy for all Bungie employees across the globe, with the goals of prioritizing the safety of our employees and continuing to develop and deliver on a game we love for our community. . . While there is a possibility that this change could affect our patching cadence in the short term, we will be sure to keep players informed about those schedules as much as possible. Most immediately, we will still be launching Season of the Worthy on March 10, followed by the start of Trials of Osiris on March 13.

We have talked to other companies under our coverage and they have spent the last several weeks planning for a remote work environment (EA in fact moved to this stance on Friday). To be sure, if large sections of the country were to remain in lockdown for an extended period of time, there could be some slippage in content output; however, that would be in the context of a bad-case scenario that would be much more severely damaging for other sectors. As such, we don't see any significant reason for concern that current pipeline plans could be seriously disrupted, either for live service updates or AAA releases.

Recession: Industry Has Historically Been Recession-Resistant

As we indicated above, one of the characteristics of video games as a form of entertainment is that it generally sports a very high value proposition in terms of money per time spent. As such, industry fundamentals have historically held up well during recessions, and – in the event COVID-19 does lead to a normal-sized recession – we would expect that to remain the case in 2020.

2001 recession: U.S. industry software sales grew +9% y/y in 2001. U.S. console hardware unit sales grew +64% y/y the same year to a new record, helped by the launches of the PS2 in 2000 and the original Xbox and Gamecube in 2001. The new console cycle certainly helped growth, but that level of growth in a recession year is still impressive.

2008-09 recession: U.S. industry software sales grew +24% y/y in 2008, and declined by -9% y/y in 2009. Here, the software sales trends were pretty significantly impacted by the dual Wii/music genre bubble that peaked in 2007-08. It's also worth noting that 2009 remains the second biggest year in the industry's history in terms of game sales revenue; game sales continued to decline every year for another seven years after 2009, as the industry slimmed down to fewer, bigger games, and in-game transactions became an ever larger slice of the overall pie. Hardware unit sales were up +17% y/y in 2008, and declined just -3% y/y in 2009; 2008 was the peak year of that console generation (which began in 2005-06) in terms of units sold. It's probably fair to say that the 2008-09 recession had some impact on industry sales, particularly in the latter year, but that recession was an unusually bad one, and 2009 industry performance was still significantly up from 2007 (+12% on software sales and +14% on hardware unit sales). Even though video game stocks got hurt in absolute terms around the 2008-09 recession, declining -33% from the November 2007 peak to the March 2009 trough (based on the market cap weighted performance of ATVI, EA, TTWO, UBI and THQI), they still outperformed the market, which declined -52% over the same period.

It's also worth noting that the video game companies generally have cash-rich balance sheets, with little or no debt. As such, if a recession does put strains upon the financial system, the sector isn't in a position where it could face liquidity issues.

Other Considerations

Part of our current bullishness is due to the fact that new PlayStation and Xbox consoles are due to launch towards the end of this year, an event that has historically always been a positive catalyst for the game publishing sector. It is possible that supply chain disruptions could impact that timing. However, we do think that production of the new hardware is expected to start until Q3, so there is still a lot of time to work through the COVID response before then. Ultimately, even if hardware launches were to be delayed, we don't expect there to be any impact on software sales as the new hardware includes cross-gen compatibility for all titles.

One casualty of COVID is the annual E3 trade show, which has been cancelled. We don't view this as material for the space as companies have generally stopped using the show as a launch pad for new releases – games now get their own release day announcement, generally geared around live stream events. Indeed, we think that the cancellation could herald a permanent end (or fundamental overhaul) of E3, as the industry's largest companies (those that are still patronizing E3) are likely to get validation of what we think is a generally held view that E3 may not be worth the cost.

Figure 1 – Cowen Video Game Coverage

						EV/EBITDA **		P/E **		EV/ATNGOI ***		Total Capital Return****	
Company	Ticker	Rating *	Price Target	Price 3/13/20	Market Cap ($MM)	2019E	2020E	2019E	2020E	2019E	2020E	2019E	2020E
Activision Blizzard	ATVI	2	$60.00	$59.04	$45,638	19.3x	17.3x	26.2x	24.5x	24.8x	22.5x	0.6%	0.6%
Electronic Arts	EA	1	$119.00	$97.06	$28,536	13.6x	13.4x	20.5x	19.7x	17.8x	17.4x	4.3%	4.2%
Take-Two	TTWO	1	$139.00	$116.62	$13,304	18.3x	20.9x	25.2x	29.1x	23.7x	27.5x	0.0%	1.5%
Ubisoft	UBI-FR	2	57.00 €	56.76 €	$7,048	41.5x	9.2x	NM	16.1x	NM	15.1x	0.0%	0.0%
Zynga	ZNGA	1	$7.50	$6.55	$6,685	16.6x	15.4x	24.4x	22.6x	21.6x	20.0x	0.0%	0.0%
Glu Mobile	GLUU	1	$8.00	$5.04	$785	15.4x	14.6x	20.4x	20.0x	17.3x	16.3x	0.0%	0.0%
AVERAGE						**21.8x**	**15.2x**	**24.1x**	**22.4x**	**22.0x**	**20.5x**	**1.0%**	**1.3%**
MEDIAN						**18.3x**	**15.4x**	**24.8x**	**22.6x**	**22.6x**	**20.0x**	**0.0%**	**0.6%**

* 1 = Outperform, 2 = Market Perform, 3 = Underperform.

** Adjusted to exclude the impact of certain non-recurring items and stock option expense.

*** ATNGOI = After-Tax Non-GAAP Operating Income. Ex-cash assumes cash left after paying down outstanding debt.

**** Sum of dividends and share buybacks, divided by the stock price.

Source: Company reports and Cowen and Company estimates.

Ticker	Rating	Price*	Price Target	Ticker	Rating	Price*	Price Target
EA	Outperform	$97.06	$119.00	**ATVI**	Market Perform	$59.04	$60.00
TTWO	Outperform	$116.62	$139.00	**UBI.FP**	Market Perform	€56.76	€57.00
GLUU	Outperform	$5.04	$8.00	**ZNGA**	Outperform	$6.55	$7.50

**As of 03/13/2020*

VALUATION METHODOLOGY AND RISKS

Valuation Methodology

Video Games:

Our valuation methodology is primarily based on an ex-cash price-to-earnings (P/E) ratio, where for earnings we use after-tax non-GAAP operating income (to remove interest earnings along with cash). We also use a discounted cash flow (DCF) analysis to support our valuation targets.

Investment Risks

Video Games:

(1)The global macroeconomic environment worsens, impacting consumer discretionary spending on video games. (2) Availability of other entertainment options decreases time spent playing video games. (3) New government regulations impact the distribution of video games featuring mature-themed content. (4) New entrants into video game publishing disrupt the existing value chain, resulting in reduced revenues and/or compressed margins for our companies under coverage. (5) New technologies such as virtual reality increase R&D costs without yielding revenue growth.

ADDENDUM

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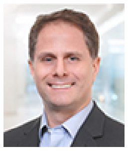

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