December 10th, 2018

AXA Equitable Holdings Inc: (EQH)

Louise Lapras

Sector: Financials
Industry: Diversified financial services
Current Price: $17.34
Target Price: $20.15

Company Description: Company **Description: AXA Equitable Holdings, Inc. provides various financial services worldwide. It operates through four segments: Individual Retirement, Group Retirement, Investment Management and Research, and Protection Solutions. The company was founded in 1859 and is based in New York, New York. AXA Equitable Holdings, Inc. is a subsidiary of AXA S.A., based in Paris, France. AXA Equitable Holdings, Inc. (EQH) is quoted on the NYSE since May 9, 2018.**

BUY

Current Price:	$17.34
Target Price 1Y:	$20.15
Market Cap:	9.2B
Avg volume:	6.6M
Shares outstanding:	559M
P/TangBV LTM:	1.3x

Thesis:

AXA Equitable Holdings Inc. (EQH), an insurance company that has been showing a great financial performance since its IPO. Q3 results was an exceptional term displaying a high growth in the revenue and profit. The company is expected to be moving in the same positive path due to the margin expansion and the investment management unit of AB.

Catalysts:

- Short Term(within the year): margin expansion
- Long Term(3+): Retirement insurance expansion

Business description:

AXA Equitable Holdings, Inc. provides various financial services worldwide. It operates through two complementary franchises in the United States: AXA Equitable Life Insurance Company and AllianceBernstein within four segments: Individual Retirement, Group Retirement, Investment Management and Research, and Protection Solutions. The Individual Retirement segment offers a suite of variable annuity products, which are primarily sold to affluent and high net worth individuals. The Group Retirement segment provides tax-deferred investment and retirement plans sponsored by educational entities, municipalities, and not-for-profit entities, as well as small and medium-sized businesses. The Investment Management and Research segment offers diversified investment management, research, and related solutions to a range of clients; and distributes its institutional research products and solutions. The Protection Solutions segment provides a range of universal life, indexed universal life, and term life products to help affluent and high net worth individuals, as well as small and medium-sized business owners; and a suite of life, short- and long-term disability, dental, and vision insurance products to small and medium-size businesses. EQH was founded in 1859 and is based in New York, New York. AXA Equitable Holdings, Inc. is a subsidiary of AXA S.A., based in Paris, France.
EQH covers about 5.3M clients with over 12,100 employees in the US, representing $668B of asset management as of Q3 2018.

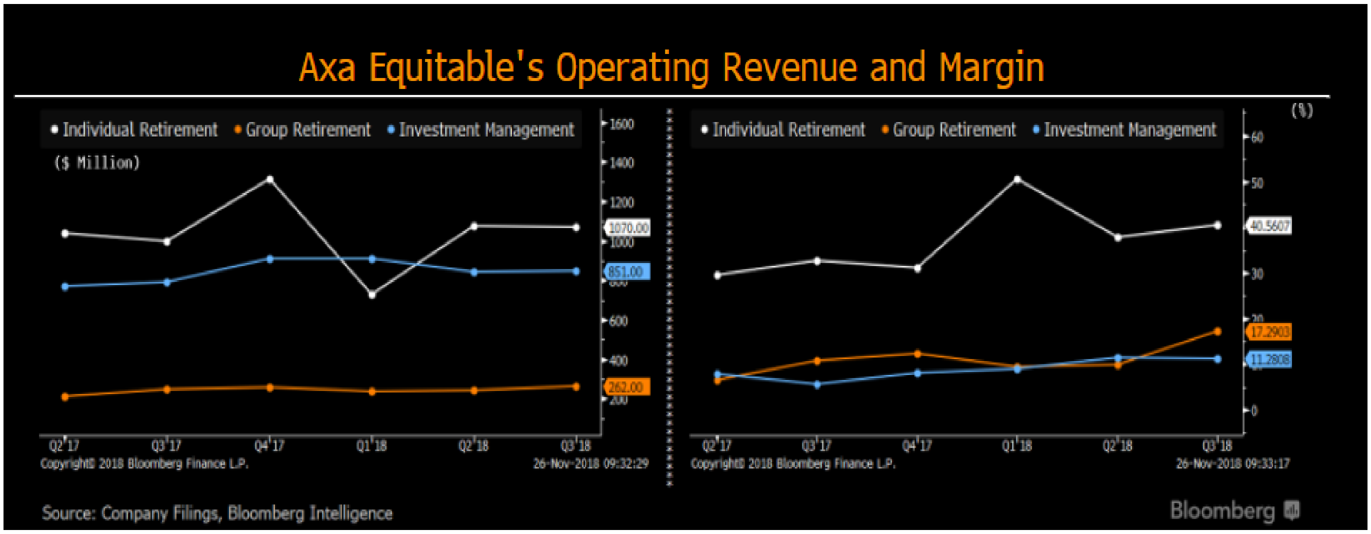
Financial Performance:

In Q3, AXA Equitable posted a solid 3Q results that reflected mostly favorably underlining business trends, putting the company on a good trajectory to extend its positive EPS momentum into 1H. Investment income continues to step higher sequentially as the company optimizes its portfolio and expenses were well controlled. Up just 3% overall and easing 3% in the insurance units.

Profit in the individual annuity and asset management segments benefited from higher fee income. As asset balances increases, cash flows in these units were healthy, with AllianceBersteein at $1.3billipon while the company's active variable annuity products generated net cash flows of $700M. Protection segment volatility is expected to abate with the company having established positive actuarial margin in their last Quarter.

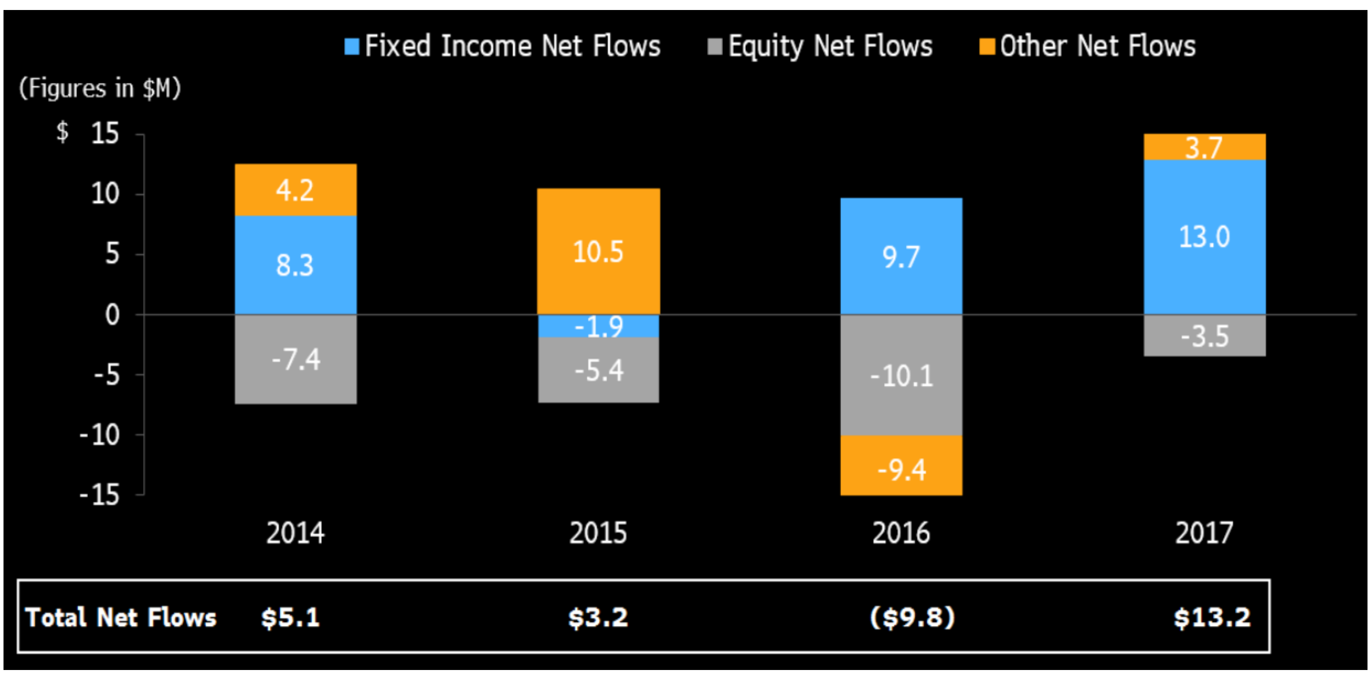
AXA Equitable's margin expansion:

Profitability is expected to remain strong in Q1 of 2019. After EQH's pretax operating margin improved by 440bps in 1Q until 3Q to 29%. This reflects a boost in its AllianceBerstein ownership stake and expectation for $75 million in cost saving by 2020. Profitability in the protection-solution business should also be more stable give than AXA has exited a loss-recognition testing. AXA Equitable's operating rose 1% 1Q-3Q. This pace is likely to keep persisting, and it was led by sales growth in individual insurance and portfolio adjustments that is expected to add $160 million to net investment in 2020. A pressured equity market could be a top-line drag for AllianceBernstein and AXA Equitable's retirement units.



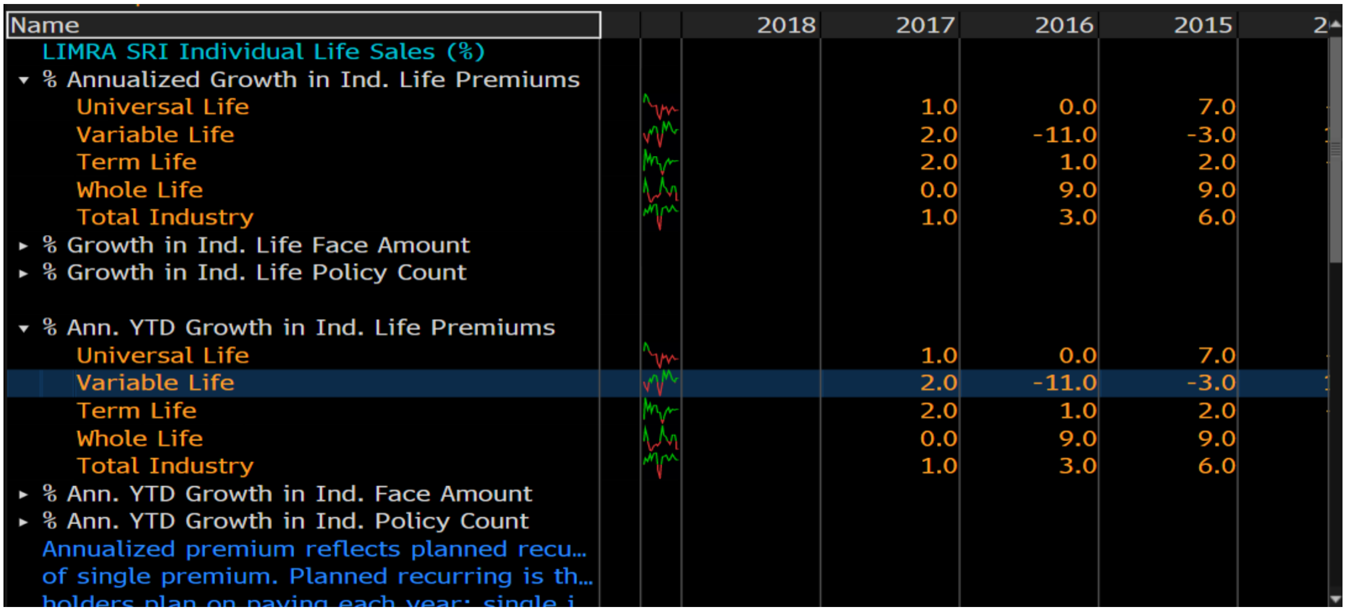
AXA Equitable's AB unit:

Underlying trends at EQH investment management unit, AllianceBernstein AB, have been mostly healthy in the recent years, despite the industry headwinds. An above average pipeline, a focus on costs including moving its headquarters, and generally a solid investment performance bode well for 2019. Though a large outflow hurt 2Q, net flows exceeded $10B between 2014-2017. In addition, there is a flat fee rate in the current years. For 2Q, on a 5-year basis, the portion of AB's active strategy institutional assets outperforming was 91% for Fixed Income and 73% for equities. AB, which has a $540 billion in assets under management, was 19% of EQH's 2Q operating profit. After the IPO that happed in May, EQH's stake in AB, which is publicly traded, was 65% vs 47% in 2017.

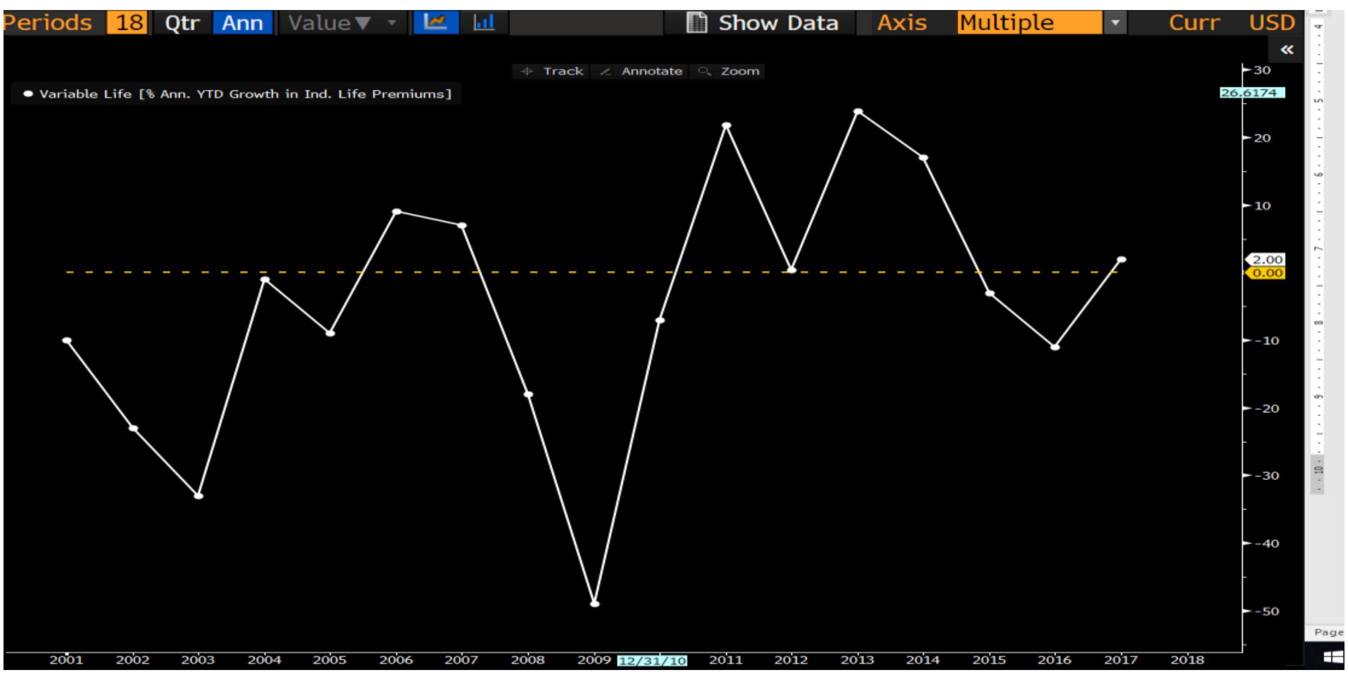


YoY% change in the industry variable life sales:

Through the first year, premiums are up by 11% in 2018, the near-term outlook for Axa Equitable's protection segment. Which accounted for what is close to 5% of 1H operating profit. The unit's earnings are likely to remain volatile as the company looks to establish a positive actuarial margin, which might result in elevated amortization costs. This issue reflect to the impact of the low interest rates that lasted for a long period. In addition, due to the sales of variable universal life insurance that are likely to slip if the equity markets enter a period of more normal gains. However, in the longer term this unit's sales should benefit relative to the competitors from the company's advisor force of 4600. Its 2015 entry in the employee benefits market is also expected to boost AXA's business overtime. VUL accounted for almost 49% if the firm's life insurance premium in the past year 2017.



Name	2018	2017	2016	2015
LIMRA SRI Individual Life Sales (%)				
% Annualized Growth in Ind. Life Premiums				
Universal Life		1.0	0.0	7.0
Variable Life		2.0	-11.0	-3.0
Term Life		2.0	1.0	2.0
Whole Life		0.0	9.0	9.0
Total Industry		1.0	3.0	6.0
% Growth in Ind. Life Face Amount				
% Growth in Ind. Life Policy Count				
% Ann. YTD Growth in Ind. Life Premiums				
Universal Life		1.0	0.0	7.0
Variable Life		2.0	-11.0	-3.0
Term Life		2.0	1.0	2.0
Whole Life		0.0	9.0	9.0
Total Industry		1.0	3.0	6.0
% Ann. YTD Growth in Ind. Face Amount				
% Ann. YTD Growth in Ind. Policy Count				
Annualized premium reflects planned recu...				
of single premium. Planned recurring is th...				

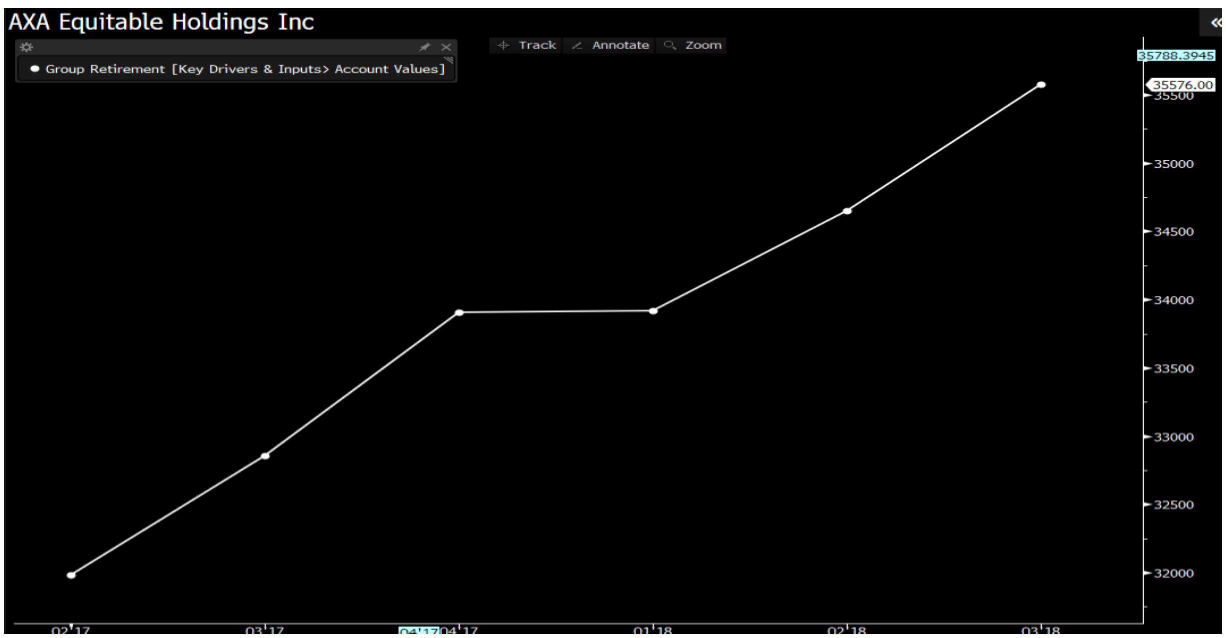


AXA Equitable Unit performance:

Due to the strong margins and healthy flows, EQH is expected to have a solid profit from the company's group retirement unit in the near to medium term. Axa Equitable is the leader in the K-12 education market, which might represent about 2/3 of the unit's a $35 billion in Asset Under Management (AUM). The company has been able to capitalize on its specialized education sales force about 1000 advisors to drive this new business.

View 6 Quarters Growth None Currency LCL
Company AXA Equitable Holdings Inc

Fiscal Period	Q3 2018	Q2 2018	Q1 2018	Q4 201
3 Months Ending	2018-09-30	2018-06-30	2018-03-31	2017-12-3
In Millions (except Per Share or noted oth...				
Key Drivers & Inputs				
Assets Under Management (AUM in Billio...				
AB Third Party AUM	458.1	449.1	458.7	461.
Total AB AUM	550.4	539.8	549.5	554.
Total AXA AUM	667.8	655.8	665.5	672.
Total Number of AXA Advisors	4,544.0	4,576.0	4,584.0	4,668.
Account Values				
Individual Retirement	105,745.0	103,114.0	101,790.0	103,423.
Group Retirement	35,576.0	34,649.0	33,918.0	33,906.
AB Adjusted Operating Margin (%)	29.7	27.3	30.1	35.
Life Insurance Benefit Ratio (%)	81.5	68.2	65.2	-26.



Q3'18 Earnings Performance and Guidance:

In Q3, AXA Equitable beat quarterly non-GAAP earnings (diluted) by 32 cents, up to $1.23 per share, but GAAP EPS of ($0.89), which is a miss by $1.44. EQH reported revenues of $1.08B for the quarter 3, which is a miss by $2.12B, and a Net Loss of $496M

However, we can see the Book value per share falling by $1.77 to $22.15, compared to $23.92 in December 2017 (including Other Comprehensive Income and Losses of ($2.85) per share)

The key highlights of their Q3 2018 revenues were:

Individual retirement $434M vs $326M LY (+18% vs Q3’17)
Group retirement $134M vs $85M
Investment management and research $96 vs $45
Protection solutions $137 vs ($3)
Total AUM (Assets Under Management) of $667.8B at sept 30, vs $672.2B in December 2017 and $651B in Q3’17
During the third quarter, EQH returned a total of $130M to shareholders including $73M in dividends, and $57M part of the share repurchase program, and the initial $500 million share repurchase authorization was raised to $800M by the Board of Directors.

In Millions of USD except Per Share	2014 Y	2015 Y	2016 Y	2017 Y
12 Months Ending	12/31/2014	12/31/2015	12/31/2016	12/31/2017
Returns				
Return on Common Equity	—	—	11.42	6.55
Return on Assets	—	—	0.60	0.38
Return on Invested Capital	—	—	6.15	8.47
Margins				
Operating Margin	18.18	4.35	17.23	10.50
Incremental Operating Margin	—	-64.76	90.82	—
Pretax Margin	18.18	4.35	17.23	10.50
Income before XO Margin	14.66	2.21	13.98	10.17
Net Income Margin	12.23	6.49	10.67	6.79
Net Income to Common Margin	12.23	6.49	10.67	6.79
Additional				
Effective Tax Rate	19.39	49.21	18.84	3.12
Dvd Payout Ratio	0.00	0.00	0.00	0.00
Sustainable Growth Rate	—	—	11.42	6.55

In Millions of USD except Per Share	2015 Y	2016 Y	2017 Y
12 Months Ending	12/31/2015	12/31/2016	12/31/2017
1 Year Growth			
Revenue	-22.90	17.50	4.97
Operating Income	-81.57	365.76	-36.03
Net Income to Common	-59.11	93.31	-33.18
EPS Diluted	-79.59	287.29	-33.18
EPS Diluted before XO	-79.59	287.29	-33.18
EPS Diluted before Abnormal	-26.63	45.00	-25.07
Total Assets	—	5.41	8.79
Total Debt	—	-10.13	50.03
Total Equity	—	10.77	14.72
Capital	—	8.33	18.13
Cash From Operations	69.43	-22.92	—
Capital Expenditures	326.13	-48.00	-34.52
Net Change In Cash	-69.59	—	6.98
Free Cash Flow	-210.65	45.96	67.07

Ownership:

Institution own 78.79% of AXA's float. Investment advisors hold the biggest portion of the total float. However, they have been going off from their positions as the rate have decreased by -8.03% this year in comparison to last year. Hedge fund come in the second place holding 4.59%, followed by pension fund that have 2.95% in their position.

Compare Current Stats Against 05/06/18

Institutional - Based on Current Filings

51) Institutional	05/06/18	Curr	Change
11) % of Shares Held	23.13	91.18	+68.05
12) % of Float Held	0	78.49	+78.49
13) # of Institutions	1	211	+21000.00%
14) # of Buyers	0	73	
15) # of Sellers	0	46	
16) # of New Buyers	1	70	+6900.00%
17) # of Selloffs	0	20	
18) % Chg in Inst Positions	Inf	-16.09	-Inf

Insider - Based on Last 6 Months

52) Insider	05/06/18	Curr	Change
21) % of Shares Held	0	0.07	+0.07
22) % Chg Insider Positions	NaN	+2.49	NaN
23) # of Insiders	0	11	
24) # of Buyers Opn Mkt	0	0	
25) # of Sellers Opn Mkt	0	0	
26) # of Shrs Bought Opn Mkt	0	0	
27) # of Shrs Sold Opn Mkt	0	0	
28) Avg Opn Mkt Buy Price	0	0	0.00
29) Avg Opn Mkt Sell Price	0	0	0.00

Top Geographic Ownership (%)

53) Geographic	05/06/18	Curr	Change
31) FRANCE	100	65.02	-34.98
32) UNITED STATES	--	30.97	--
33) CANADA	--	2.9	--
34) GERMANY	--	0.42	--
35) UNITED KINGDOM	--	0.38	--
36) Unknown	--	0.08	--
37) LUXEMBOURG	--	0.07	--
38) NETHERLANDS	--	0.05	--
39) MALTA	--	0.05	--

Top Ownership Type (%)

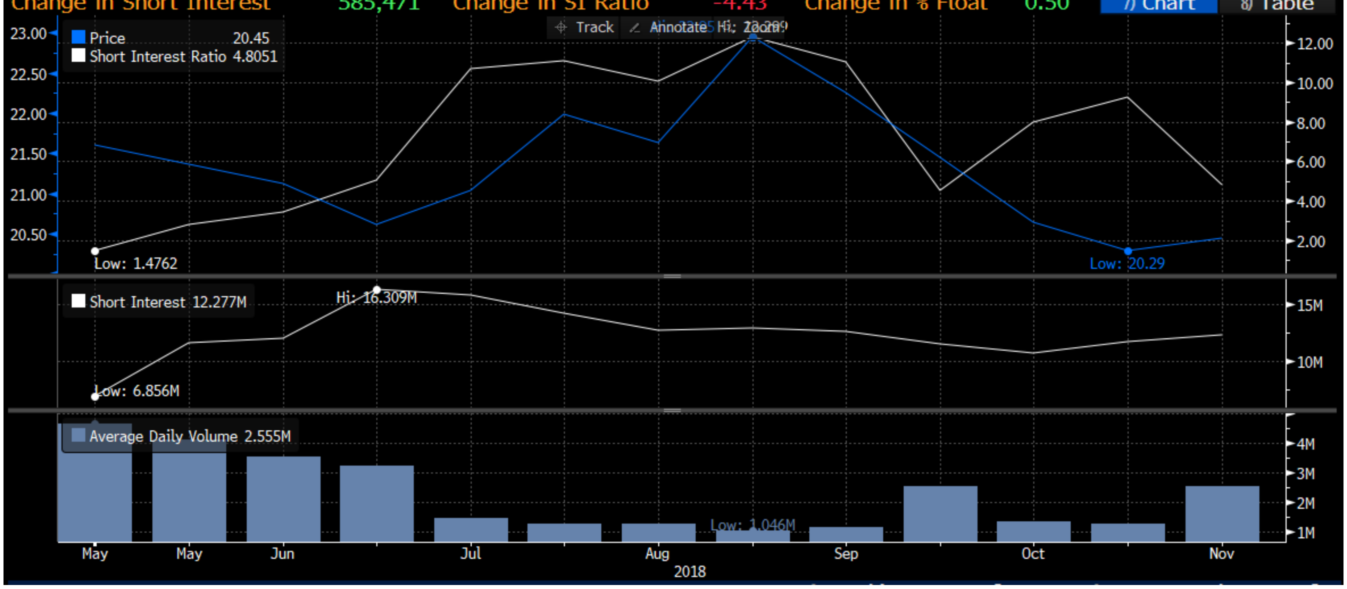
54) Ownership Type	05/06/18	Curr	Change
41) Investment Advisor	100	91.97	-8.03
42) Hedge Fund Manager	--	4.59	--
43) Pension Fund	--	2.95	--
44) Bank	--	0.29	--
45) Individual	--	0.07	--
46) Insurance Company	--	0.07	--
47) Holding Company	--	0.04	--
48) Brokerage	--	0.02	--
49) Corporation	--	0	--

Short interests:

Date 12/10/17 - 12/10/18 | 2) Sector Analysis | SIA » | Markit SI Score 1 | S3 Rate Temp 0

Short Interest	12,276,708	Short Interest Ratio	4.81	% Float	7.92
Change in Short Interest	585,471	Change in SI Ratio	-4.43	Change in % Float	0.50

Currency USD
7) Chart 8) Table



Conclusion:

If we apply a valuation based on the price to book multiple (of 0.78x), we come-up with an intrinsic value of $20.15 per share, which is 16% higher than the closing price. It looks like the stock has been under-appreciated. The current trading price would imply a total Equity of $12,422M, the actual Equity being over $14B. This valuation being really conservative, it leaves lots of room for the value added by AB, and the expansion of the retirement plan for the long-term.

SIENA college BJORKLUND FUND

December 12 , 2018

Teradyne (TER)

Michael Grasso

Sector: Technology
Industry: Semiconductor Equipment & Materials

Company Description: Teradyne designs, manufactures, sells, and supports semiconductor test products and services on a worldwide basis.

SELL

Current Price:	$33
Target Price:	$34
Market Cap:	5.9B
NOPAT (T12M)	209.3M
Adj. NI Margin (LF)	21.5%
ROE	20.5%
ROIC:	9.5%
WACC:	11.1%
Debt/E.V.	.08
Short Int. % of Float	7.36%

Thesis: The company has seen poor growth this year which is forecasted to continue into next year. The stock has a minimal upside absolutely not worth holding further. The money we have into Teradyne should be invested in a more profitable company.

Catalysts:

- Short Term: Market to new customers
- Long Term: Pay off debt

1) Key Stats | 2) I/S | 3) B/S | 4) C/F | 5) Ratios | 6) Segments | 7) Addl | 8) ESG | 9) Custom

11) Adj Highlights | 12) GAAP Highlights | 13) Earnings | 14) Enterprise Value | 15) Multiples | 16) Per Share | 17) Stock Value

In Millions of USD	2010 Y	2011 Y	2012 Y	2013 Y	2014 Y	2015 Y	2016 Y	2017 Y	Current/LTM	2018 Y Est	2019 Y Est	2020 Y Est
12 Months Ending	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	09/30/2018	12/31/2018	12/31/2019	12/31/2020
Market Capitalization	2,555.8	2,502.3	3,173.8	3,378.3	4,286.8	4,209.3	5,059.1	8,187.6	5,908.1			
- Cash & Equivalents	1,055.5	754.6	1,006.3	1,199.6	1,298.8	1,008.3	1,612.8	1,903.7	1,324.4			
+ Preferred & Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
+ Total Debt	74.0	162.5	173.4	186.7	0.0	0.0	352.7	366.0	376.4			
Enterprise Value	1,574.3	1,910.2	2,340.8	2,365.4	2,987.9	3,200.9	3,799.0	6,649.8	4,960.1			
Revenue, Adj	1,566.2	1,429.1	1,656.8	1,427.9	1,647.8	1,639.6	1,753.3	2,136.6	2,060.7	2,075.8	2,198.3	2,523.3
Growth %, YoY	101.5	-8.8	15.9	-13.8	15.4	-0.5	6.9	21.9	1.2	-2.8	5.9	14.8
Gross Profit, Adj	857.6	724.0	892.1	808.8	878.8	917.2	959.6	1,221.1	1,181.7	1,193.1	1,250.4	1,431.8
Margin %	54.8	50.7	53.8	56.6	53.3	55.9	54.7	57.2	57.3	57.5	56.9	56.7
EBITDA, Adj	504.7	354.8	431.3	343.4	355.8	390.4	417.0	641.2	578.4	611.4	636.6	741.0
Margin %	32.2	24.8	26.0	24.1	21.6	23.8	23.8	30.0	28.1	29.5	29.0	29.4
Net Income, Adj	377.2	356.3	216.0	166.3	187.0	202.4	301.7	438.2	387.6	421.7	423.1	509.4
Margin %	24.1	24.9	13.0	11.6	11.4	12.3	17.2	20.5	18.8	20.3	19.2	20.2
EPS, Adj	1.72	1.57	0.94	0.71	0.85	0.95	1.49	2.18	1.99	2.23	2.41	3.04
Growth %, YoY	–	-8.4	-40.6	-24.6	19.8	12.5	56.6	46.1	-2.4	2.6	8.0	26.0
Cash from Operations	566.3	273.8	403.1	268.7	492.1	423.1	455.2	626.5	436.3			
Capital Expenditures	-76.0	-86.1	-119.1	-106.7	-169.0	-89.9	-85.3	-105.4	-120.4	-105.7	-101.7	-108.5
Free Cash Flow	490.2	187.7	284.0	162.0	323.1	333.2	369.9	521.1	315.9	371.5	440.8	501.7

Business & Earnings:

Teradyne is based in North Reading, Massachusetts. They are a developer and supplier of automatic test equipment. The divisions for Semiconductor Test and Systems Tests are organized by the products they deliver. The market for their test products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. One customer drives significant demand for our products both through direct sales and sales to the customer's supply partners. Teradyne expect that sales of their test products will continue to be concentrated with a limited number of significant customers for the foreseeable future. Therefore, if something happens to one of their customers, this is going to cause a significant decrease in revenue. As stated by Teradyne, "Despite the strong first quarter results, the demand outlook for 2018 mobile device test capacity declined sharply in the quarter and our second quarter guidance reflects that revised outlook," Chief Executive Mark Jagiela said in an interview talking about the results of the first quarter of 2018. When looking at the key stats exhibit above, the revenue growth is very important to look at. Revenue growth has decreased since 2017 which can be tied to the large decline in the price per share. Net income and free cash flow also substantially drop from this decrease in revenue. For 2019, revenue is not forecasted to grow by much more than 5% which is not going to cause any serious stock price spike to where we would make a generous return. Cash and other equivalents as well as the market cap have seen significant decreases as well for this year. The company is going to continue to lack organic growth in this highly competitive market. There is nothing that I have come across that stands out indicating that the stock will have any significant price increase in the short term future. Since revenue, the operating costs, and discount rate all heavily affect the value and price of this company's stock, any of these could have a detrimental effect on stock price as well.

Compare Current Stats Against 12/09/18

Ownership Type	12/09/18	Curr	Change
11) Investment Advisor	82.44	82.45	+0.01
12) Hedge Fund Manager	5.91	5.91	0.00
13) Insurance Company	4.02	4.02	0.00
14) Pension Fund	2.59	2.59	0.00
15) Government	1.65	1.65	0.00
16) Bank	1.32	1.32	0.00
17) Sovereign Wealth Fund	1.14	1.14	0.00
18) Individual	0.39	0.38	-0.01
19) Brokerage	0.34	0.34	0.00
20) Holding Company	0.07	0.07	0.00
21) Other	0.06	0.06	0.00

6M 1Y 2Y 5Y Max

Ownership:

It is important to look at ownership of Teradyne. The exhibit above highlights these points well. From 2012 to 2015, this company had a favorable amount of hedge funds purchasing their stock. If you compare the highest percentage of ownership of hedge funds owning their stock in 2015, it reached around 13%. It currently sits at the lowest point that it has seen in years hovering in the high 5% range. In a matter of 2 or 3 months, it dropped almost 5% this year to where it currently stands. Hedge fund analysts are obviously far less confident in this stock. The short interest percentage of the float is about 7.4% which is a substantial amount of the available shares being short sold. The short interest has been the higher this year than the previous 3 years. This ownership is very important to note due to what other analysts are seeing and predicting.

Debt & Capital Structure:

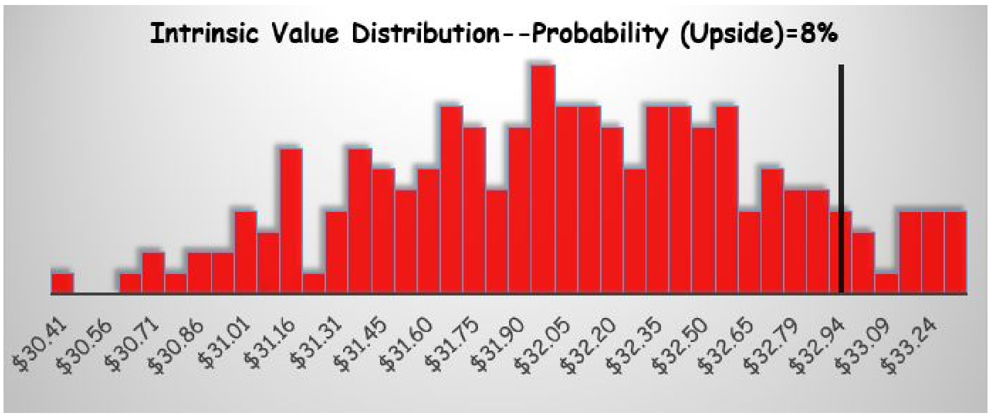
Refer to the capital structure on the top of the key stats chart on the bottom of page one. This outlines the capital structure from 2010 to the latest filing in the end of September of this year. The company paid off their debt from early years and had no debt in 2014 or 2015. However, with recent acquisitions and operations, the debt has gone back to around 8% of the enterprise value. This does not seem extremely substantial, but the majority of the companies that could be compared to Teradyne have less that .15 for the ratio of debt to enterprise value. Companies like National Instruments Corp. have no debt. The industry seems to not be able to support large amounts of debt which is important to note. When looking at the type of debt that Teradyne holds, a large portion of it falls under a speculative grade rating, which is not ideal. The subordinated debt that they have was originally rated B1 and has not changed since. Also, the long term foreign issuer credit decreased in its rating from BB- to B+. For their senior unsecured debt which sits high on the priority of debt, it is rated A-. Even though this is investment grade, senior debt only holding this rating is less than optimal.

Acquisitions & Value:

In total, Teradyne has publicly acquired 11 organizations. The first acquisition was in August of 2000. Since then, they have acquired companies like Eagle Test Systems for $361 million, Universal Robots for $285 million, and the most recent purchase of Mobile Industrial Robots for $148 million this year (2018). However, it is critical to look at the comparison between the return on investment capital to the weighted average cost of capital. It indicates that the company is destroying significant shareholder value upon current operation. The ROIC measures to be close to 9.5% and the WACC is sitting around 11%. Teradyne sees the majority of growth that they see to be inorganic from the acquisitions causing an increase in revenue.

Bear:

For the bear case, I simulated a decrease in revenue of 3% from the predicted revenue for the next 5 years. After that, the next 5 years have a decrease of 1.5% in revenue. This results in this stock having an intrinsic value of around $26 and a target price of $28. The upside probability calculated by the proforma is 0% for this simulation. Not only is this return very poor, that would express that the stock is currently overvalued.



Base Case:

For the base case, the proforma was calibrated to have an intrinsic value as close as possible to its current share price, which is $32 per share. The upside probability of 8% is very poor with a target of $34. The revenue estimates were not adjusted for this case. They were left alone to simulate what would happen to the share price if actual estimates are accurate to what occurs in the future ignoring the declining market and competitors being much more stable growth than Teradyne.

Bull Case:

For the bullish case, I did the same type of revenue adjustment as I did on the bear case. I increased the revenue for the next 5 years by 3%. After that, I increased the revenue for the following 5 years by 1.5%. This produced an intrinsic value of $38 and a target value of $41. Even if the price went up, this return is still very poor and is not worth keeping in our portfolio any further. When considering the decline in the current market combined with competitors having a much more stable business and stock price, I find that the likelihood that an increase in price would happen to be unlikely.

Conclusion:

This company is lacking growth this year since the company has had negative revenue this year compared to last. Next year has poor forecasted growth as well. The lack of a drastic increase in any earnings or cash flows is another reason why the stock price will most likely not see any extremely high growth. Since the target price for all cases simulated provide a minimal gain if any, it is not worth holding this stock further. Since the market is currently seeing a decline, this combined with the increased competition will probably cause the stock price to either stay stagnant or decrease further in the short term. The intelligent move would be to sell our shares in this stock and invest them into another company with a more attractive potential return.

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Teradyne, Inc. (TER) — CENTER FOR GLOBAL FINANCIAL STUDIES — NEUTRAL

Analysis by Michael Greene	Current Price:	$32.96	Intrinsic Value	$29.96	Target 1 year Return: 5.16%
12/11/2018	Divident Yield:	1.1%	Target Price	$34.30	Probability of Price Increase:

Description

Teradyne, Inc. designs, develops, manufactures, sells, and supports automatic test equipment worldwide.

General Information

Sector	Information Technology
Industry	Semiconductors and Semiconductor Equipment
Last Guidance	May 8, 2018
Next earnings date	January 24, 2019

Market Assumptions

Estimated Equity Risk Premium	5.05%
Effective Tax rate	25%

Market Data

Market Capitalization	$5,900.00
Daily volume (mil)	1.60
Shares outstanding (mil)	175.25
Diluted shares outstanding (mil)	197.01
% shares held by institutions	101%
% shares held by investments Managers	87%
% shares held by hedge funds	7%
% shares held by insiders	0.42%
Short interest	7.55%
Days to cover short interest	4.45
52 week high	$50.60
52-week low	$30.22
Volatility	28.55%

Past Earning Surprises

Quarter ending	Revenue	EBITDA
10/1/2017	6.47%	N/A
12/31/2017	5.44%	-45.02%
4/1/2018	2.60%	-47.66%
7/1/2018	4.15%	-112.55%
9/30/2018	3.45%	4.04%
Mean	4.37%	-50.02%
Standard error	1.0%	#VALUE!

Market and Credit Scores

Recommendation (STARS) Value--3
Recommendation (STARS) Description--Hold
Quality Ranking Value--B
Quality Ranking Description--Below Average
Short Score--2
Market Signal Probability of Default % (Non-Ratings)--1.55%
CreditModel Score (Non-Ratings)--bb-

Industry and Segment Information

LTM Revenues by Geographic Segments	LTM Revenues by Business Segments
Taiwan--35%	Semiconductor Test--78%
China--12%	Industrial Automation--8%
United States--12%	System Test--5%
Europe--8%	Wireless Test--5%
Japan--8%	--

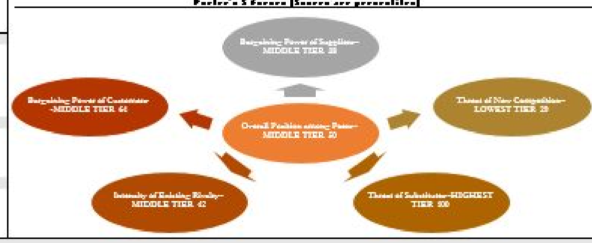
Peers

KLA-Tencor Corporation	Advantest Corporation
Cohu, Inc.	Amkor Technology, Inc.
MKS Instruments, Inc.	FormFactor, Inc.
Applied Materials, Inc.	Xcerra Corporation
Lam Research Corporation	Advanced Energy Industries, Inc.

Management	Position	Total Compensation Grow	Stock Price Growth During Tenure
Jagiela, Mark	CEO, President & Director	25.71% per annum over 5y	2.2% per annum over 5y
Beecher, Gregory	VP, CFO & Treasurer	5.55% per annum over 5y	2.2% per annum over 5y
Gray, Charles	VP, General Counsel & Secretary	7.51% per annum over 5y	2.2% per annum over 5y
Robbins, Bradford	President of LitePoint	2.35% per annum over 5y	14.00% per annum over 5y
Smith, Gregory	President of Semiconductor Test		0% per annum over 0y
Kimelderfer-Rabinovitz, Michal	Vice President of Human Resources		

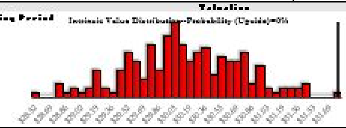
Profitability	TER (LTM)	TER Historical	Peers' Median (LTM)
Return on Capital (GAAP)	0.1%	180.12%	-1.57%
Operating Margin	15%	15.77%	54.24%
Revenue/Capital (GAAP)	0.00	6.06	-0.05
ROE (GAAP)	2.2%	-15.6%	6.1%
Net margin	-10.5%	6.0%	14.2%
Revenue/Book Value (GAAP)	-0.28582514	-2.25	0.45
Invested Funds	**TER (LTM)**	**TER Historical**	**Peers' Median (LTM)**
Cash/Capital	2.1%	14.6%	26.7%
NWC/Capital	-2.3%	57.7%	2.1%
Operating Assets/Capital	100.7%	-57.4%	69.5%
Goodwill/Capital	0.0%	155.5%	-0.5%
Capital Structure	**TER (LTM)**	**TER Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.00	1.06	-0.02
Cost of Debt	5.0%	5.0%	5.7%
CGFS Rating (P-score, Z-score, and default Probabilit	A		
WACC	10.4%	11.4%	

Porter's 5 Forces (Scores are percentiles)



Valuation

Forecast Assumptions	Explicit Period (10 years)	Continuing Period
Revenue Growth CAGR	5%	2.5%
Average Operating Margin	25%	25%
Average Net Margin	15%	16%
Growth in Capital CAGR	7%	2%
Growth in Claims CAGR	-1%	2%
Average Return on Capital	5%	7%
Average Return on Equity	10%	7%
Average Cost of Capital	11%	11%
Average Cost of Equity	11%	11%



December 11, 2018

Chegg, Inc: (CHGG)

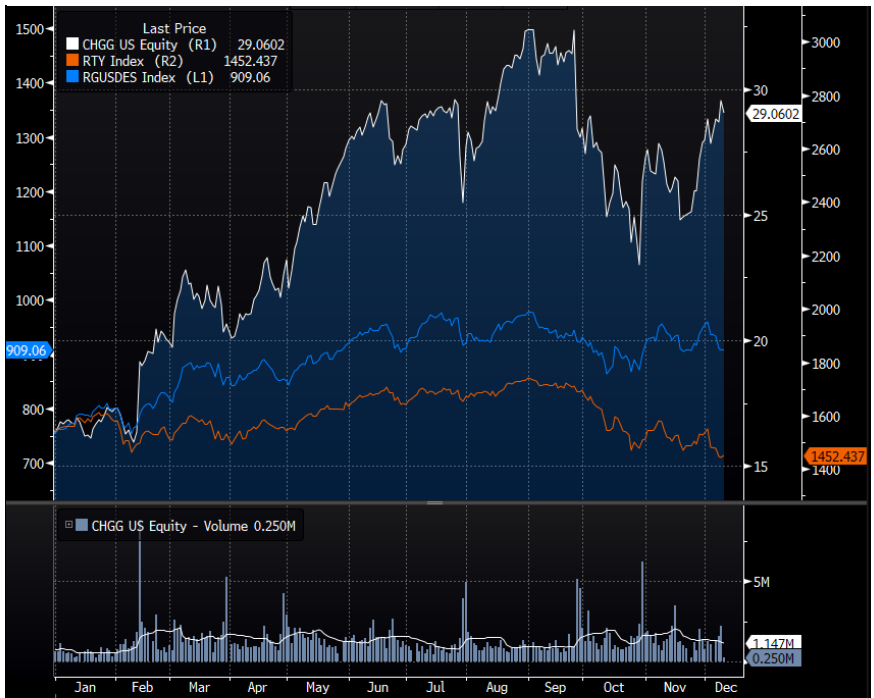
Samantha St.Germain

Sector: Consumer Discretionary
Industry: Educational Services
Current Price: $29.04
Target Price: $32.56

Company Description: Chegg (CHGG) provides students with textbook answers, study help, required materials, and more services in the areas of STEM, Writing, and more. Their direct-to-student platform operates on a subscription basis.

BUY @ $27.13

Current Price:	$29.04
Target Price:	$32.23
Market Cap:	3.3B
ROIC/WACC	21.5%
ROIC/WACC (w/o Goodwill)	32.9%
EBITDA Margin	24.77%
COR/Revenue	25.6%
Subscription Growth	45%
Unique Content Views	110M



Thesis: Chegg (CHGG) offers a valuable service to students: providing textbook answers and study help on a subscription basis. Not only has CHGG been increasing their value to students in the past years, but to investors as well. By focusing on their digital offerings, CHGG has been able to take advantage of higher margins and economies of scale.

Catalysts: Forward looking projections that call for positive/negative outlook that will strengthen your thesis. Example:

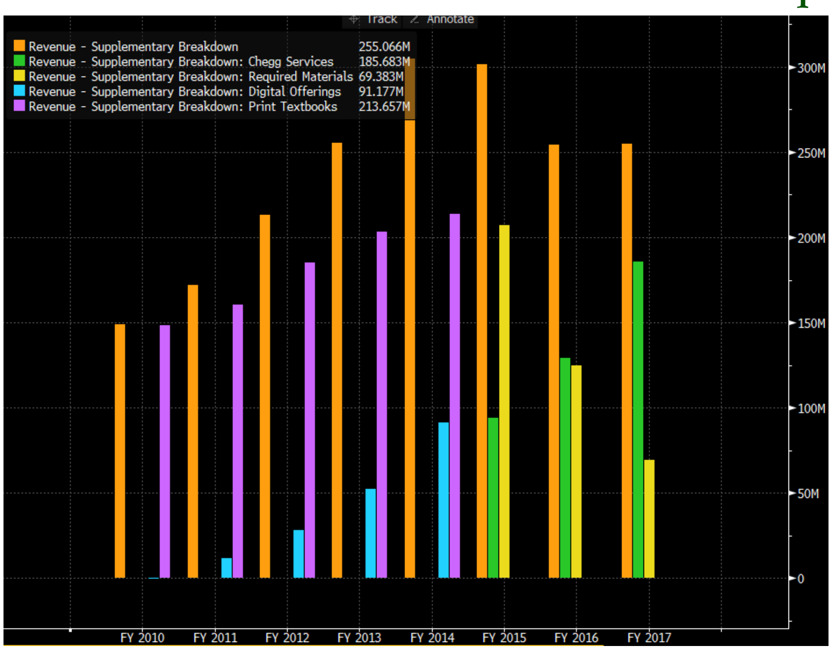
- Product Mix Shifting to favor high margin products
- Large college population with strong brand recognition
- Untapped high school market with potential to be accessed through CheggMath and CheggWriting
- Economies of Scale and brand recognition decrease customer acquisition costs while increasing cross selling potential

Earnings Performance:

CHGG had a strong Q3FY18, leading them to increase their forecast for the year. CHGG reported a 19% increase in total net revenues as compared to FY17, clocking in at $74.2 million. This beat estimations by $5.11 million. Q3 is their busiest quarter as it is their back to school season, where high school and college students are starting a new year. CHGG reported a net loss of $13.7 million, a greater loss than the $11.5 million loss in Q3FY17. Non-GAAP net income was $8.7 million for Q3FY18 compared to $1.5 million in Q3FY17. Service revenues grew 37% year over year, earning 54.2 million for Q3 and accounting for 73% of revenue. Product mix will be discussed in more detail in subsequent analysis.

Content views for Chegg Study increased 51% year over year to 110 million views in Q3. In Q3 Chegg had 1.7 million subscribers, a 45% year over year increase.

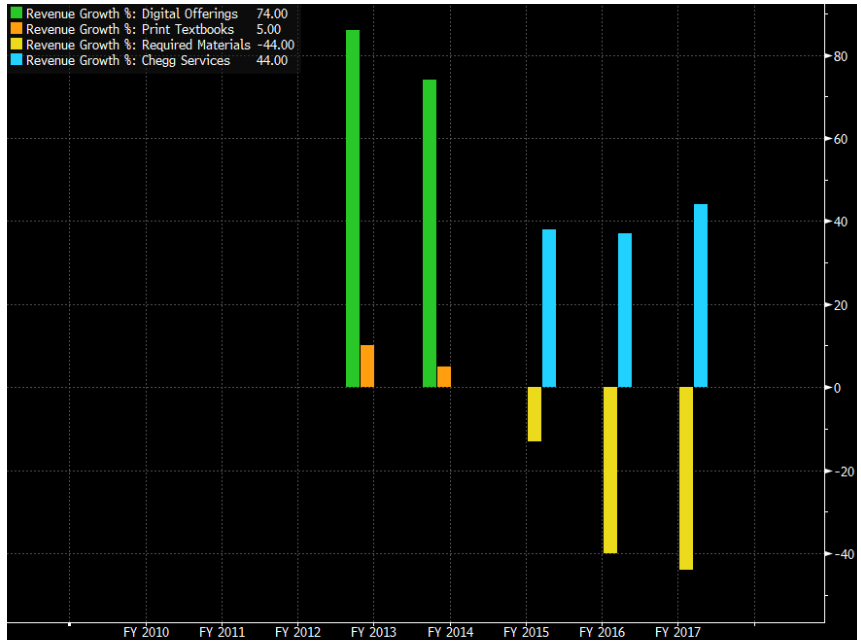
Product Mix of the Past: Textbooks and Required Materials



CHGG traditionally has been know for it's textbook services for college students. In 2010, Print Textbooks accounted for 99.8% of CHGG's revenue. At that time, revenue was broken down to Print Textbooks and Digital Offerings. In 2014, Digital Offerings made up 29.9% of CHGG's revenue, dropping Print Textbooks to 70.1% of revenue. While Print Textbooks were losing revenue share within the firm, they were still growing, having grown 5% in 2014.

In 2015, CHGG renamed the categories to reflect the changing nature of their business. Print Textbooks are now referred to as Required Materials, which saw a 13% decrease that same year. In 2014, CHGG partnered with Ingram to fulfill all of Chegg's print textbook sales and rentals. This has allowed CHGG to focus less on the physical aspect of the textbook business and more on their digital services, such as ebooks and study help for students. It also allows CHGG to offset some of their risk onto Ingram by not having to hold inventory or have any of the risk trying to forecast which textbooks will be in demand for the upcoming semester. The Required Materials portion of CHGG's business is now less of a revenue driver and more of an introduction of what Chegg offer's to students. Books are shipped to distinct, recognizable orange boxes that promotes brand recognition, which will be discussed later.

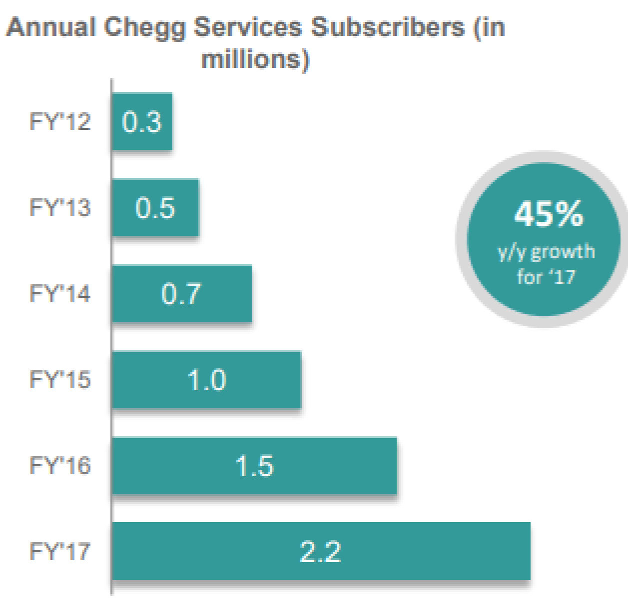
New Product Mix: Digital Offerings and



Digital Offerings, which have seen strong growth since 2010, are now classified as Chegg Services. This is a direct reflection of CHGG's shift from a textbook provider to a digital student support business. Chegg Services include study materials, textbook solutions, tutoring, test prep, internship and career postings, citation and writing help, and more. The Chegg Study and Chegg Writing services have been instrumental in the 44% growth in Chegg Service revenue in 2017. In Q3FY18, Chegg Service revenue grew 41% yoy.

Chegg Study is CHGG's main service provided to students, with it's catalogue of textbook questions and answers growing 41% yoy. This growth in content will help CHGG reach new students. Q3 saw 110 million content views, up 51% yoy, reflecting a strong return on investment for Chegg Study. CHGG is also working on new products and services to help students and increase their use of Chegg. For example, Chegg is planning to add a chat feature to their tutoring platform, which will give students more flexibility on when they access tutoring and will be able to access Chegg for that purpose more often, driving site visits.

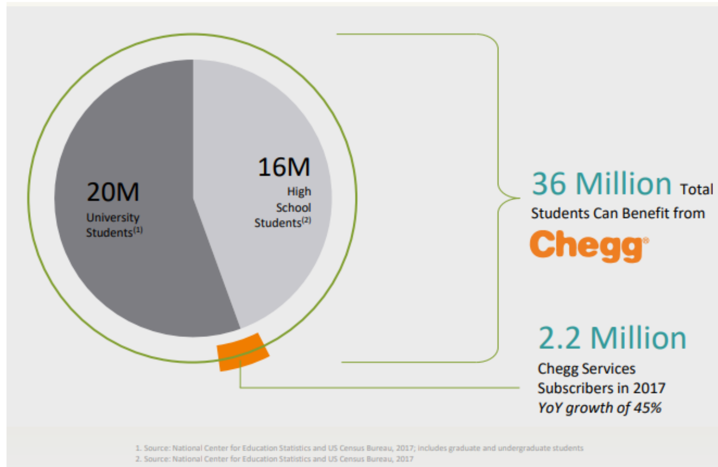
The focus on moving towards a more digital focused company has two benefits. First, it differentiates itself from competitors. Amazon is another main player in the textbook rental business. As Amazon's business has grown, it has become a major source of competition for Chegg. Chegg has been able to differentiate itself by moving into a different, yet related, business. CHGG has seen their required material segment decrease substantially, only representing 27.2% of their business in 2017.



The other major area of value created by this shift is in margin. Digital products offer a much higher margin than physical products. EBITDA margin has improved from 6.7% in 2014 to 8% for the LTM ending September 30, 2018. Net income margin has increased from -40.3% in 2017 to -1.8% for the LTM ending September 30, 2018. Net income margin is projected to be 19.6% in 2018.

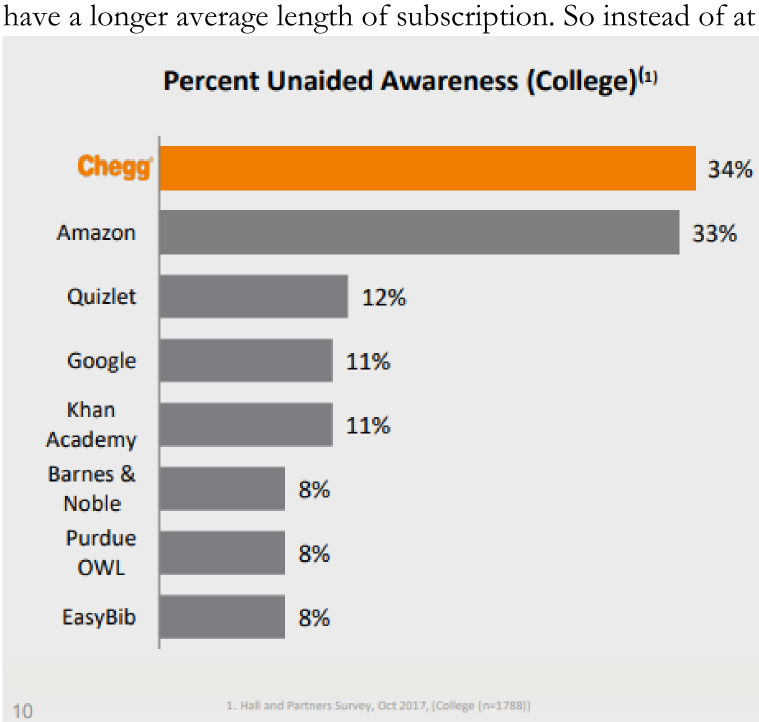
Large Market and Untapped Potential:

Education accounts for 7% of the United States's Gross Domestic Product. There are 20 million college students in the United States alone. Chegg had 2.2 million subscribers in 2017. Now add 16 million high school students to that equation. That means there are 36 million individuals in high school or higher, and Chegg subscribers account for 6.11% of all students who can benefit from their services. Some of Chegg's products can also reach younger audiences, such as their writing and citation services, which can help students as young as middle school. Chegg is also planning on expanding into international markets in the future.



Beyond subscribers, the Chegg platform has approximately 11 million unique visitors every month. This accounts for 30.6% of the education market for high school and above in the United States. Each of these visitors has an opportunity to interact with the platform, understand the benefits, and get the word out to other students or to become subscribers themselves. As discussed earlier, the textbooks are shipped in bright, distinct boxes, which immediately catch the eye. This brand recognition is invaluable. Look in any college post office at the beginning of the semester and its likely you'll see at least one of those boxes waiting for pickup. Brand recognition is crucial and CHGG can leverage it as it taps into new and existing markets.

CHGG is also hoping that its new AI driven math service will help them expand influence in the high school market. Introducing students to the brand early is important. Chegg is not a service consumers will stay subscribed to in perpetuity like Spotify or Netflix, Chegg's usefulness is limited to however long the student is in school. By reaching students earlier, not only will they have a first mover advantage but will also have a longer average length of subscription. So instead of at most a possible life of the subscription being 4 years, a Chegg subscriber could possibly be subscribed for as many as 8 or more years.



Economies of Scale:

CHGG has an already large and growing database of study materials for students across multiple areas of study. This means that students are more likely to find the content they are looking for on Chegg's platform - and more likely to use it again. If students know there is one place that will have their answers instead of having to search multiple sites for what they are looking for, they will just go to where they know they can get their answers, which is Chegg. The variety of subjects is also important as college curriculum requires students to take a variety of classes in multiple subjects. The shear amount of reliable material increases brand loyalty.

A bonus of Chegg's market is the word-of-mouth opportunity that arises. High School and College are very focused on group work. When working on a group project, if one student has Chegg and uses it, it introduces other students to the platform. Even outside group work settings, students will often collaborate on homework and other assignments, increasing the number of opportunities students have to share the platform. And as CHGG starts targeting younger high school and middle school audiences, it increases the odds of an older sibling introducing younger siblings or parents it Chegg's platform. As the number of subscribers and users grows, CHGG has a greater opportunity of reaching new students without having to spend as many valuable marking dollars on customer acquisition. As mentioned earlier, CHGG subscriptions increased 45% year over year and content views increased 51%. The more students that actively use Chegg, the greater their word-of-mouth power will be.

While the Chegg platform has been growing, less has been spent on marketing in the past few years. Selling and marketing decreased from $64.1 million in 2016 to $51.2 million in 2017, a 20% decrease. The increasing revenues and subscibtions add substance to the fact that CHGG does not need to spend as much on customer acquisition because of their vast network of college students using word-of-mouth to introduce new students to Chegg. And as Chegg grows, they can take further advantages of these economies of scale.

Conclusion:

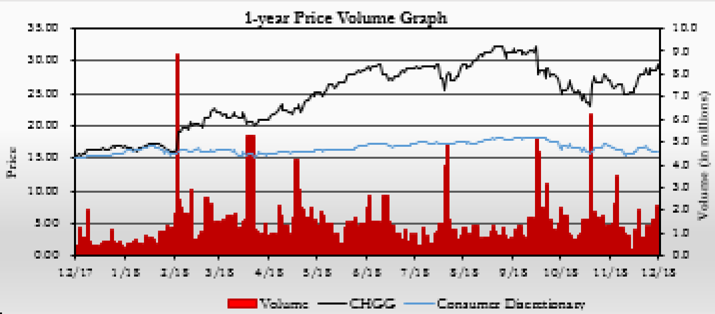
CHGG offers a valuable service to a large market. They have created a brand loyalty that no other study platform is able to boast. As they move away from their traditional business of physical textbooks and toward higher margin digital products, CHGG is able to create more value for shareholders. CHGG is growing at a rapid pace, and with their brand loyalty, word-of-mouth, especially in the college and high school setting, is invaluable. This will allow CHGG to continue its growth momentum as lower customer acquisition costs. For the foreseeable future, CHGG should continue to offer value to both college students and investors as it expands and grows.

Chegg, Inc. (CHGG)

CENTER FOR GLOBAL FINANCIAL STUDIES

NEUTRAL

Analysis by Sam St.Germain	Current Price:	$28.97	Intrinsic Value	$29.62	Target 1 year Return: 11.27%
12/11/2018	Divident Yield:	0.0%	Target Price	$32.23	Probability of Price Increase: 88%



Description

Chegg, Inc. operates direct-to-student learning platform that supports students on their journey from high school to college and into their career with tools designed to help them pass their test, pass their class, and save money on required materials.

General Information

Sector	Consumer Discretionary
Industry	Diversified Consumer Services
Last Guidance	May 8, 2018
Next earnings date	February 11, 2019

Market Assumptions

Estimated Equity Risk Premium	6.00%
Effective Tax rate	21%

Market Data

Market Capitalization	$3,391.78
Daily volume (mil)	0.26
Shares outstanding (mil)	114.90
Diluted shares outstanding (mil)	111.73
% shares held by institutions	101%
% shares held by investments Managers	86%
% shares held by hedge funds	12%
% shares held by insiders	5.20%
Short interest	10.71%
Days to cover short interest	8.13
52 week high	$32.82
52-week low	$15.05
Volatility	43.13%

Past Earning Surprises

Quarter ending	Revenue	EBITDA
9/30/2017	8.78%	-65.24%
12/31/2017	4.27%	-34.83%
3/31/2018	3.90%	-46.98%
6/30/2018	6.03%	-43.08%
9/30/2018	7.75%	-60.47%
Mean	**6.15%**	**-50.12%**
Standard error	1.0%	16.6%

Market and Credit Scores

Recommendation (STARS) Value--0
Recommendation (STARS) Description--0
Quality Ranking Value--0
Quality Ranking Description--0
Short Score--2
Market Signal Probability of Default % (Non-Ratings)--0.56%
CreditModel Score (Non-Ratings)--b+

Industry and Segment Information

LTM Revenues by Geographic Segments	LTM Revenues by Business Segments
United States--100%	Online Retailers--100%
--	--
--	--
--	--
--	--

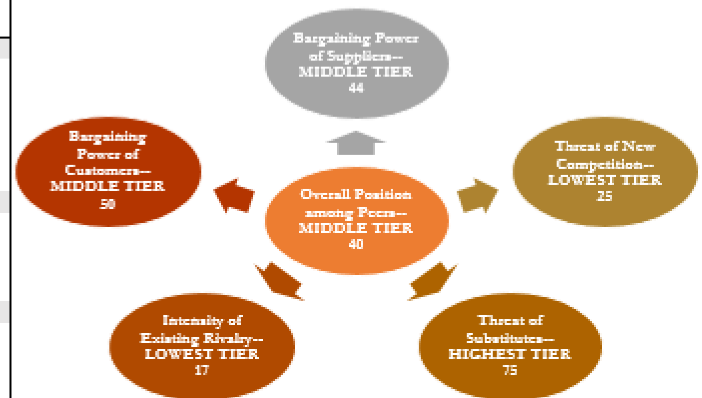
Peers

--	--
--	--
--	Barnes & Noble Education, Inc.
--	--
Cambium Learning Group, Inc.	--

Management	Position	Total Compensations Growth	Stock Price Growth During Tenure
Rosensweig, Daniel	Co-Chairman, CEO & President	19.49% per annum over 5y	
Brown, Andrew	Chief Financial Officer	42.93% per annum over 5y	
Lem, Esther	Chief Marketing Officer	8.58% per annum over 2y	55.72% per annum over 2y
Geiger, Charles	Chief Product Officer	27.4% per annum over 5y	
Schultz, Nathan	Chief Learning Officer	-100% per annum over 3y	14.89% per annum over 3y
Osier, Michael	Chief Outcomes Officer	-100% per annum over 3y	14.89% per annum over 3y

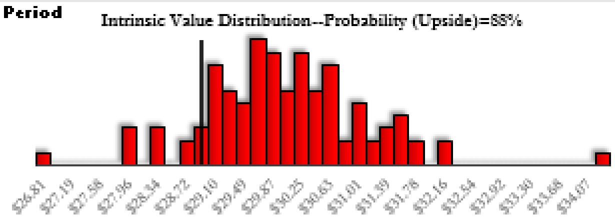
Profitability	CHGG (LTM)	CHGG Historical	Peers' Median (LTM)
Return on Capital (GAAP)	21.5%	-4.59%	23.90%
Operating Margin	25%	-7.13%	18.85%
Revenue/Capital (GAAP)	0.87	0.64	1.27
ROE (GAAP)		3.9%	135.6%
Net margin		2.1%	24.1%
Revenue/Book Value (GAAP)		1.85	5.62
Invested Funds	**CHGG (LTM)**	**CHGG Historical**	**Peers' Median (LTM)**
Cash/Capital	52.7%	37.0%	10.1%
NWC/Capital	-3.8%	-7.4%	-27.7%
Operating Assets/Capital	33.6%	50.2%	96.9%
Goodwill/Capital	17.4%	22.7%	20.7%
Capital Structure	**CHGG (LTM)**	**CHGG Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.34	0.03	0.57
Cost of Debt	5.0%	5.0%	5.0%
CGFS Rating (F-score, Z-score, and default Probabilit	A		
WACC	10.2%	11.0%	11.5%

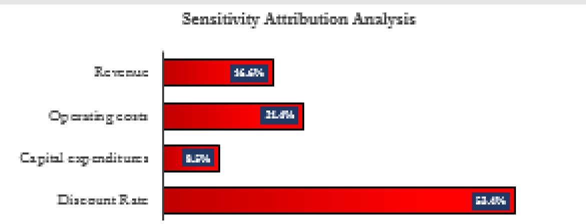
Porter's 5 forces (Scores are percentiles)



Valuation

Forecast Assumptions	Explicit Period (15 years)	Continuing Period
Revenue Growth CAGR	19%	3.0%
Average Operating Margin	21%	20%
Average Net Margin	26%	15%
Growth in Capital CAGR	15%	3%
Growth in Claims CAGR	0%	3%
Average Return on Capital	18%	8%
Average Return on Equity	18%	9%
Average Cost of Capital	10%	11%
Average Cost of Equity	11%	11%





SIENA college — BJORKLUND FUND

December 11, 2018

Take-Two Interactive: (TTWO)

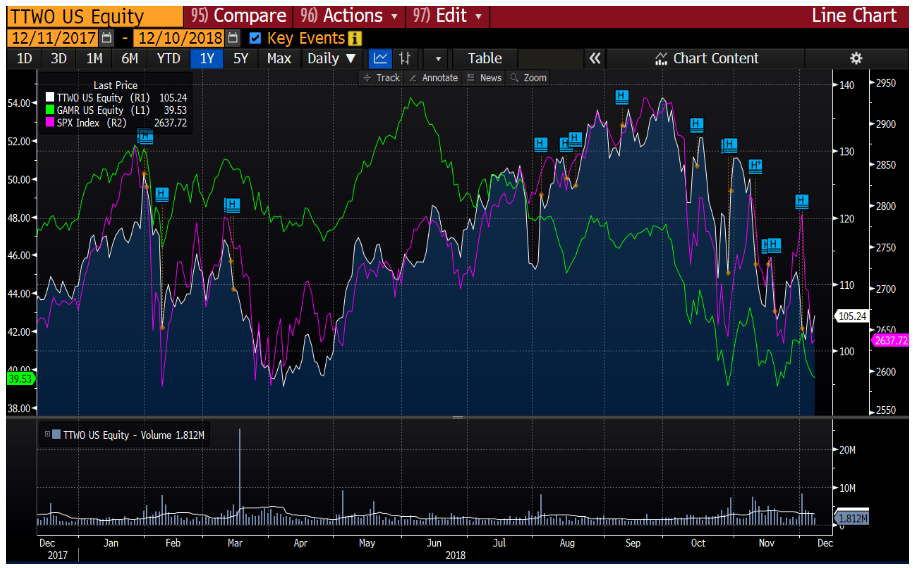
Analyst: Eric Munn

Sector: Communitcation Services
Industry: Entertainment
Current Price: $105.75
Target Price: $142.17

Description: Take-Two Interactive develops and publishes products principally through its two wholly-owned labels, such as Rockstar Games and 2K, as well as the company's new Private Division label and Social Point, a primary developer of mobile games.

BUY

Current Price:	$105.75
Target Price:	$142.17
Market Cap:	$11.6B
ROC/WACC:	1.61
WACC:	10.5%
No Debt	
Default Rating:	bb+
SI Ratio:	1.39



GAMR ETF
S&P 500 Index

Thesis: TTWO is a victim of the recent market sell off. The gaming industry is in a major growth stage that will only expand TTWO's users. The company is poised to benefit greatly from current and reacurring sales on Red Dead Redemption 2. IT also has entered the eSports industry, which will spearhead further integration as the industry grows.

Catalysts: Forward looking projections that call for positive/negative outlook that will strengthen your thesis. Example:

- Short Term(within the year): Red Dead Redemption Two Sales
- Long Term(3+): **eSports Industry**

Video Game Industry Outlook:

The gaming industry has continued to grow. According to NEWzoo's Global Games report, gamers will likely spend around $138 Billion this year. This is a 13.3 YoY increase. More than half of teenagers play video games and for several hours each day. Gaming will continue to gain entertainment market share, because it is cheaper to consume than cable television or going to the movies. Videogame content sales were up 25% to $7.9B, NPD Group says, with broad gains led by mobile games and digital content for consoles/portables. Hardware sales were up 11% for the quarter, to $737M, while accessory sales rose 44% with all-time quarterly records in headsets as well as in game cards. The model for gaming has completely changed, and TTWO is a perfect example. The initial purchase is just the beginning of the spending.

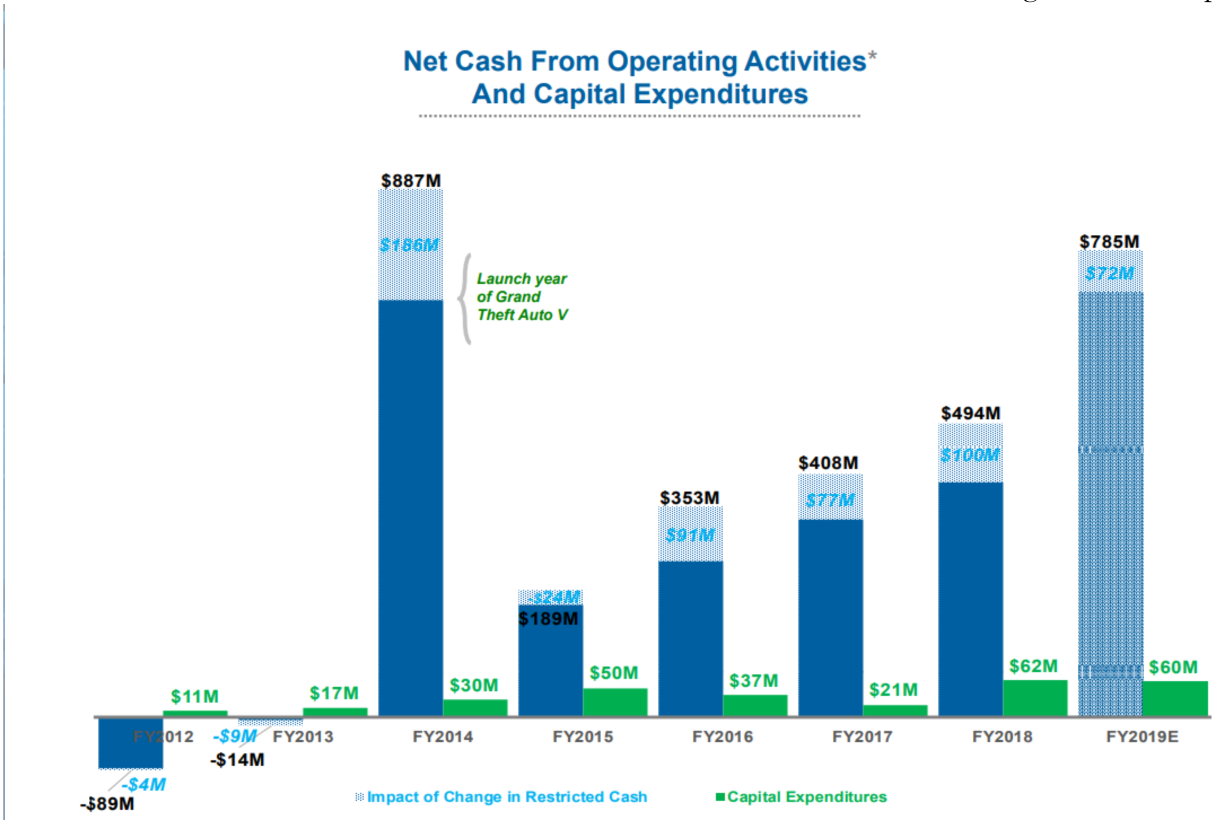
The table below depicts TTWO's growth in digital purchases and recurrent revenue. This digital growth is helping margins, as marginal costs become lower as production of disks slows.

■ Recurrent Consumer Spending ■ Digitally-Delivered ■ Total Net Bookings

	FY2012	FY2013	FY2014	FY2015	FY2016	FY2107	FY2018	FY2019E CAGR
Digital % of Total	13%	22%	18%	37%	53%	57%	68%	52%
Recurrent Consumer Spending % of Total [3]	4%	7%	9%	18%	26%	33%	48%	76%

Earnings Performance:

TTWO's business model is conducive to large relsease on their flagship franchises that occur irregularly. However, franchises like their largest producer, Grand Theft Auto 5, bring in continuous revenue, by releasing additional content. In the chart below, FY14 shows the release of GTA 5. The earnings of this company are



staggered as major releases occur. Investors did not expect to see the same amount of success from Red Dead Redemption 2, but the initial results are promising.

1) Key Stats 2) I/S 3) B/S 4) C/F 5) Ratios 6) Segments 7) Addl 8) ESG 9) Custom

11) Adj Highlights 12) GAAP Highlights 13) Earnings 14) Enterprise Value 15) Multiples 16) Per Share 17) Stock Value

In Millions of USD 12 Months Ending	2011 Y 03/31/2011	2012 Y 03/31/2012	2013 Y 03/31/2013	2014 Y 03/31/2014	2015 Y 03/31/2015	2016 Y 03/31/2016	2017 Y 03/31/2017	2018 Y 03/31/2018	Current/LTM 09/30/2018	2019 Y Est 03/31/2019	2020 Y Est 03/31/2020
Market Capitalization	1,323.2	1,388.0	1,513.9	1,950.0	2,249.1	3,261.2	6,082.3	11,150.6	11,983.9		
- Cash & Equivalents	280.4	420.3	402.5	935.4	1,098.0	1,269.6	1,392.3	1,424.4	1,025.3		
+ Preferred & Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
+ Total Debt	107.2	316.3	335.2	454.0	473.0	497.9	251.9	8.1	0.0		
Enterprise Value	1,150.1	1,284.0	1,446.6	1,468.6	1,624.1	2,489.6	4,941.9	9,734.3	10,958.6		
Revenue, Adj	1,136.9	825.8	1,214.5	2,350.6	1,082.9	1,413.7	1,779.7	1,792.9	1,811.8	2,977.6	2,847.3
Growth %, YoY	-1.9	-27.4	47.1	93.5	-53.9	30.5	25.9	0.7	-5.1	66.1	-4.4
Gross Profit, Adj	447.5	297.0	498.6	936.2	288.1	599.8	756.8	894.6	988.3	1,556.0	1,581.5
Margin %	39.4	36.0	41.1	39.8	26.6	42.4	42.5	49.9	54.6	52.3	55.5
EBITDA, Adj	242.5	78.6	254.5	702.2	-103.4	227.3	372.7	286.8	320.5	767.6	822.3
Margin %	21.3	9.5	21.0	29.9	-9.5	16.1	20.9	16.0	17.7	25.8	28.9
Net Income, Adj	53.3	-107.9	-30.3	366.5	-287.6	64.2	79.5	186.1	225.9	580.9	604.8
Margin %	4.7	-13.1	-2.5	15.6	-26.6	4.5	4.5	10.4	12.5	19.5	21.2
EPS, Adj	0.65	-1.30	-0.35	3.24	-3.58	0.77	0.86	1.65	1.93	5.00	5.18
Growth %, YoY	8.4	–	72.8	–	–	–	12.2	91.6	59.8	202.1	3.6
Cash from Operations	134.8	-85.0	-4.6	700.3	212.8	261.3	331.4	393.9	186.8		
Capital Expenditures	-9.7	-10.8	-16.8	-29.8	-49.5	-37.3	-21.2	-61.6	-58.0	-57.5	-59.6
Free Cash Flow	125.1	-95.8	-21.4	670.4	163.3	224.0	310.3	332.4	128.9	694.0	577.6

The cyclilaty of the revenue streams from gaming releases is apparent in the YoY revenue growth. However, TTWO has managed to leverage the increase in reccurent revenue from at a essentially zero marginal cost to increase net income margins and generate free cash flow.

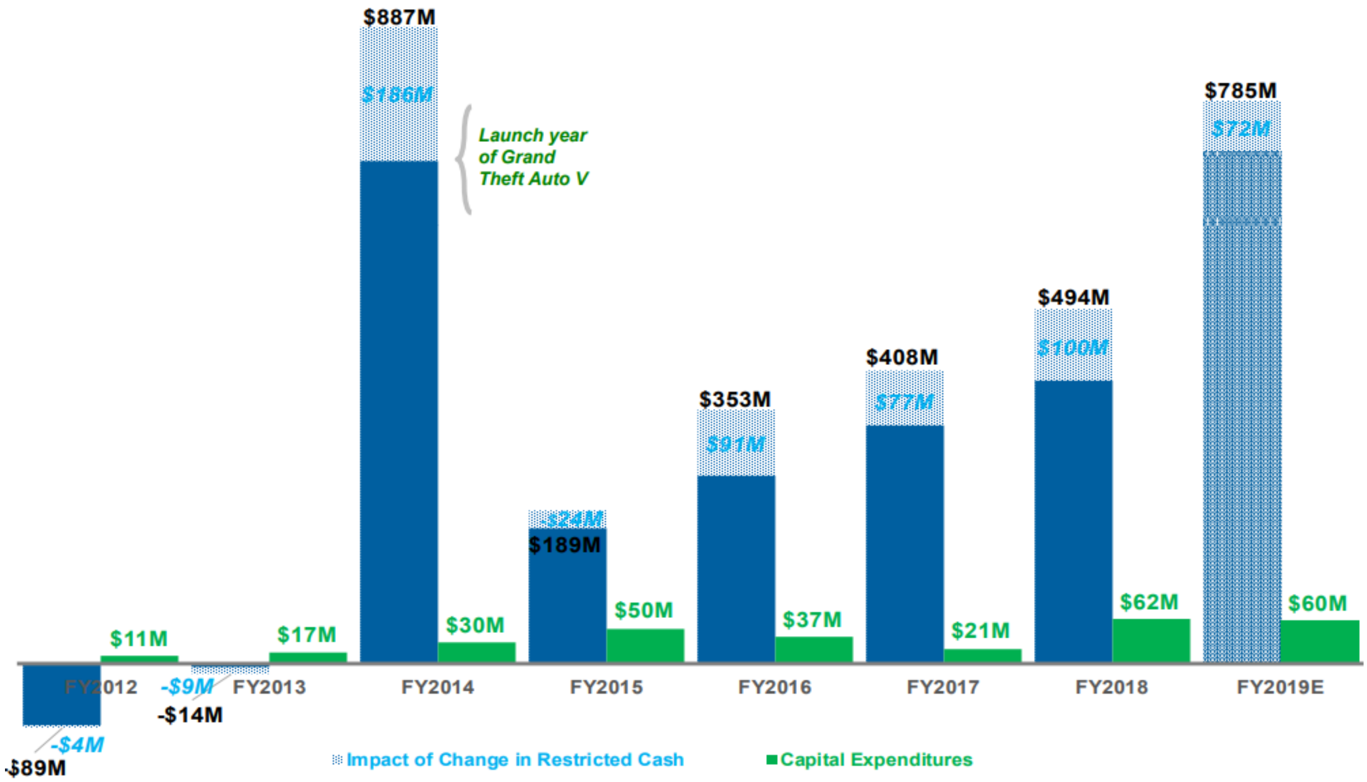
Red Dead Redemption 2:

The release of RDR2 occurred on October 13, 2018, with critical acclaim. There are not games out that match the type of game play available in Rockstar's Red Dead Redemption series. There is not completion in the nitch. Red Dead Redemption 2 sold about 70 percent as well as GTA 5 did over it's first three days with 725 million worth of copies sold. This matched expectations. RDR2 out sold Red Dead Redemption 1's lifetime sales in 12 days.

The online portion of GTA 5 has been a cash cow. The total sales have been estimated at around 6 billion, a large part being recurrent purchases online, which make it the most successful entertainment product of all time.

TTWo is aiming to develop the current beta version of the online feature into something close to as lucrative as GTA online. The company took 18 months to really get the online feature right on GTA. Their have been issues with the mechanics and already an announced fix of the in game rewards.

Investors are waiting to see how well TTWO can monetize RDR2 and this is a reason to buy in now.



RDR2 PC Release:

Currently, RDR2 is only available on the XBOX One and PS4 Investors are speculating about the PC version of Red Dead Redemption 2. If it follows the same pattern as Grand Theft Auto 5, it could be released released in March of 2019, which is better than the current estimates, some of which do not even believe it will be released. This revenue boost may not be priced in.

eSports 2K League:

There is significant excitement around the growth of eSports. TTWO has joined the scene with the first major sport affiliation. Their franchie, NBA 2k, the leader in basketball simulation, has a joint venture with the National Basketball Association. It started in May 2018. 76,000 people participated in qualifying rounds. 17 NBA teams drafted 5 person teams to compete in a 15-week season. The league has partnerships with Dell, Intel, and Twitch. The purpose of this league is to enhance the engagement of fans, which will build up NBA 2k users, and in turn, revenue.

NBA2K LEAGUE

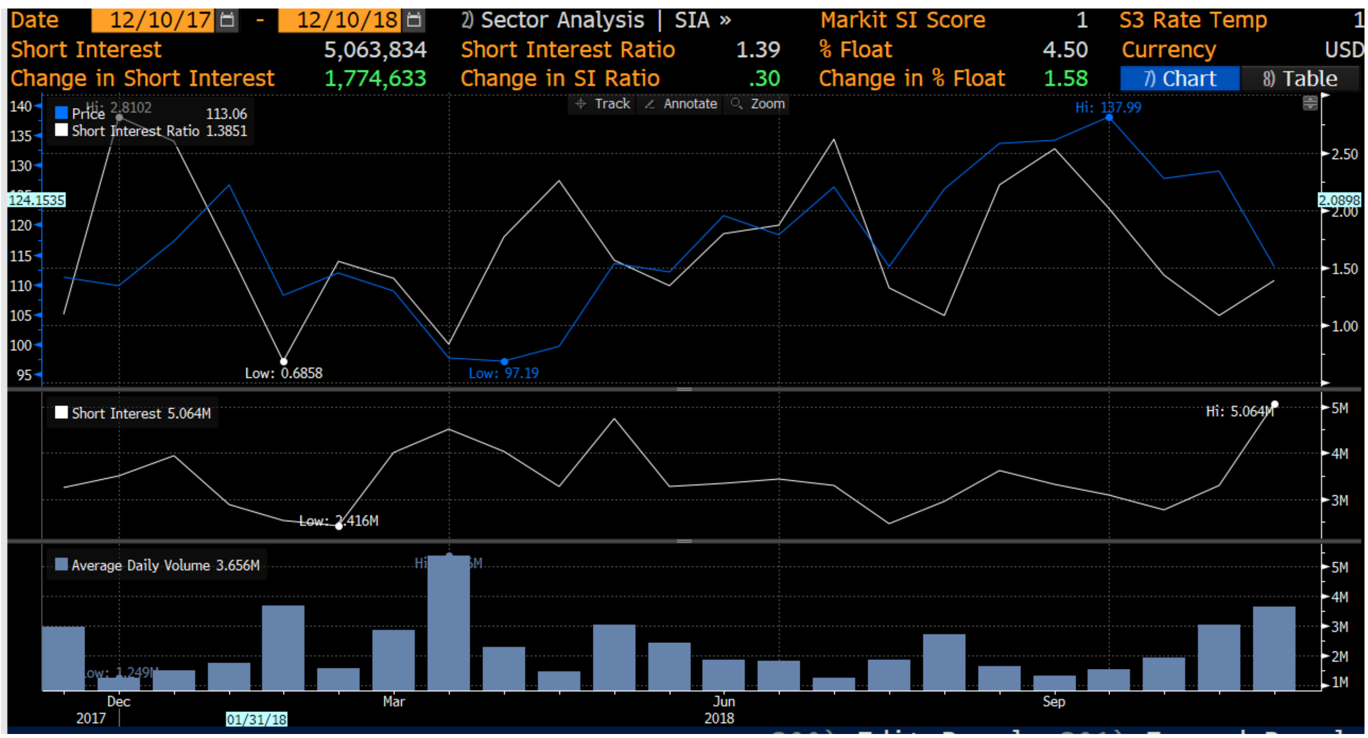
Ownership:

Hedgefunds entered new positions during a significant drop around July 29th. As unforeseen macro conditions have dropped the price, the have remained relatively constant in their postions.

11) Investment Advisor	72.44	75.52	+3.08
12) Hedge Fund Manager	18.87	15.01	-3.86

Short Interest:

Short interest ratio is at a low postion of 1.39. Short postions took their profits as the price dropped starting in October. Investors have now added to their postions once again, but at such a low overall % of the float, a small portion believes the price will significantly drop again.

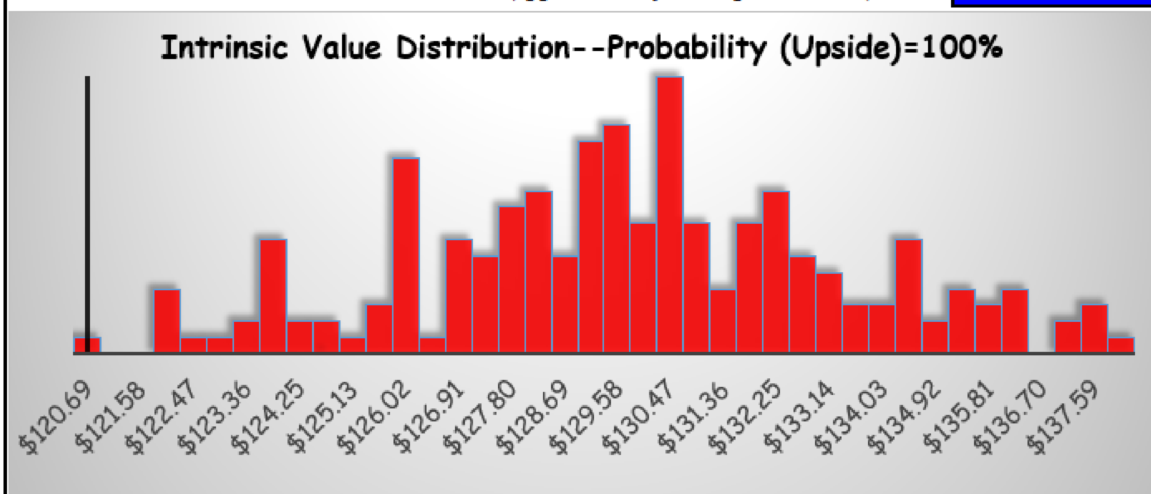


Conclusion:

Take-Two Interactive is part of an industry where we are seeing massive growth potential in the long term. As technology advances, TTWO is keeping up with ground breaking games. The company's Red Dead Redemption 2 release was a success, and will follow the same pattern as the biggest success in entertainment, GTA 5. The intergration of PC and the monetization of the online features will lead to runaway success in revenues. The 2K/NBA partnership has fostered fan engagement and is a marker for furthing eSports expanision that is looking to become a staple in society in the future.

Target Price: $142.93

Number of Monte-Carlo simulation trials (approximately 1 min per 300 trials)-------> 200



Statistics	Intrinsic Value	Target Va
Base Case	$129.77	$142.93

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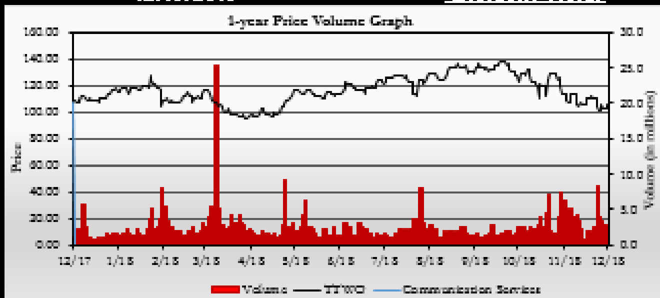
Take-Two Interactive Software, Inc. (TTWO)

BULLISH

Analysis by Al Capone	Current Price: $105.24	Intrinsic Value $128.81	Target 1 year Return: 35.09%
12/10/2018	Divident Yield: 0.0%	Target Price $142.17	Probability of Price Increase: 100



Description

Take-Two Interactive Software, Inc. develops, publishes, and markets interactive entertainment solutions for consumers worldwide.

General Information

Sector	Communication Services
Industry	Entertainment
Last Guidance	May 8, 2018
Next earnings date	February 6, 2019

Market Assumptions

Estimated Equity Risk Premium	6.46%
Effective Tax rate	21%

Market Data

Market Capitalization	$11,979.28
Daily volume (mil)	1.77
Shares outstanding (mil)	113.83
Diluted shares outstanding (mil)	115.99
% shares held by institutions	94%
% shares held by investments Managers	71%
% shares held by hedge funds	17%
% shares held by insiders	0.50%
Short interest	4.45%
Days to cover short interest	1.98
52 week high	$139.91
52-week low	$92.81
Volatility	28.12%

Past Earning Surprises

Quarter ending	Revenue	EBITDA
9/30/2017	-13.90%	-45.59%
12/31/2017	-27.85%	-62.49%
3/31/2018	-0.22%	5.07%
6/30/2018	47.97%	159.74%
9/30/2018	-11.06%	-55.04%
Mean	-1.01%	0.34%
Standard error	1.0%	4.4%

Market and Credit Scores

Recommendation (STARS) Value--4
Recommendation (STARS) Description--Buy
Quality Ranking Value--C
Quality Ranking Description--Lowest
Short Score--1
Market Signal Probability of Default % (Non-Ratings)--1.8%
CreditModel Score (Non-Ratings)--bb+

Industry and Segment Information

LTM Revenues by Geographic Segme	LTM Revenues by Business Segments
United States--59%	Publishing--100%
--	--
--	--
Asia Pacific--6%	--
Europe--30%	--

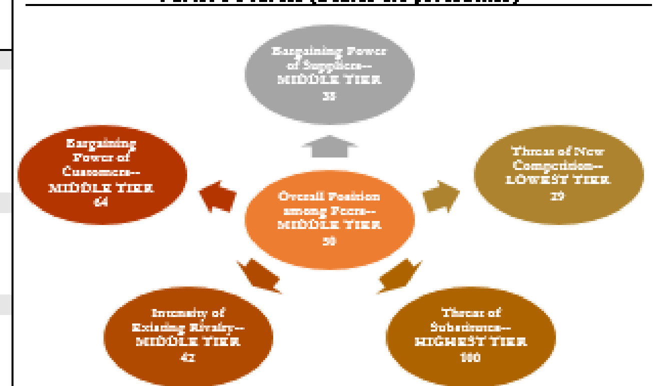
Peers

Zynga Inc.	Ncsoft Corporation
Electronic Arts Inc.	Square Enix Holdings Co., Ltd.
Activision Blizzard, Inc.	Konami Holdings Corporation
Ubisoft Entertainment SA	GungHo Online Entertainment, Inc.
NEXON Co., Ltd.	YOOZOO Games Co., Ltd.

Management	Position	Total Compensation Growth	Stock Price Growth During Tenure
Zelnick, Strauss	Executive Chairman & CEO	24.54% per annum over 6y	6.36% per annum over 6y
Slatoff, Karl	President	10.35% per annum over 6y	6.36% per annum over 6y
Goldstein, Lainie	Chief Financial Officer	-11.53% per annum over 6y	6.36% per annum over 6y
Emerson, Daniel	Executive VP & General Counsel	24.86% per annum over 4y	18.65% per annum over 4y
Diamond, Henry	Senior Vice President of Investor Relations & C		
Breitman, Matthew	Senior VP, Deputy General Counsel & Corporat		

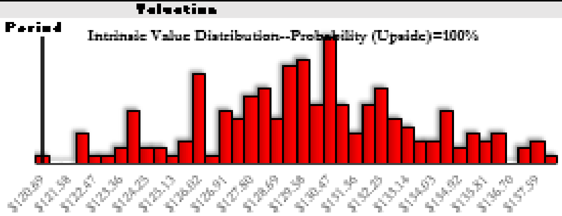
Profitability	TTWO (LTM)	TTWO Historical	Peers' Median (LTM)
Return on Capital (GAAP)	80.1%	76.41%	14.00%
Operating Margin	22%	18.01%	29.32%
Revenue/Capital (GAAP)	3.58	4.24	0.48
ROE (GAAP)	12.8%	12.7%	12.8%
Net margin	11.8%	10.7%	16.1%
Revenue/Book Value (GAAP)	1.078811981	1.19	0.79
Invested Funds	**TTWO (LTM)**	**TTWO Historical**	**Peers' Median (LTM)**
Cash/Capital	54.5%	77.9%	43.1%
NWC/Capital	-22.6%	-40.1%	-0.6%
Operating Assets/Capital	47.0%	48.0%	44.4%
Goodwill/Capital	21.1%	12.6%	5.7%
Capital Structure	**TTWO (LTM)**	**TTWO Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.06	0.24	0.09
Cost of Debt	4.0%	6.2%	3.1%
CGFS Rating (F-score, Z-score, and default Probabilit	BBB		
WACC	518.9%	11.7%	8.9%

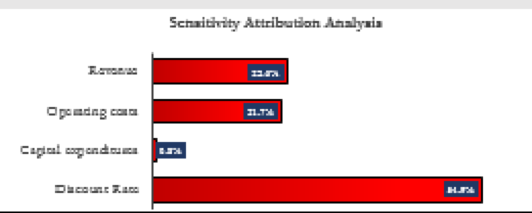
Porter's 5 forces (Scores are percentiles)



Valuation

Forecast Assumptions	Explicit Period (9 years)	Continuing Period
Revenue Growth CAGR	9%	2.5%
Average Operating Margin	25%	25%
Average Net Margin	24%	21%
Growth in Capital CAGR	17%	2%
Growth in Claims CAGR	12%	2%
Average Return on Capital	16%	7%
Average Return on Equity	16%	7%
Average Cost of Capital	11%	11%
Average Cost of Equity	11%	11%





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December 12th, 2018

Moet Hennessy Louis Vuitton: LVMH

Ala Saidi

Sector: Consumer Discretionary
Industry: Textiles, Apparel and Luxury Goods
Current Price:$249.50
Target Price: $293.24

Company Description: LVMH Moet Hennessy Louis Vuitton SE is a luxury goods company. Its business activities are divided into various business groups, including Wines & Spirits, Fashion & Leather Goods, Perfumes & Cosmetics, Watches & Jewelry, Selective retailing and Other activities. The Company has approximately 70 brands and over 3,950 stores around the world. It produces still and sparkling wines from various wine-growing regions, as well as whiskey. The Fashion & Leather Goods business group includes brands, such as Louis Vuitton, Fendi, Donna Karan, Loewe…It focuses on the perfumes, make-up and skincare business, and offers a range of brands, including Christian Dior, Guerlain and Kenzo. The Watches & Jewelry sector operates in two segments: high-quality watchmaking, and jewelry and high jewelry.

BUY

Current Price:	$249.50
Target Price:	$293.24
Market Cap:	125.308B
Average volume:	648,880K
Gross margin:	66.33%
EPS	11.92
EBT Margin:	20.08%

Thesis:

LVMH reported excellent results since their first merger. During the last Quarter LVMH recorded an outstanding financial marks with a double-digit increase in both revenue and profit. Due to the standards of the quality and creativity that LVMH offers, in addition to their strategy of acquiring more brands and expanding their stores throughout the world; the company will indeed keep attesting remarkable performance in the long-term.

Catalysts:

- Short Term(within the year): Growth in EU, US and Asia
- Long Term (3+): Higher growth in all the segments.
  -Acquiring more luxury brands
  -Expanding more in the Asian market and throughout the world

Business Overview:

LVMH Moet Hennessy Louis Vuitton is the world's largest luxury goods company, with brands that are bywords for the good life and everything showy. LVMH makes wines and spirits (Dom PERIGNON, Moet & Chandon, Veuve Clicquot, and Hennessy), perfumes (Christian Dior, Guerlain and Givenchy), cosmetics (Nude, Fresh, and Benefit), fashion and leather goods (Donna Karan, Givenchy, Kenzo, and Louis Vuitton), and watches and jewelry (TAG Hauer, Bulgari). LVMH's selective retail division includes Sephora cosmetics stores, Le Bon Marche Paris department stores, and 61% of DFS Group (duty-free shops). Chairman Bernard Arnault, the richest man in France and his family own about 46% of LVMH through Group Arnault.LVMH acquire Christian ; Dior in a $12 billion in 2017.

Mergers and Acquisition:

LVMH started their merger history in year 1987; a $4 billion merger was effected between Louis Vuitton with Moet-Hennessy, which allowed LV to expand its investments in the luxury business, while saving Moet-Hennessy from the threat of takeover. Later on, in 1988 LVMH acquired Givenchy and Berluti, this acquiring expansion on luxury brands continued until 2017 when the company has acquired Christian Dior $13.1 Billion deal.

In 2016, LVMH acquired Germany luxury baggage Rimowa for 640 million. The Acquisition increased LVMH's exposure to the growing luxury tourism market.

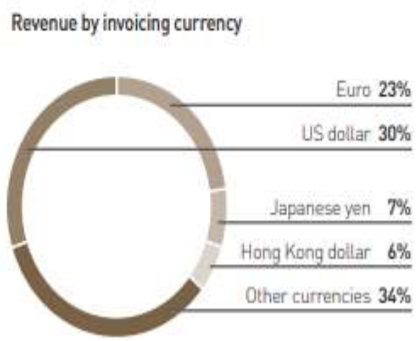
In 2018 LVMH's investment arm L Catterton acquired US HVAC Airxcel. The company produces heating, ventilation and related appliances for RVs, classrooms, and telecommunications enclosures under brands including Coleman-Mach, MaxxAir, Suburban, Dicor and more.

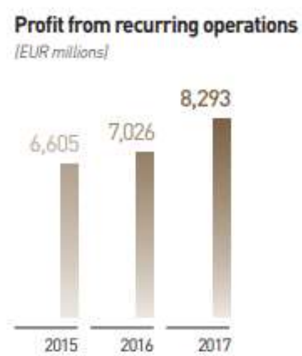
Financial Performance:

LVMH Moët Hennessy Louis Vuitton, the world's leading luxury products group, recorded revenue of €42.6 billion in 2017, and an increase of 13% over the previous year. Organic revenue growth was 12%. All business groups recorded double-digit organic growth with the exception of Wines and Spirits, whose growth in the second half was limited by supply constraints. With organic revenue growth of 11%, the trend seen since the beginning of the year continued into the fourth quarter. Profit from recurring operations reached €8 293 million in 2017, an increase of 18%. Operating margin reached 19.5%. Group share of net profit was €5 129 million, representing growth of 29%.

Euro millions	2016	2017	% change
Revenue	37 600	42 636	+ 13 %
Profit from recurring operations	7 026	8 293	+ 18 %
Group share of net profit	3 981	5 129	+ 29 %
Free cash flow*	3 974	4 754	+ 20 %
Net financial debt	3 265	7 178	+ 120 %
Total equity	27 903	30 260	+ 8 %

** Before available for sale financial assets and investments, transactions relating to equity and financing activities*





Ownerships:

Institutions own 68.51% of LVMH Float. Investment advisors own 26.37% of the float with Capital Group Cos Inc. being the top holder with only 2.02%. BlackRock Inc. come on the second place owning 1.52% of the float. Followed by Vanguard Group Inc. who also own 1.38%. Holding company own 69.76% of the total float. Investment advisors have been adding to their positions, there is change in the rate of +0.63 between the past year and the current year. Which mean that they see the stock as a safe haven within the industry.

54) Ownership Type	12/24/17	Curr	Change
41) Holding Company	70.52	69.76	-0.76
42) Investment Advisor	25.74	26.37	+0.63
43) Sovereign Wealth Fund	1.61	1.73	+0.12
44) Government	0.9	0.89	-0.01
45) Pension Fund	0.71	0.56	-0.15
46) Individual	--	0.24	--
47) Insurance Company	0.16	0.19	+0.03
48) Bank	0.08	0.11	+0.03
49) Hedge Fund Manager	0.09	0.05	-0.04

Performance by segment:

Fashion and Leather Goods: the group achieved organic revenue growth of 13% in 2017. On a reported basis, revenue growth was up 21% and profit from recurring operations increased by 27%. Louis Vuitton continued to demonstrate outstanding creativity across all of its businesses, maintaining a good balance between innovations and the strengthening of its iconic product lines. New products arising from the collaborations with the artist Jeff Koons as well as the Supreme brand, the launch of the brand's first smart watch and the inauguration of the Maison Louis Vuitton Vendôme in Paris were among the key events of the year. Christian Dior Couture, whose business became fully consolidated within the Group in the second half, achieved an excellent performance.

Perfumes & Cosmetic: the group recorded organic revenue growth of 14%. On a reported basis, revenue growth was 12% and profit from recurring operations increased by 9%. Perfumes Christian Dior grew market share in all regions, driven by the worldwide success of its fragrance *Sauvage*and the vitality of its iconic perfumes *J'adore* and *Miss Dior*. The makeup segment grew strongly too.

Watches & Jewelry: the group recorded organic revenue growth of 12%. On a reported basis, revenue growth was 10% and profit from recurring operations increased by 12%. Bvlgari achieved an excellent performance and continued to gain market share thanks to the strength of its iconic lines *Serpenti*, *B.Zero1*, *Diva* and *Octo*. Growth was particularly strong in Asia, the United States and Europe.

Selective Retailing business group recorded organic revenue growth of 13%. On a reported basis, revenue growth was 11% and profit from recurring operations was up 17%. Sephora continued to gain market share. Its growth was particularly strong in North America and Asia. A new territory, Germany, was inaugurated, while Sephora expanded its online presence in Scandinavia, Mexico and the Middle East. The year 2017 was a positive turning point for DFS, with better-positioned markets, especially in the second half. The new stores in Cambodia and Italy continued to grow.

Revenue by business group:

Euro millions	2016	2017	% change 2017/2016	
			Reported	Organic*
Wines & Spirits	4 835	5 084	+ 5 %	+ 7 %
Fashion & Leather Goods	12 775	15 472	+ 21 %	+ 13 %
Perfumes & Cosmetics	4 953	5 560	+ 12 %	+ 14 %
Watches & Jewelry	3 468	3 805	+ 10 %	+ 12 %
Selective Retailing	11 973	13 311	+ 11 %	+ 13 %
Other activities and eliminations	(404)	(596)	–	–
Total LVMH	**37 600**	**42 636**	**+ 13 %**	**+ 12 %**

Profit from recurring operations by business group:

Euro millions	2016	2017	% change
Wines & Spirits	1 504	1 558	+ 4 %
Fashion & Leather Goods	3 873	4 905	+ 27 %
Perfumes & Cosmetics	551	600	+ 9 %
Watches & Jewelry	458	512	+ 12 %
Selective Retailing	919	1 075	+ 17 %
Other activities and eliminations	(279)	(357)	–
Total LVMH	**7 026**	**8 293**	**+ 18 %**

Dividends:

At the Annual Shareholders' Meeting on April 12, 2018, LVMH will propose a dividend of €5 per share, an increase of 25%. An interim dividend of €1.60 per share was paid on December 7 of last year. The balance of €3,40 per share will be paid on April 19, 2018.

Competition:

Retailers offering products that are unique have a distinct and absolute advantage over their competitors. LVMH have had great results in 2017 especially in Q4. LVMH has a strong image and a high value. However, the fact that the company holds 7 different sectors, cannot really be compared to other companies that operates in a single sector. Yet as seen below, the main competitors of LVMH are Christian Dior, KERING, Hermes International and Prada. LVMH takes the first position comparing a market cap of 126.02B vs 59.64B Christian Dior that comes on the second place, the gap between each of the competitors market cap is huge. YoY revenue growth is 13.39%for LVMH, in addition to a YoY EPS growth of 28.61% that is relatively median in contrast to other competitors.

Segment	Revenue %
Whole Firm	100%
Apparel, Footwear & A...	45%
Other Spec Retail - Di...	31%
Household Products	13%
Beverages	12%

Metric	MC	Low	Comp Range	High
P/E	20.86	20.86		37.97
EPS 1 Yr Gr	28.61	-25.57		118.02
Rev 1 Yr Gr	13.39	-13.85		24.97
ROE	21.29	7.54		28.13
Chg Pct 1M	-6.20	-7.02		1.46

MC FP ◆ Median

Overview | Comp Sheets | Markets | EPS Preview | Ownership | Credit | Custom

Name (BICS Best Fit)	Mkt Cap (EUR)	Last Px	Chg Pct 1D	Chg Pct 1M	Rev - 1 Yr Gr:Y	EPS - 1 Yr Gr:Y	P/E	ROE	Dvd 12M Yld
Median	50.41B	362.85	0.74%	-1.82%	11.97%	28.85%	29.62	21.09%	2.03%
100) LVMH MOET HENNESSY ...	126.02B	249.50	0.65%	-6.20%	13.39%	28.61%	20.86	21.29%	2.16%
101) CHRISTIAN DIOR SE	59.64B	330.40	1.51%	-0.99%	10.54%	29.09%	23.34	20.88%	1.63%
102) KERING	49.92B	395.30	1.13%	0.53%	24.97%	58.71%	22.91	22.60%	1.52%
103) HERMES INTERNATIONAL	50.90B	482.10	0.84%	-2.65%	6.67%	12.86%	37.97	28.13%	1.89%
104) PRADA S.P.A.	7.62B	2.97	-0.38%	-7.02%	-13.85%	-25.57%	35.90	7.54%	2.66%
105) PUMA SE	6.80B	451.00	-0.66%	1.46%	14.04%	118.02%	37.84	10.69%	2.77%

(Accounting Adjustments: Adjusted for Abnormal Items When Applicable) 10) Analyze List

Conclusion:

In conclusion, I recommend LVMH stock as a buy. The company has been having excellent results especially in 2017, these results reflected the strong desirability of LVMH brands and the effectiveness of the company's strategy. LVMH had a double-digit increase in both revenue and profit from their recurring operations. There was a strong growth in Asia and US and an outstanding momentum at LV, the profitability remained at an exceptional level. In addition to an excellence performance at all the sectors. Cash from operations before changed in working capital was 5.5B euros, an increase of 21% and a net to debt ratio of 23% at the end of Q4. LVMH is expected to keep showing a great results on the long term, in reflection to their expansion in Asia and EU and following their strategy of acquiring more luxury brands into their sectors.

	Firm	Analyst	Recommendation	Tgt Px	Date	1 Yr Rtn	BARR	Rank
1)	Goldman Sachs	Louise Singlehurst	Buy/Neutral	317.00	12/08/18			
2)	AlphaValue	Rim Ben Salah	buy	317.00	12/06/18	3.39%		
3)	Exane BNP Paribas	Luca Giuseppe Solca	outperform	324.00	12/04/18	2.86%		
4)	Societe Generale	Thierry Cota	hold	282.00	12/03/18	26.52%	1	1
5)	HSBC	Antoine Belge	buy	325.00	12/03/18	-5.29%		
6)	Intermonte	Daniele Alibrandi	neutral	310.00	12/03/18	0.00%		
7)	Day by Day	Valerie Gastaldy	buy	313.70	12/03/18	2.86%		11
8)	Morgan Stanley	Edouard Aubin	Overwt/In-Line	315.00	12/02/18	5.00%	4	15
9)	Equita SIM SpA	Paola Carboni	buy	360.00	11/29/18	2.86%		
10)	SBG Securities	Rey Wium	hold	302.00	11/29/18	4.08%	5	2
11)	Cowen	Oliver Chen	outperform	336.00	11/23/18	2.86%		12
12)	Bryan Garnier & Co	Loic Morvan	buy	335.00	11/21/18	-7.55%		10

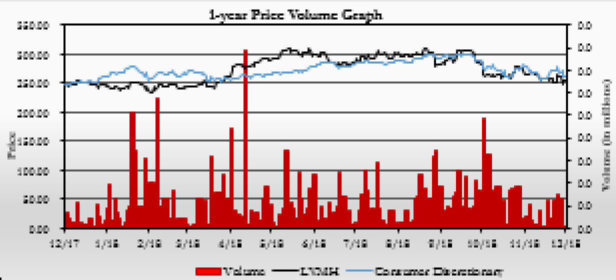
LVMH Moët Hennessy Louis Vuitton S.E. (LVMH)

CENTER FOR GLOBAL FINANCIAL STUDIES

NEUTRAL

Analysis by Ala saidi	**Current Price:**	$253.85	**Intrinsic Value**	$277.73
12/9/2018	**Divident Yield:**	0.0%	**Target Price**	$293.24

Target 1 year Return: 15.52%
Probability of Price Increase: 9



Description

LVMH Moët Hennessy Louis Vuitton S.E. operates as a luxury products company.

General Information

Sector	Consumer Discretionary
Industry	Textiles, Apparel and Luxury Goods
Last Guidance	May 8, 2018
Next earnings date	January 25, 2019

Market Assumptions

Estimated Equity Risk Premium	6.97%
Effective Tax rate	20%

Market Data

Market Capitalization	$125,307.91
Daily volume (mil)	0.00
Shares outstanding (mil)	0.00
Diluted shares outstanding (mil)	504.04
% shares held by institutions	0%
% shares held by investments Managers	0%
% shares held by hedge funds	0%
% shares held by insiders	0.00%
Short interest	0.00%
Days to cover short interest	0.00
52 week high	$313.65
52-week low	$232.90
Volatility	22.91%

Past Earning Surprises

Quarter ending	Revenue	EBITDA
6/30/2017	-3.32%	-738.33%
9/30/2017	-6.70%	N/A
12/31/2017	9.00%	N/A
3/31/2018	0.63%	N/A
6/30/2018	-4.33%	N/A
Mean	-0.94%	-738.33%
Standard error	1.0%	#VALUE!

Market and Credit Scores

Recommendation (STARS) Value--0
Recommendation (STARS) Description--0
Quality Ranking Value--0
Quality Ranking Description--0
Short Score--0
Market Signal Probability of Default % (Non-Ratings)--0.77%
CreditModel Score (Non-Ratings)--a+

Industry and Segment Information

LTM Revenues by Geographic Segm	LTM Revenues by Business Segments
France--10%	Wines & Spirits--12%
Europe (Excluding France)--19%	Fashion & Leather Goods--36%
United States--25%	Perfumes & Cosmetics--13%
Japan--7%	Watches & Jewelry--9%
Asia (Excluding Japan)--28%	Selective Retailing--31%

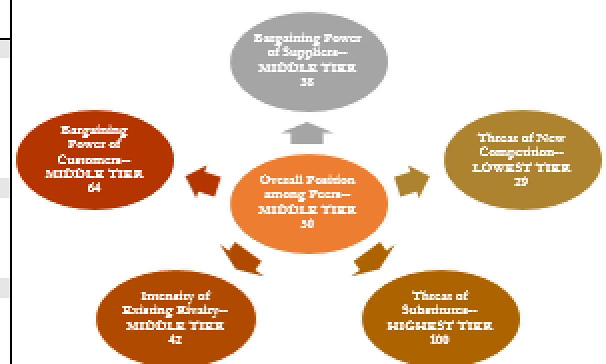
Peers

Kering SA	Hugo Boss AG
Christian Dior SE	adidas AG
Compagnie Financière Richemont SA	Hermès International Société en commandite p
The Swatch Group AG	Salvatore Ferragamo S.p.A.
Burberry Group plc	Luxottica Group S.p.A.

Management

Management	Position	Total Compensation Growth	Stock Price Growth During Tenure
Arnault, Bernard	Chairman & CEO	-3.41% per annum over 5y	-0.22% per annum over 5y
Baziro, Nicolas	Senior VP of Development & Acquisitions and		-0.22% per annum over 5y
Belloni, Antonio	Group MD & Director	0.69% per annum over 5y	-0.22% per annum over 5y
Gancia, Delphine	Director	72.25% per annum over 5y	-0.22% per annum over 5y
Guiony, Jean-Jacques	Chief Financial Officer		
Gaemperle, Chantal	Executive Vice President of Human Resource		

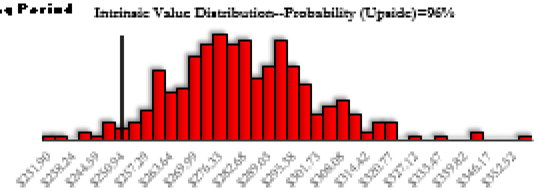
Porter's 5 forces (Scores are percentiles)

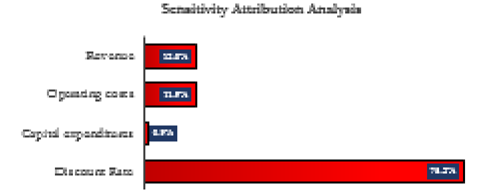


Profitability	LVMH (LTM)	LVMH Historical	Peers' Median (LTM)
Return on Capital (GAAP)	12.7%	10.53%	11.42%
Operating Margin	18%	15.97%	19.87%
Revenue/Capital (GAAP)	0.70	0.66	0.57
ROE (GAAP)	22.6%	21.9%	18.7%
Net margin	14.1%	13.6%	10.5%
Revenue/Book Value (GAAP)	1.606433078	1.61	1.78
Invested Funds	**LVMH (LTM)**	**LVMH Historical**	**Peers' Median (LTM)**
Cash/Capital	-0.3%	8.2%	12.4%
NWC/Capital	12.2%	10.9%	9.4%
Operating Assets/Capital	62.8%	58.8%	56.7%
Goodwill/Capital	25.3%	22.0%	7.1%
Capital Structure	**LVMH (LTM)**	**LVMH Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.50	0.45	0.44
Cost of Debt	0.8%	1.4%	2.6%
CGFS Rating (F-score, Z-score, and default Probabil	B		
WACC	7.2%	8.2%	9.1%

Valuation

Forecast Assumptions	Explicit Period (14 years)	Continuing Period
Revenue Growth CAGR	8%	3.5%
Average Operating Margin	33%	39%
Average Net Margin	24%	29%
Growth in Capital CAGR	15%	3%
Growth in Claims CAGR	0%	3%
Average Return on Capital	17%	12%
Average Return on Equity	20%	12%
Average Cost of Capital	7%	7%
Average Cost of Equity	7%	7%





December 8, 2018

CVS

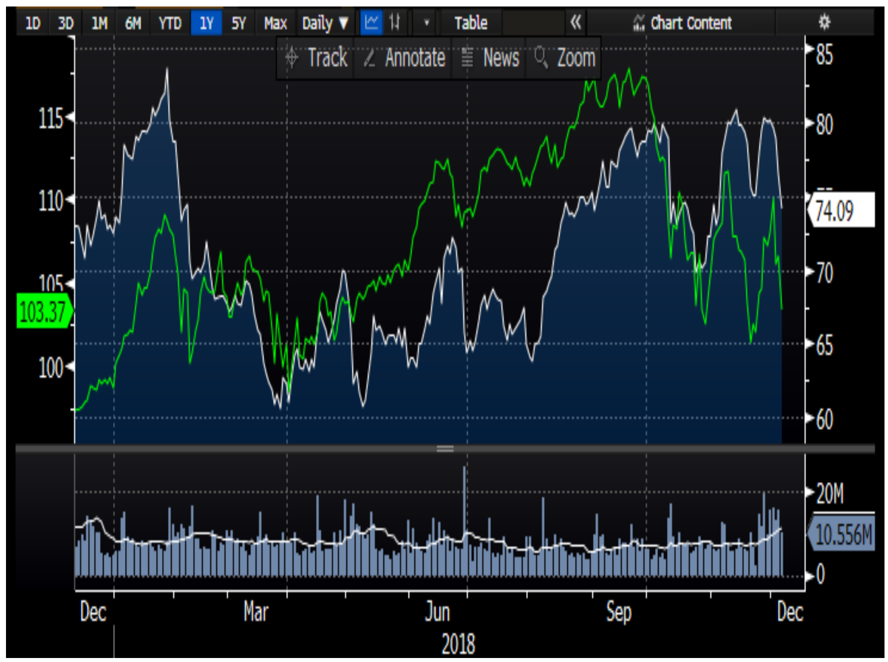
Kyle Agresta

Sector: Healthcare
Industry: Health Care Plans
Current Price: $74.09
Target Price: $101.44

CVS Health Corporation is an integrated pharmacy health care provider. The Company's offerings include pharmacy benefit management services, mail order, retail and specialty pharmacy, disease management programs, and retail clinics. The Company operates drugstores throughout the U.S., the District of Columbia, and Puerto Rico.

BUY @ $70.00

Current Price:	$74.09
Target Price:	$101.44
Market Cap:	95B
ROIC:	8.89
Debt/Market Cap:	65%
WACC:	8.2%



Thesis:

CVS is currently underperforming in the industry along with their competitors because of the falling market. With a good viewpoint of the future CVS looks to be a powerhouse in the coming years. They increased cash and are expected to jump in size of free cash flow this is due to their merger with Aetna. This merger was $69 billion and is a major key for CVS in the future of

Catalysts:

- Short Term(within the year): Merger with Aetna
- Mid Term(1-2 years): same store sales growth in the future
- Long Term(3+):

the drugstore business because Aetna is the number 3 U.S. health insurer with around 22 million members. This merger along with the coming growth are two very important components to boost CVS price in the market and give substantial growth to the company overall.

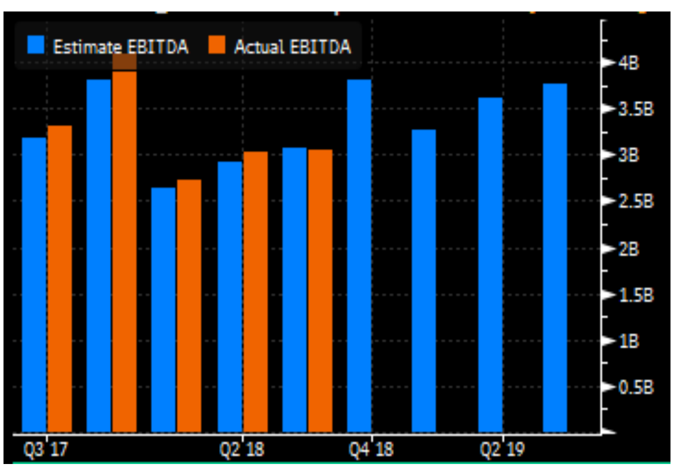
Earnings Performance:

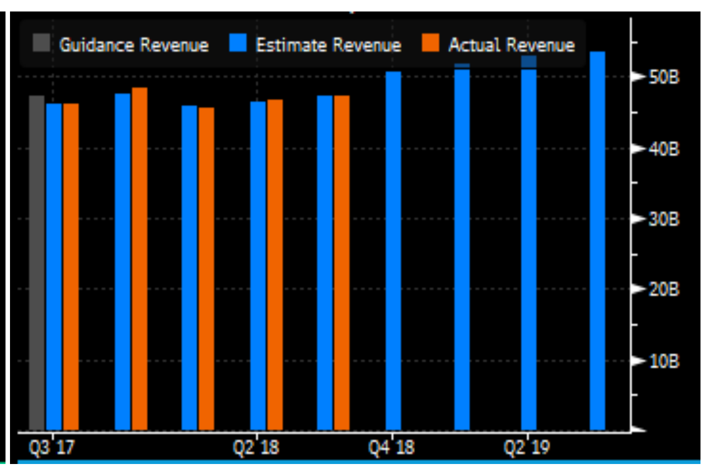
CVS revenue growth percentage year over year went from an average of 12% from 2014-2016 and from 2016 to present it has been around 3%. They have kept EBITDA margin a steady 7% year to year and are still producing a gross profit margin of approximately 16-17%. Over the last 12 months they increased cash from repayment from negative $598 million to $37 billion which helped in their growth of cash from financing activities from negative $6.7 billion to $35.5 billion. Looking at the income statement CVS currently has revenue of $188 billion with a cost of goods and services of 158.7 billion (84% of revenue), which gives them a gross profit of around $29.3 billion (16% of revenue)

In Millions of USD except Per Share	2015 Y	2016 Y	2017 Y	Last 12M	2018 Y Est	2019 Y Est
12 Months Ending	12/31/2015	12/31/2016	12/31/2017	09/30/2018	12/31/2018	12/31/2019
Revenue	153,290.0	177,526.0	184,765.0	188,055.0	190,250.4	210,510.0
+ Sales & Services Revenue	153,290.0	177,526.0	184,765.0	188,055.0		
- Cost of Revenue	126,762.0	148,669.0	156,220.0	158,763.0		
+ Cost of Goods & Services	126,762.0	148,669.0	156,220.0	158,763.0		
Gross Profit	26,528.0	28,857.0	28,545.0	29,292.0	29,977.8	36,155.1
+ Other Operating Income	0.0	0.0	0.0	0.0		
- Operating Expenses	16,691.0	18,251.0	18,530.0	19,168.0		
+ Selling & Marketing	–	–	–			
+ Research & Development	0.0	0.0	0.0			
+ Other Operating Expense	16,691.0	18,251.0	18,530.0	19,168.0		
Operating Income (Loss)	9,837.0	10,606.0	10,015.0	10,124.0	10,239.3	12,320.3

In Millions of USD	2014 Y	2015 Y	2016 Y	2017 Y	Current/LTM	2018 Y Est	2019 Y Est
12 Months Ending	12/31/2014	12/31/2015	12/31/2016	12/31/2017	09/30/2018	12/31/2018	12/31/2019
Market Capitalization	109,793.4	107,644.8	83,723.5	73,515.0	95,805.4		
- Cash & Equivalents	2,515.0	2,547.0	3,458.0	1,807.0	41,692.0		
+ Preferred & Other	5.0	46.0	4.0	4.0	4.0		
+ Total Debt	12,890.0	27,464.0	27,531.0	27,002.0	62,886.0		
Enterprise Value	120,173.4	132,607.8	107,800.5	98,714.0	117,003.4		
Revenue, Adj	139,367.0	153,290.0	177,526.0	184,765.0	188,055.0	190,250.4	210,510.0
Growth %, YoY	9.9	10.0	15.8	4.1	3.1	3.0	10.6
Gross Profit, Adj	25,367.0	26,528.0	28,857.0	28,545.0	29,292.0	29,977.8	36,155.1
Margin %	18.2	17.3	16.3	15.4	15.6	15.8	17.2
EBITDA, Adj	10,724.0	11,929.0	13,081.0	12,494.0	12,657.0	12,709.2	14,843.9
Margin %	7.7	7.8	7.4	6.8	6.7	6.7	7.1
Net Income, Adj	4,937.7	5,436.3	6,189.1	5,517.1	5,842.3	7,215.2	8,145.6
Margin %	3.5	3.5	3.5	3.0	3.1	3.8	3.9
EPS, Adj	4.23	4.83	5.72	5.36	5.72	7.02	7.35
Growth %, YoY	13.9	14.3	18.4	-6.2	9.0	30.9	4.7
Cash from Operations	8,137.0	8,539.0	10,141.0	8,007.0	6,250.0		
Capital Expenditures	-2,136.0	-2,367.0	-2,224.0	-1,918.0	-1,958.0	-2,065.8	-2,299.4
Free Cash Flow	6,001.0	6,172.0	7,917.0	6,089.0	4,292.0	7,035.4	10,014.1

The images above show CVS income statement and Key Stats from Bloomberg. These show CVS cash has significantly increased from the merger with Aetna. This also shows the importance that the merger held for future revenue and cash flow for CVS. Looking at their earnings trends they have beat estimates the last 5 quarters for EPS and have beat 6 of the last 8 periods for revenue and EBITDA





Debt

CVS took on about $35 billion more dollars in debt after the Aetna deal which is the deal that would combine CVS' drugstore and pharmacy benefits manager platform with Aetna's insurance business hoping to lower costs. According to preliminary results more than 98% of CVS shareholders and 97% of Aetna's shareholders were in favor of the deal. CVS health CEO Larry Merlo stated, "The combined company will be well positioned to reshape the consumer health care experience, putting people at the center of health care delivery to ensure they have access to high-quality more affordable care where they are, when they need it," The debt that CVS got from this deal in a sense is good debt because it is focused on lowering costs. Health spending equals about 18 percent of the nation's gross domestic product and that is expected to reach 20% by 2025. CVS and Aetna have combined to try and use CVS' retail stores to help rein in health care costs. Hoping that they will get more people in their walk in clinics at drugstores and keep them out of more expensive sites like emergency rooms. Within the next year or so, CVS and Aetna expect MinuteClinics to perform about 90 percent of services provided in primary care facilities, up from about 40 to 45 percent now

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Strategy:

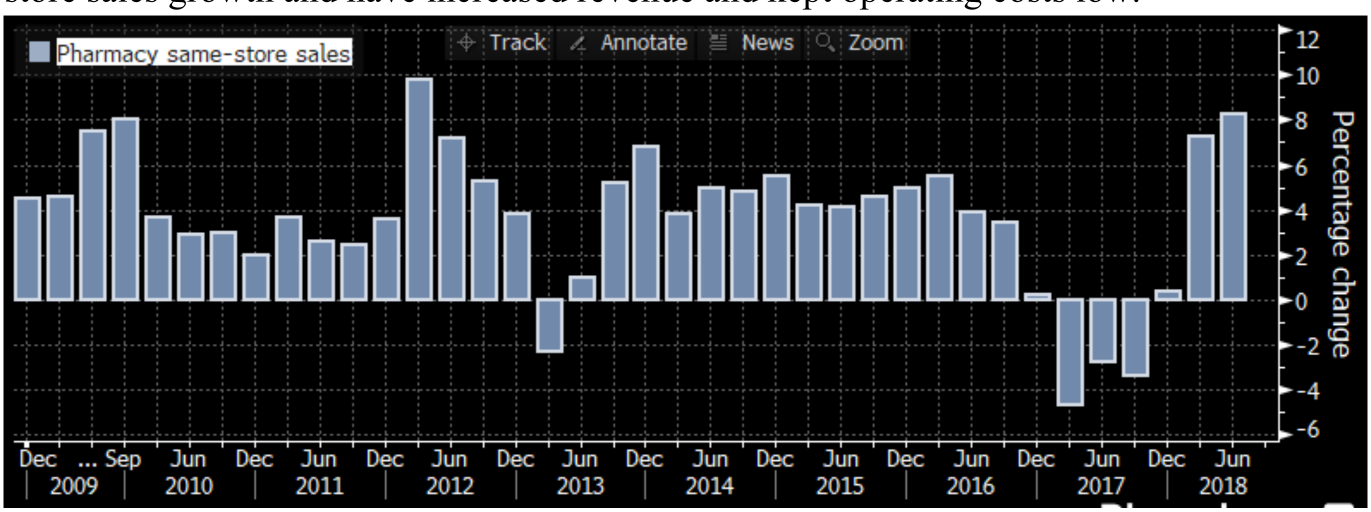
CVS started a Retail Pharmacy Store Development plan which is focused on entering new markets, adding stores in existing markets and relocating stores to more convenient sites this has been a very key growth driver for CVS and continues to be a growth driver. They acquired Target's pharmacies in late 2015 which in turn carried them past Walgreens in terms of annual revenue making them the big dogs around their competitors. In addition to adding new stores CVS has made an effort to increase sales in their current stores. Their sales are comprised to more than two-thirds prescription drug sales and the retailer is attempting to grow revenues from OTC medications and general merchandise through its private label product offering. Finally their acquisition of Aetna for 70 billion was a power move more for a defensive purpose because of the big players like Amazon eying a move into the prescription drug market.

Ownership

51) Institutional	11/26/17	Curr	Change
11) % of Shares Held	89.68	73.72	-15.96
12) % of Float Held	89.96	73.96	-16.00
13) # of Institutions	2,397	2,443	+1.92%
14) # of Buyers	849	919	+8.24%
15) # of Sellers	938	862	-8.10%
16) # of New Buyers	151	233	+54.30%
17) # of Selloffs	176	244	+38.64%
18) % Chg in Inst Positions	+0.37	+2.27	+1.90

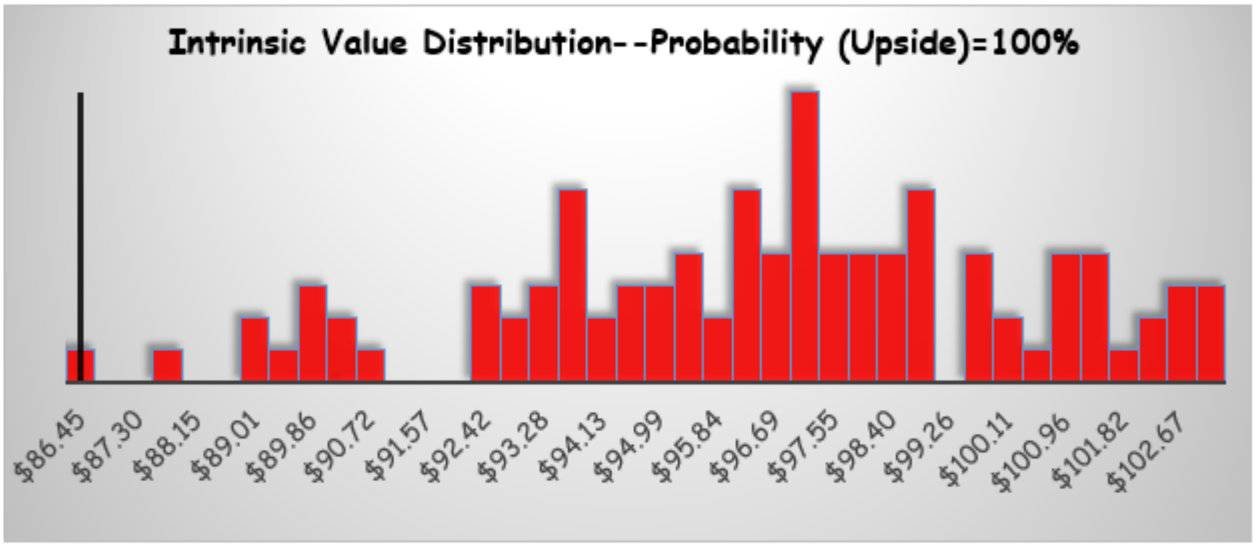
52) Insider	11/26/17	Curr	Change
21) % of Shares Held	0.31	0.33	+0.02
22) % Chg Insider Positions	-4.15	+32.22	+36.37
23) # of Insiders	21	32	+52.38%
24) # of Buyers Opn Mkt	0	0	
25) # of Sellers Opn Mkt	6	5	-16.67%
26) # of Shrs Bought Opn Mkt	0	0	
27) # of Shrs Sold Opn Mkt	987,800	87,223	-91.17%
28) Avg Opn Mkt Buy Price	0	0	0.00
29) Avg Opn Mkt Sell Price	80.94	79.44	-1.50

Comparing CVS ownership summary from a year ago to now it is clear to see that the number of buyers has increase by 54% and the change in insider positions has increased by 36%. The number of sellers recently has increase but this may be because of the overall decrease in the market. You can see from the chart on page 1 that CVS almost perfectly follows the Consumer index and that has also been on its way down along with the market itself. This should bring up some attention to the price of CVS because it seems that they are dropping in price but growing as a company. They have grown the past year in same store sales growth and have increased revenue and kept operating costs low.



CVS is showing strong signs of growth from their new deal with Aetna and they are continuing to grow seen by their growth in same store sales from 2016 to now. The company alone was doing well and now with the merger the stock is looking very cheap because they will keep their costs low and bring in a lot more revenue and cash over the coming years.

Bull case:



CVS going forward has a lot of room to grow because of their merger they can keep growing and innovating along with keeping their costs low. Currently CVS has its operating expenses at only 10% of overall revenue so by lowering expenses and increasing their revenue they can prove themselves as a sustainable company. This could push the price well above its yearly high of $83 and push their company back up where they were a few years ago, floating around $100-$110.

Bear Case:

CVS worst case scenario would be if the merger doesn't affect their production and amazon comes into the market and takes over. That along with the continuing of a market decrease would be the only reason that seems to be possible. If this occurred then CVS could continue to drop to its yearly low of $60 dollars and maybe even lower.

Conclusion:

Bases on the growing revenue that is expected in 2019 and the merger that CVS and Aetna had this year it shows that they are a well position company to continue further growth. They have a lot of cash on hand, around 41 billion and they now have a plan to open new sites and increase sales at existing sites. Even though the merger grew costs by a sizeable amount they are now focused on lowering their costs as a whole. Currently CVS is a very cheap company and the lower it goes the cheaper it will be for a good buy on a good company that will have very large growth in the future.

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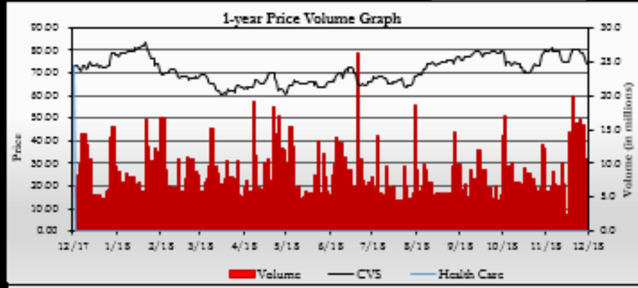
CVS Health Corporation (CVS)

CENTER FOR GLOBAL FINANCIAL STUDIES

BULLISH

Analysis by Kyle Agresta	Current Price:	$74.09	Intrinsic Value	$95.24	Target 1 year Return: 38.46%
12/9/2018	Divident Yield:	2.7%	Target Price	$100.59	Probability of Price Increase: 100



Description

CVS Health Corporation, together with its subsidiaries, provides integrated pharmacy health care services.

General Information

Sector	Health Care
Industry	Health Care Providers and Services
Last Guidance	May 8, 2018
Next earnings date	February 20, 2019

Market Assumptions

Estimated Equity Risk Premium	6.00%
Effective Tax rate	21%

Market Data

Market Capitalization	$95,813.12
Daily volume (mil)	10.56
Shares outstanding (mil)	1293.20
Diluted shares outstanding (mil)	1018.00
% shares held by institutions	70%
% shares held by investments Managers	61%
% shares held by hedge funds	2%
% shares held by insiders	0.18%
Short interest	4.63%
Days to cover short interest	7.14
52 week high	$83.88
52-week low	$60.14
Volatility	22.90%

Past Earning Surprises

Quarter ending	Revenue	EBITDA
9/30/2017	-0.02%	-1.23%
12/31/2017	1.76%	1.66%
3/31/2018	-0.15%	3.24%
6/30/2018	0.70%	3.93%
9/30/2018	0.14%	-0.94%
Mean	**0.48%**	**1.33%**
Standard error	1.0%	5.0%

Market and Credit Scores

Recommendation (STARS) Value--5
Recommendation (STARS) Description--Strong
Quality Ranking Value--A+
Quality Ranking Description--Highest
Short Score--0
Market Signal Probability of Default % (Non-Ratings)--0.22%
CreditModel Score (Non-Ratings)--bb+

Industry and Segment Information

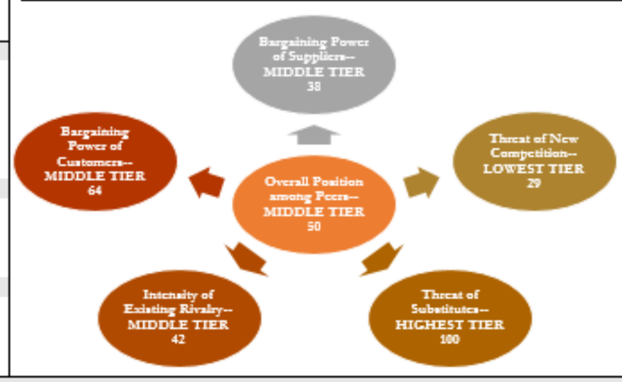
LTM Revenues by Geographic Segment	LTM Revenues by Business Segments
United States--100%	Pharmacy Services--71%
--	Retail/Long-Term Care (LTC)--43%
--	Inter Segment Eliminations---14%
--	--
--	--

Peers

Walgreens Boots Alliance, Inc.	Quest Diagnostics Incorporated
Express Scripts Holding Company	Medical Care Technologies Inc.
Premier, Inc.	--
Diplomat Pharmacy, Inc.	--
Laboratory Corporation of America Holdings	--

Management	Position	Total Compensations Growth	Stock Price Growth During Tenure
Merlo, Larry	CEO & Director	-9.63% per annum over 5y	10.02% per annum over 5y
Roberts, Jonathan	Executive VP & COO	-2.63% per annum over 5y	10.02% per annum over 5y
Moriarty, Thomas	Executive VP, Chief Policy & External Affairs O	-5.9% per annum over 3y	-3.05% per annum over 3y
Boratto, Eva	Executive VP & CFO		
Clark, James	Senior VP, Controller & Chief Accounting Off		
Flum, Joshua	Executive VP of Enterprise Pharmacy Strategy		

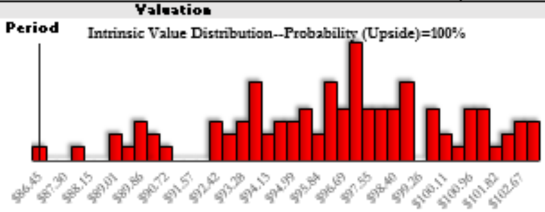
Porter's 5 forces (Scores are percentiles)

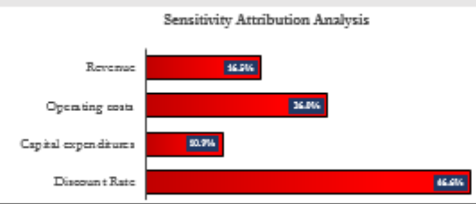


Profitability	CVS (LTM)	CVS Historical	Peers' Median (LTM)
Return on Capital (GAAP)	8.1%	8.09%	6.91%
Operating Margin	4%	4.83%	9.85%
Revenue/Capital (GAAP)	2.06	1.68	0.70
ROE (GAAP)	12.4%	15.8%	16.1%
Net margin	2.5%	4.3%	4.4%
Revenue/Book Value (GAAP)	5.011338287	3.69	3.66
Invested Funds	**CVS (LTM)**	**CVS Historical**	**Peers' Median (LTM)**
Cash/Capital	36.6%	3.7%	1.7%
NWC/Capital	5.2%	7.5%	4.8%
Operating Assets/Capital	28.0%	41.9%	44.5%
Goodwill/Capital	30.3%	47.1%	45.1%
Capital Structure	**CVS (LTM)**	**CVS Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.64	0.42	0.39
Cost of Debt	4.8%	4.4%	5.0%
CGFS Rating (F-score, Z-score, and default Probabili	B		
WACC	8.1%	9.2%	9.0%

Valuation

Forecast Assumptions	Explicit Period (6 years)	Continuing Period
Revenue Growth CAGR	6%	2.5%
Average Operating Margin	6%	5%
Average Net Margin	3%	2%
Growth in Capital CAGR	5%	2%
Growth in Claims CAGR	0%	2%
Average Return on Capital	9%	6%
Average Return on Equity	14%	7%
Average Cost of Capital	8%	9%
Average Cost of Equity	11%	11%





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December 7, 2018

Activision Blizzard (ATVI)

Michael Grasso

Sector: Consumer Discretionary
Industry: Personal Video Games

Company Description: Activision Blizzard, Inc. develops and distributes content and services on video game consoles, personal computers, and mobile devices. The company operates through three segments: Activision Publishing, Inc.; Blizzard Entertainment, Inc.; and King Digital Entertainment. Its products include various genres, including first-person shooters, action/adventure, role-playing, strategy, and others.

HOLD

Current Price:	$46
Target Price:	$50
Market Cap:	36.04 Bil
NOPAT Margin (Yr)	550.5 Mil
Adj. NI Margin	12.37%
ROE	5.6%
ROIC	4.03%
WACC	9.26%
Debt/E.V.	.08
Short Int. % of Float	3.02%

Thesis:
The upside of keeping Activision Blizzard in our portfolio is not as large as the downside. Growth is expected to be below what's needed for a significant increase in stock price. Increased competition in the industry has likely slowed sales. While the portfolio still has made an overall gain on this company, it should be sold and invested in another company with a more favorable upside.

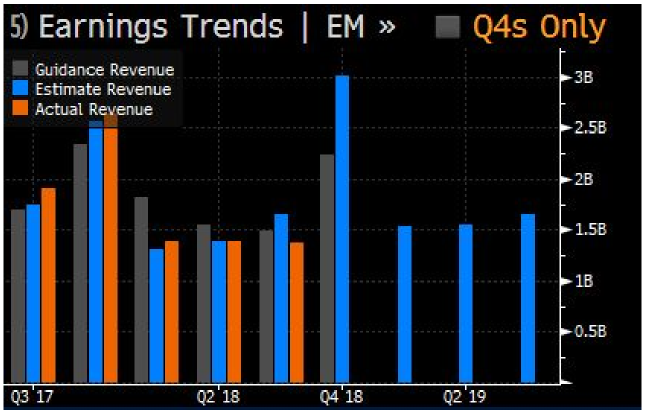
Catalysts:

- Short Term: Continue to push sales for Call of Duty Black Ops 4 into the holiday season
- Long Term: Pay off debt; Advertising for games and micro-transaction support

In Millions of USD	2009 Y	2010 Y	2011 Y	2012 Y	2013 Y	2014 Y	2015 Y	2016 Y	2017 Y	Current/LTM	2018 Y Est	2019 Y Est
12 Months Ending	12/31/2009	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	09/30/2018	12/31/2018	12/31/2019
Market Capitalization	13,892.3	14,720.5	13,963.4	11,805.3	12,547.1	14,546.9	28,432.6	26,919.5	47,965.2	35,718.4		
- Cash & Equivalents	3,245.0	3,508.0	3,525.0	4,375.0	4,443.0	4,858.0	1,823.0	3,245.0	4,713.0	3,308.0		
+ Preferred & Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
+ Total Debt	0.0	0.0	0.0	0.0	4,693.0	4,324.0	4,074.0	4,887.0	4,390.0	2,670.0		
Enterprise Value	10,647.3	11,212.5	10,438.4	7,430.3	12,797.1	14,012.9	30,683.6	28,561.5	47,642.2	35,080.4		
Revenue, Adj	4,279.0	4,447.0	4,755.0	4,856.0	4,583.0	4,408.0	4,664.0	6,608.0	7,017.0	7,161.0	7,465.9	7,736.8
Growth %, YoY	41.4	3.9	6.9	2.1	-5.6	-3.8	5.8	41.7	6.2	2.5	6.4	3.6
Gross Profit, Adj	1,972.0	2,321.0	2,983.0	3,194.0	3,052.0	2,883.0	3,079.0	4,214.0	4,516.0	4,673.0	5,338.0	5,601.1
Margin %	46.1	52.2	62.7	65.8	66.6	65.4	66.0	63.8	64.4	65.3	71.5	72.4
EBITDA, Adj	1,068.0	1,316.0	1,865.0	1,780.0	1,795.0	1,529.0	1,822.0	2,609.0	2,559.0	2,441.0	2,690.1	2,956.5
Margin %	25.0	29.6	39.2	36.7	39.2	34.7	39.1	39.5	36.5	34.1	36.0	38.2
Net Income, Adj	394.3	616.7	1,141.6	1,125.7	1,059.9	817.0	887.2	1,060.8	1,106.8	1,279.3	2,014.7	2,178.5
Margin %	9.2	13.9	24.0	23.2	23.1	18.5	19.0	16.1	15.8	17.9	27.0	28.2
EPS, Adj	0.31	0.49	0.98	1.01	1.02	1.13	1.20	1.41	1.45	1.67	2.60	2.82
Growth %, YoY	—	61.2	99.6	2.8	1.0	10.7	6.1	17.7	2.7	5.3	79.8	8.4
Cash from Operations	1,183.0	1,376.0	952.0	1,345.0	1,264.0	1,331.0	1,259.0	2,155.0	2,213.0	1,949.0		
Capital Expenditures	-69.0	-97.0	-72.0	-73.0	-74.0	-107.0	-111.0	-136.0	-155.0	-166.0	-159.0	-163.2
Free Cash Flow	1,114.0	1,279.0	880.0	1,272.0	1,190.0	1,224.0	1,148.0	2,019.0	2,058.0	1,783.0	2,123.8	2,248.7

Earnings & Products:

This video game industry does see recurring revenue from games that have been previously released and still sees purchases as well as micro transactions. However, these companies make the majority of their new revenue from new game releases. Call of Duty, Destiny, Overwatch, Marvel, and mobile applications are some of the popular game series that Activision has produced. The first Call of Duty was released in 2003. Ever since then, the game has been a major source of revenue and publicity for the company. The annual release of a new Call of Duty game is a big deal for Activision. The franchise remains one of the company's top four titles that make up two-thirds of annual revenue, and it has generated more than $10 billion over its lifetime. There have been several Call of Duty installments in recent years that have sold as much as $1 billion within the first few days of launch. The 2013 release of Call of Duty Ghosts and the 2012 release of Call of Duty Black Ops 2 were the last two releases to hit $1 billion in sales right after the launch. However, investors were likely looking for more sales growth year over year for this franchise. UBS claimed that it expected Call of Duty Black Ops 4 to sell 15% to 20% more units than the release of Call of Duty in 2017. Not all investors view this as a negative. However, the lack of forecasted growth in revenue is simply not attractive. Another aspect to hurt the sales of the latest Call of Duty is the timing of the release of the game. It's worth noting that Black Ops 4 came out during a busy time for new video game launches, so this might have ate into the game's sales. By looking at key stats above, Activision clearly is consistently generating profits and maintaining margins. As mentioned before, the company does has weak forecasted growth for the next few years really limiting future revenues. When using these to value the stock, it provides a very minimal upside which is frankly not worth holding the stock further just from a numerical perspective alone. As can be seen below in the earnings trend graph, Activision has been hitting and exceeding their earnings estimates for the past 6 quarters with one exception, being quarter 3 of this year. Even though quarter four does spike in estimated revenue, it can also be seen that quarter 3 of 2017 did substantially better than quarter 3 of this year (2018).



Capital Structure Data View As Reported Details View Key Documents						
For the Fiscal Period Ending	12 months Dec-31-2016		12 months Dec-31-2017		3 months Sep-30-2018	
Currency	*USD*		*USD*		*USD*	
Units	Millions	% of Total	Millions	% of Total	Millions	% of Total
Total Debt	4,887.0	*34.9%*	4,390.0	*31.7%*	2,670.0	*20.0%*
Total Common Equity	9,119.0	*65.1%*	9,462.0	*68.3%*	10,659.0	*80.0%*
Total Capital	**14,006.0**	***100.0%***	**13,852.0**	***100.0%***	**13,329.0**	***100.0%***

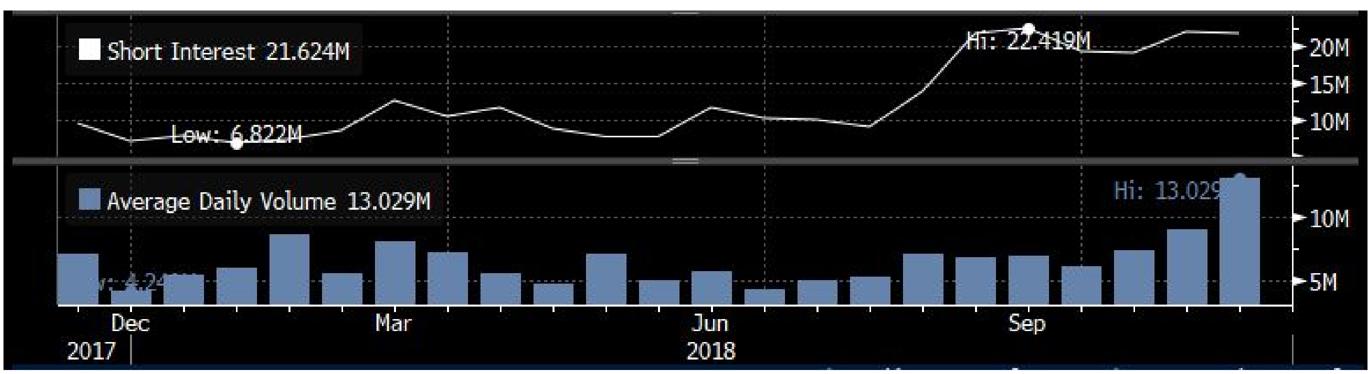
Debt & Acquisitions:

Activision has had around 15 major acquisitions including Blizzard from owner Vivendi for 5.8 Bil in 2013. The company became Activision Blizzard following this acquisition. In 2016, they acquired King.com for 5.9 Bil which is an interactive entertainment company which provides online games for many different places and companies. They are well known for their mobile application games like Candy Crush. The year of 2016 had the highest amount of debt that they've owed. Since then, they have worked on paying off and substantially reducing this debt. The one positive effect this could have would be the debt rating going up on this company. That would make investors view this stock as a safer investment because the risk of default is less. Although this is possible, the WACC does not appear to be ready to decrease and the chance of a being assigned a more favorable debt rating is not necessarily going to happen right now. It is important to note that the discount rate does have a substantial effect on this company's stock price.

	Name (BICS Best Fit)	Mkt Cap (USD)	ROIC LF	WACC
	Median	6.62B	-1.30%	9.93%
100)	ACTIVISION BLIZZARD ...	35.50B	4.03%	8.98%
101)	ELECTRONIC ARTS INC	24.53B	16.24%	8.48%
102)	TAKE-TWO INTERACTIV...	11.58B	11.21%	9.93%

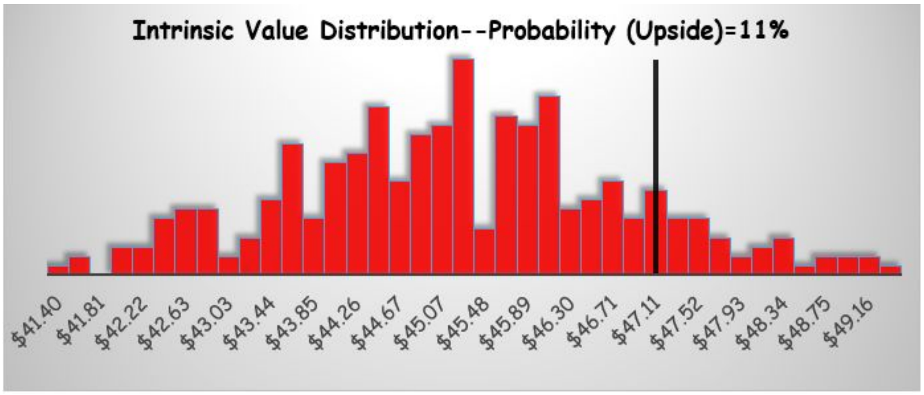
Competition & Industry:

The current weighted average cost of capital is just above 9%. The screenshot above was taken a few days beforehand. When looking at ROIC and WACC, the company is destroying significant value. The ROIC/WACC using the updated values is around .45 which is very poor alone. When comparing it to the other major competitors of Activision, E.A. and Take-Two are creating substantial value. They have a much higher ROIC and ROE with a similar WACC. Activision Blizzard is destroying a significant amount of value unlike its competition. However, when looking at the Activision as well as E.A.'s and Take-Two's stock prices, they all follow the same trend. The line chart on page 1 has the stock price of these three companies. All three companies have seen a significant drop in stock price following the same trend since around September of this year. As mentioned above, the other big games with October of 2018 launches include Assassin's Creed Odyssey, Soul Calibur VI and Red Dead Redemption 2. Red Dead Redemption 2 sold 15 million copies in 8 days after its release and continues to do incredibly well with many awards and nominations. Not to mention, every gamer that I personally asked about these games stated that they would not be buying all of the new games that have been released since they are above $50 per game. Therefore, it is very likely that the competition of other video games is eating into the profits of Activision, and will provide too much competition for such an old franchise like Call of Duty to see sales figures like they have in the best with their best selling games for the short run in the future.



Short Interest:

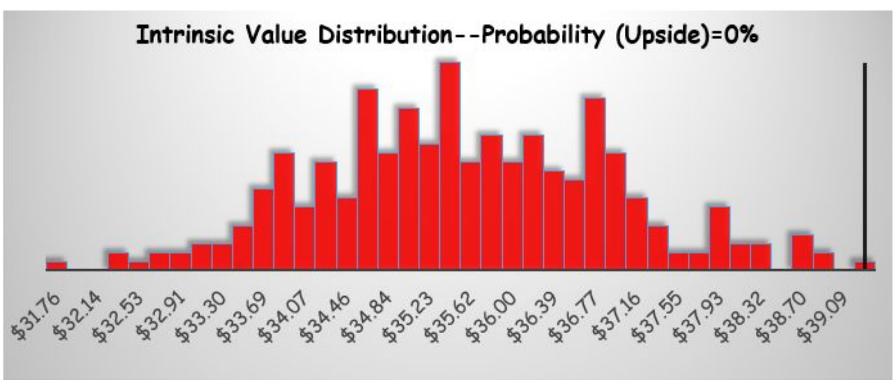
Around 3% of the shares of the float have been short sold. Even though this does not appear extremely significant, it is worth noting that short interest is at the highest that it has been in over a year. The volume for this short interest has also increased. This is worth considering because of how much research and analysis goes into buying shorts for investors. Investors are clearly seeing current conditions for Activision to be less than optimal and see a further decline in price to be very possible.



Base Case:

The growth used in this case were computed by the proforma. The first 6 years of growth are 10.8, 8.6, 12.6, 9.5, 13.9, and 9.8 percent. The reason that this is important is because the majority of analyst estimates are not this generous. Bloomberg and Capital IQ have substantially lower forecasted growth rates. This case could be viewed as a bullish case under the condition that Activision manages to see increased growth from what has been predicted. The intrinsic value of the stock using this setup in the proforma sits around $45 per share. The target price is $49. This return is absolutely not worth keeping this stock in our portfolio.

Median Estimates:



Median growth rates predicted by Bloomberg analysts are 8.0, 9.4, 8.3, 5.1, 5.4, and 5.9 percent for the next six years. These growth rates are much lower than what the proforma had originally computed and are much closer to other analyst estimates. The growth rates after the sixth year converge on the continuing period rate which is 2.5 percent. The intrinsic value and target price under this case are both in the mid $30s which would eliminate any gain that the portfolio has made on this stock if not create a loss.

Conclusion:

Even though Activision has produced various great selling games in the past, future revenue growth is forecasted to be much slower than previous years. The major competitors of Activision are also seeing a significant decrease in price. However, this company is destroying value and its closest competitors are not. The short interest is at the highest point that it has seen in the past year. When all of these aspects are compared to the minimal upside of revenue growth and stock price, this stock is absolutely not worth keeping in our portfolio. The potential downside is much larger for the short term. Since we have still made a gain on holding this in our portfolio from the purchase date until now, this would be a great time to sell this stock and invest the money in another company which appears to have a much more attractive upside. It is very possible that this company will see an increase in stock price in the long term when the market picks up and Activision invests in another best selling game or program. For the short term, this is not the case and it is not worth the risk of keeping this company's stock.

SIENA college

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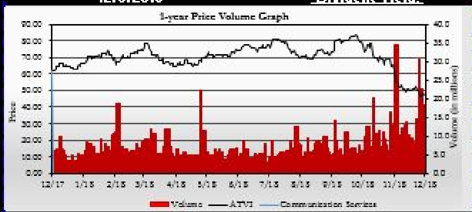
Activision Blizzard, Inc. (ATVI)

CENTER FOR GLOBAL FINANCIAL STUDIES

NEUTRAL

Analysis by Al Capone	Current Price:	$47.23	Intrinsic Value	$44.83
12/8/2018	Divident Yield:	0.7%	Target Price	$49.86

Target 1 year Return: 6.28%
Probability of Price Increase: 11.



Description

Activision Blizzard, Inc. develops and distributes content and services on video game consoles, personal computers (PC), and mobile devices.

General Information

Sector	Communication Services
Industry	Entertainment
Last Guidance	May 8, 2018
Next earnings date	February 7, 2019

Market Assumptions

Estimated Equity Risk Premium	6.55%
Effective Tax rate	22%

Market Data

Market Capitalization	$36,038.89
Daily volume (mil)	18.28
Shares outstanding (mil)	763.05
Diluted shares outstanding (mil)	771.25
% shares held by institutions	92%
% shares held by investments Managers	78%
% shares held by hedge funds	9%
% shares held by insiders	1.10%
Short interest	2.83%
Days to cover short interest	2.17
52 week high	$84.68
52-week low	$45.50
Volatility	29.82%

Past Earning Surprises

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Page 85

Quarter ending	Revenue	EBITDA
9/30/2017	-6.51%	-17.65%
12/31/2017	-18.93%	-159.13%
3/31/2018	50.69%	68.75%
6/30/2018	18.57%	22.50%
9/30/2018	-9.30%	-21.24%
Mean	6.90%	-21.36%
Standard error	1.0%	23.4%

Market and Credit Scores

Recommendation (STARS) Value--3
Recommendation (STARS) Description--Hold
Quality Ranking Value--B+
Quality Ranking Description--Average
Short Score--1
Market Signal Probability of Default % (Non-Ratings)--1.05%
CreditModel Score (Non-Ratings)--bbb

Industry and Segment Information

Page 127

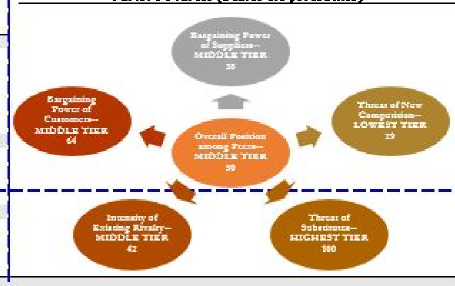
LTM Revenues by Geographic Segments	LTM Revenues by Business Segments
United States--45%	Activision--37%
Americas (Excluding United States)--6%	Blizzard--30%
United Kingdom--12%	King--28%
Europe, Middle East, and Africa (Excluding Unite	Non-Reportable Segments--6%
Asia Pacific--13%	Unallocated Net Effect from Deferral of Net Reve

Peers

Electronic Arts Inc.	Ubisoft Entertainment SA
Take-Two Interactive Software, Inc.	NEXON Co., Ltd.
Zynga Inc.	Changyou.com Limited
Nintendo Co., Ltd.	Frontier Developments plc
NetEase, Inc.	Kuuhubb Inc.

Management	Position	Total Compensation Growth	Stock Price Growth During Tenure
Kotick, Robert	CEO & Director	-15.07% per annum over 5y	13.6% per annum over 5y
Johnson, Collister	President & COO		0% per annum over 0y
Neumann, Spencer	Chief Financial Officer		0% per annum over 0y
Durkin, Dennis	Chief Corporate Officer	-15.51% per annum over 5y	13.6% per annum over 5y
Zacconi, Riccardo	Executive Officer & CEO of King Digital Entert	18.4% per annum over 1y	76.18% per annum over 1y
Wereb, Stephen	Deputy CFO, Chief Accounting Officer & Senio		

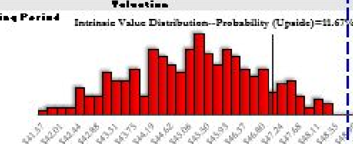
Porter's 5 forces (Scores are percentiles)

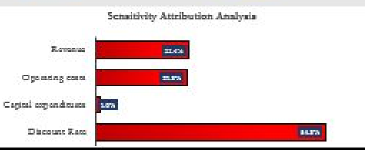


Profitability	ATVI (LTM)	ATVI Historical	Peers' Median (LTM)
Return on Capital (GAAP)	13.8%	9.44%	25.42%
Operating Margin	29%	27.43%	32.94%
Revenue/Capital (GAAP)	0.48	0.34	0.77
ROE (GAAP)	6.9%	5.0%	12.6%
Net margin	11.1%	9.5%	13.6%
Revenue/Book Value (GAAP)	0.618150259	0.53	0.92
Invested Funds	**ATVI (LTM)**	**ATVI Historical**	**Peers' Median (LTM)**
Cash/Capital	26.9%	27.9%	50.8%
NWC/Capital	-11.1%	-11.6%	-1.5%
Operating Assets/Capital	20.9%	32.2%	37.2%
Goodwill/Capital	63.4%	48.2%	5.7%
Capital Structure	**ATVI (LTM)**	**ATVI Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.19	0.30	0.06
Cost of Debt	4.5%	4.8%	5.0%
CGFS Rating (F-score, Z-score, and default Probabilit	A		
WACC	9.2%	9.8%	11.6%

Valuation

Forecast Assumptions	Explicit Period (12 years)	Continuing Period
Revenue Growth CAGR	7%	2.5%
Average Operating Margin	36%	29%
Average Net Margin	29%	23%
Growth in Capital CAGR	9%	3%
Growth in Claims CAGR	0%	3%
Average Return on Capital	10%	6%
Average Return on Equity	11%	6%
Average Cost of Capital	9%	10%
Average Cost of Equity	10%	10%





SIENA college

BJORKLUND FUND

December 7, 2018

Thor Industries Inc. : (THO)

Sam Gerardi

Sector: Consumer Discretionary
Industry: Recreational Vehicles
Current Price: 60.18
Target Price: 61.44

Thor Industries, Inc. produces and sells a wide range of recreation vehicles. The Company offers motorhomes, camping, fifth-wheel, and travel trailers. Thor Industries serves customers in the United States and Canada.

SELL

Current Price:	$60.18
Target Price:	68.64
Market Cap:	3,396.0M

Adj. NI margin 5.2%
ROIC: 29.2%
Total Debt: 0
Kd: 5.85%
Credit rating: bbb-
WACC: 10.7%

Thesis: THO is in a contracting sector of the economy and only shows signs of following the downward trend. This is not company specific. The recreational vehicle market has taken a hit in the past year. At the beginning of 2018, THO was trading a high of 161.1 and now is at its lowest point of 55.50. As the economy shows signs of transitioning into a bearish market, their target demographic of middle class Americans have less discretionary income to spend on large invests such as recreational vehicles.

Catalysts:

- Successfully acquire Erwin Hymer Group for 2.1 B
- Marco economic conditions
- Invest in organic growth opportunities

Thor Industries Current Position

THO is going all in on expanding their business to incorporate more market share around the globe. The scope of the business is limited to the North America and with the acquisition of Erwin Hymer Group (EHG), this has allowed THO to become one of the biggest RV retailers in the world. Erwin Hymer Group is the #1 manufacturer in Europe (based on revenue) with forecasted FY18 sales of $2.9 billion at current exchange rate. Thor and the shareholders of EHG have entered into a definitive agreement for Thor to acquire EHG for an enterprise value of approximately €2.1 billion, with the purchase price to be funded with cash and equity. Equity consideration will consist of approximately 2.3 million shares of Thor. Thor is the #1 manufacturer in North America with over $8.3 billion in revenue. In 2018 Thor has taken a major hit as far as the stock price. YTD Thor has dropped 59.05% compared to last year. This is due to underwhelming earnings calls that deflated consumer confidence in the stock. Looking at their financials position, there are a few red flags that jump out. Their revenue growth YoY is only at 1.1%. Their gross profit has down from last eyar at a marin of 13.2% compared to 14% last year. Their EBITDA is following a similar trend. It has gone down from 8.7% to 8.1%. Their net income margin more or less stagnated at 4.9% compared to 5.2% the year prior. Lastly, due to the contraction of their business, Thor's EPS has gone down significantly. Last year the EPS was at $8.12 and it is now at $7.23, which represents a -9.8% change. Overall, Thor has been contracting for a full year and it is reflected in their stock price and a decrease in consumer confidence.

11) Adj Highlights | 12) GAAP Highlights | 13) Earnings | 14) Enterprise Value | 15) Multiples | 16) Per Share | 17) Stock Value

In Millions of USD	2015 Y	2016 Y	2017 Y	2018 Y	Current/LTM	2019 Y Est	2020 Y Est
12 Months Ending	07/31/2015	07/31/2016	07/31/2017	07/31/2018	10/31/2018	07/31/2019	07/31/2020
Market Capitalization	2,927.8	4,017.0	5,539.9	5,003.8	3,259.2		
- Cash & Equivalents	183.5	209.9	223.3	275.2	224.9		
+ Preferred & Other	0.0	0.0	0.0	0.0	0.0		
+ Total Debt	7.1	366.8	151.5	6.1	0.0		
Enterprise Value	2,751.5	4,173.9	5,468.2	4,734.6	3,034.3		
Revenue, Adj	4,006.8	4,582.1	7,247.0	8,328.9	7,853.2	8,068.5	8,842.9
Growth %, YoY	13.7	14.4	58.2	14.9	1.1	-3.1	9.6
Gross Profit, Adj	557.5	726.3	1,043.6	1,164.7	1,038.7	1,031.6	1,168.5
Margin %	13.9	15.9	14.4	14.0	13.2	12.8	13.2
EBITDA, Adj	322.0	444.6	655.8	723.9	632.3	643.2	784.6
Margin %	8.0	9.7	9.0	8.7	8.1	8.0	8.9
Net Income, Adj	202.0	263.8	372.8	429.1	382.3	346.9	422.0
Margin %	5.0	5.8	5.1	5.2	4.9	4.3	4.8
EPS, Adj	3.80	5.02	7.06	8.12	7.23	7.13	8.08
Growth %, YoY	14.9	32.1	40.7	15.0	-9.8	-12.1	13.2
Cash from Operations	247.9	341.2	419.3	466.5	437.3		
Capital Expenditures	-42.3	-52.0	-115.0	-138.2	-138.4	-138.3	-108.5
Free Cash Flow	205.6	289.2	304.3	328.3	298.9	133,439.0	454.6

Ownership:

With the recent contraction in THO, there has been significant change in the ownership positions. The four biggest Geographic owners has decreased. The U.S, Sweden, U.K and Canada has decreased. The U.S is the most significant because this is where 100% of Thor's business is located. Looking towards the top ownership type, hedge fund managers have liquidated 0.03% of their position, which reinforces the negative sentiment for future growth. Pension funds have also changed their position by 1 basis point, which shows a lack of faith in the company's perceived risk.

With an average daily trade volume of 1.4 million, Thor is a fairly liquid stock. The trade volume typically doubles during the earning calls. This is advantageous to us because it would allow the fund to easily liquidate its position to get some much needed cash for the fund.

The short interest for THO has gone up in recent days, but is still lower than it was last year. The short interest is currently at 3 million shares or 6.07% of the float. The short interest ratio is at 3.34 days to cover and it has had a positive .88 day change.

Compare Current Stats Against 12/02/18

Institutional - Based on Current Filings

51) Institutional	12/02/18	Curr	Change
11) % of Shares Held	99.73	100.02	+0.29
12) % of Float Held	104.57	104.86	+0.29
13) # of Institutions	678	678	0.00%
14) # of Buyers	224	228	+1.79%
15) # of Sellers	204	206	+0.98%
16) # of New Buyers	82	77	-6.10%
17) # of Selloffs	107	106	-0.93%
18) % Chg in Inst Positions	+0.44	+0.33	-0.11

Insider - Based on Last 6 Months

52) Insider	12/02/18	Curr	Change
21) % of Shares Held	4.54	4.53	-0.01
22) % Chg Insider Positions	+4.55	+4.33	-0.22
23) # of Insiders	12	12	0.00%
24) # of Buyers Opn Mkt	1	1	0.00%
25) # of Sellers Opn Mkt	0	1	
26) # of Shrs Bought Opn Mkt	505,000	505,000	0.00%
27) # of Shrs Sold Opn Mkt	500,000	505,028	+1.01%
28) Avg Opn Mkt Buy Price	81.09	81.09	0.00
29) Avg Opn Mkt Sell Price	81.08	80.97	-0.11

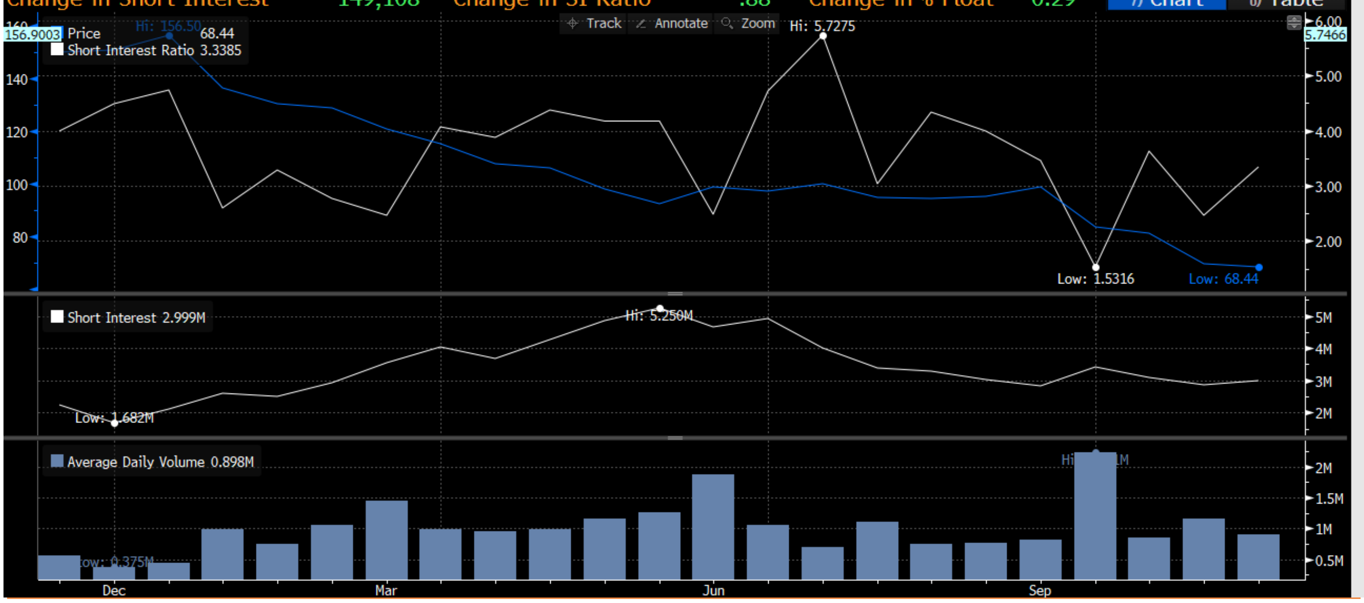
Top Geographic Ownership (%)

53) Geographic	12/02/18	Curr	Change
31) UNITED STATES	75.78	75.74	-0.04
32) SWEDEN	8.38	8.37	-0.01
33) UNITED KINGDOM	5.73	5.72	-0.01
34) Unknown	4.33	4.31	-0.02
35) CANADA	2.44	2.43	-0.01
36) NORWAY	0.93	0.93	0.00
37) LUXEMBOURG	0.76	0.81	+0.05
38) SWITZERLAND	0.53	0.53	0.00
39) GERMANY	0.37	0.42	+0.05

Top Ownership Type (%)

54) Ownership Type	12/02/18	Curr	Change
41) Investment Advisor	71.48	71.52	+0.04
42) Hedge Fund Manager	9.58	9.55	-0.03
43) Bank	6.99	7	+0.01
44) Individual	4.33	4.31	-0.02
45) Pension Fund	2.62	2.61	-0.01
46) Foundation	1.9	1.89	-0.01
47) Insurance Company	1.01	1.01	0.00
48) Sovereign Wealth Fund	0.92	0.92	0.00
49) Corporation	0.43	0.43	0.00

Short Interest	2,999,014	Short Interest Ratio	3.34	% Float	6.07	Currency	USD
Change in Short Interest	149,108	Change in SI Ratio	.88	Change in % Float	0.29	7) Chart	8) Table



Growth potential

With Thor soon being the largest RV manufacturer in the world, it would seem that it would be a given that it has value. Thor has an emphasis on organic growth, which is one of their main focuses in this coming year. In their recent earnings call. Thor states that the macro outlook on the industry is positive. With many baby boomers coming of retirement age, this demographic is an integral part of their business. Another key aspect of their marketing strategy is trying to attract younger buyer in order to make a life time customer. Their recent ad campaign, “Go Your Own Way” and “Go RVing”, targets younger first time buyers to the lifestyle choice of an RV. Thor is also placing an emphasis on continuous investments in new products, features and floorplans. With short product development cycle enables Thor to introduce new models every year, reinforcing the consumer trade-in cycle. As far as expansion, recent new and expanded campuses added over the last two years as allowed Thor is become a major force in the industry.   By investing in future campus expansions underway in Ohio and Idaho, this will allow Thor to reinforce its presence in the market.

Threats

Although Thor's presentation says that the macro outlook seems positive, over the course of the most recent year the fluctuation in stock price shows that its assumptions may be flawed. In recent months, the macroeconomic environment has hinted that we may be facing a impending bear market. This would have a substantial impact on Thor's business. Companies within the recreational vehicle industry are subject to volatility in operating results due to external factors, such as general economic conditions, credit availability, consumer confidence, employment rates, prevailing interest rates, inflation, other economic conditions affecting consumer attitudes and disposable consumer income, demographic changes and political changes. With signs pointing to an economic contraction with things such as interest rate increases paired with a down turning market, this could have a material impact on their business. Thor's product require financing in most instances due to the high price point. If discretionary spending decreases while credit facilities tightening credit requirement could be a recipe for economic hardship for Thor.

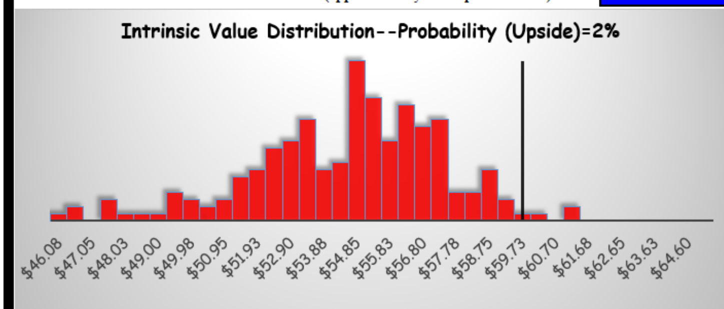
Competition

The industry in which Thor is engaged is highly competitive. The recreational vehicle industry is generally characterized by low barriers to entry, which result in numerous existing and potential recreational vehicle manufacturing competitors. A number of their operating subsidiaries also compete with each other. Competition is based upon price, design, value, quality and service as well as other factors. Competitive pressures have, from time to time, resulted in a reduction of Thor's profit margins and a reduction in our market share. Sustained increases in these competitive pressures could have a material adverse effect on their results of operations.

Base/Bear/Bull cases

Base case:

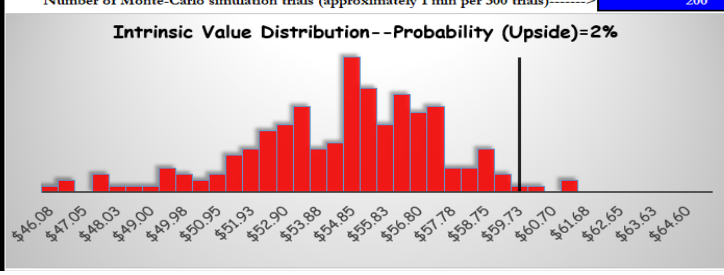
	Intrinsic Value	1y-Target Price
Valuation with UFCF	$ 54.10	$ 63.33
Market and Analysts' Median Target	$ 60.02	$ 103.50
KVD--Random Variables	**Deviation from estimate**	
Revenue	0.0%	
Operating costs	0.0%	
Capital expenditures	0.0%	
Discount Rate	0.0%	
Number of Monte-Carlo simulation trials (approximately 1 min per 300 trials)------->	200	



Statistics	Intrinsic Value	Target Value

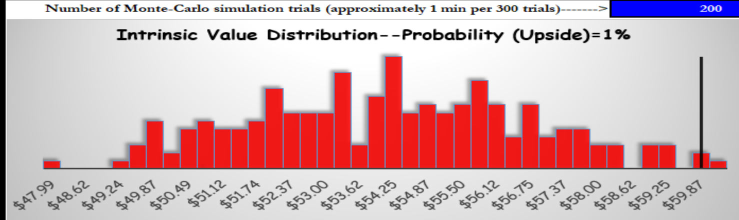
Bear case

	Intrinsic Value	1y-Target Price
Valuation with UFCF	$ 42.06	$ 50.2
Market and Analysts' Median Target	$ 60.02	$ 103.5
KVD--Random Variables	**Deviation from estimate**	
Revenue	-5.0%	
Operating costs	5.0%	
Capital expenditures	0.0%	
Discount Rate	0.0%	
Number of Monte-Carlo simulation trials (approximately 1 min per 300 trials)------->	200	



Bull case:

	Intrinsic Value	1y-Target Price
Valuation with UFCF	$ 66.59	$ 76.89
Market and Analysts' Median Target	$ 60.02	$ 103.50
KVD--Random Variables	**Deviation from estimate**	
Revenue	5.0%	
Operating costs	-5.0%	
Capital expenditures	0.0%	
Discount Rate	0.0%	
Number of Monte-Carlo simulation trials (approximately 1 min per 300 trials)------->	200	



Statistics	Intrinsic Value	Target Value

Conclusion:

Due to our current position with this company as well as our need for cash in the fund, we are left with two options. The first and safer option is that we liquidate our position and realize our losses, which are significant, and use the cash that we get from the sale to reinvest into a different business. Option 2 is we stretch the time horizon and see if this year was just a hiccup as far as the financials are concerned. Thor will soon be the largest manufacturer of RVs and can capitalize on the economies of scale associated with it. We have lost about half of our initial investment, so it may be worthwhile to see if the stock rebounds. In my opinion, we should follow through with the first option and recoup our losses with a more lucrative investment.

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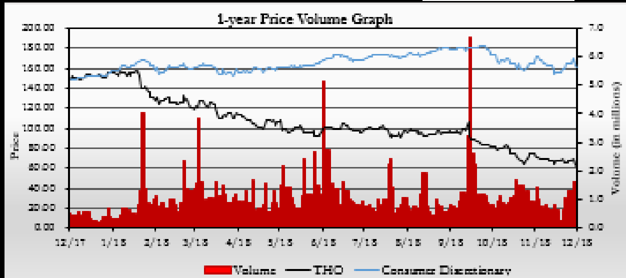
Thor Industries, Inc. (THO) — CENTER FOR GLOBAL FINANCIAL STUDIES — NEUTRAL

Analysis by Al Capone	Current Price:	$60.02	Intrinsic Value	$53.50	Target 1 year Return: 7.05%
12/8/2018	Divident Yield:	2.4%	Target Price	$62.79	Probability of Price Increase: 1%



Description

Thor Industries, Inc., through its subsidiaries, designs, manufactures, and sells recreational vehicles (RVs), and related parts and accessories primarily in the United States and Canada.

General Information

Sector	Consumer Discretionary
Industry	Automobiles
Last Guidance	May 8, 2018
Next earnings date	December 6, 2018

Market Assumptions

Estimated Equity Risk Premium	5.69%
Effective Tax rate	24%

Market Data

Market Capitalization	$3,396.02
Daily volume (mil)	2.66
Shares outstanding (mil)	52.81
Diluted shares outstanding (mil)	52.87
% shares held by institutions	88%
% shares held by investments Managers	72%
% shares held by hedge funds	3%
% shares held by insiders	4.17%
Short interest	5.68%
Days to cover short interest	0.00
52 week high	$161.48
52-week low	$63.32
Volatility	27.66%

Past Earning Surprises

Quarter ending	Revenue	EBITDA
10/31/2017	12.89%	31.12%
1/31/2018	3.43%	-1.50%
4/30/2018	-0.06%	0.61%
7/31/2018	4.25%	-22.48%
10/31/2018	-7.64%	-27.01%
Mean	**2.57%**	**-3.85%**
Standard error	1.0%	3.7%

Market and Credit Scores

Recommendation (STARS) Value--2
Recommendation (STARS) Description--Sell
Quality Ranking Value--A-
Quality Ranking Description--Above Average
Short Score--2
Market Signal Probability of Default % (Non-Ratings)--5.11%
CreditModel Score (Non-Ratings)--bbb+

Industry and Segment Information

LTM Revenues by Geographic Segments	LTM Revenues by Business Segments
North America--100%	Recreation Vehicles - Towables--72%
--	Recreation Vehicles - Motorized--26%
--	Other--4%
--	Intercompany Eliminations---2%
--	--

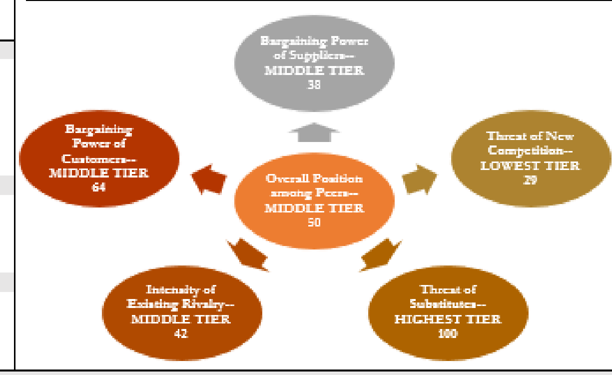
Peers

Winnebago Industries, Inc.	KABE Group AB (publ.)
Polaris Industries Inc.	Newmar Corporation
Brunswick Corporation	Jayco Corporation Pty. Ltd.
MNC Corporation	--
Trigano S.A.	--

Management	Position	Total Compensations Growth	Stock Price Growth During Tenure
Orthwein, Peter	Co-Founder & Executive Chairman of the Boar	1.27% per annum over 6y	0.82% per annum over 6y
Martin, Robert	President, CEO & Director	16.25% per annum over 6y	0.82% per annum over 6y
Zuhl, Colleen	Senior VP & CFO	33.39% per annum over 6y	0.82% per annum over 6y
Julian, Kenneth	Senior Vice President of Administration & Hum	23.71% per annum over 5y	3.4% per annum over 5y
Woelfer, W.	Senior VP, General Counsel & Corporate Secr	22.69% per annum over 6y	0.82% per annum over 6y
Trinske, Mark	Vice President of Investor Relations		

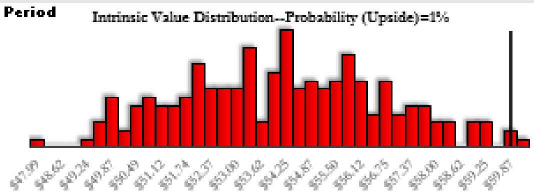
Profitability	THO (LTM)	THO Historical	Peers' Median (LTM)
Return on Capital (GAAP)	22.1%	23.97%	14.77%
Operating Margin	6%	5.55%	8.33%
Revenue/Capital (GAAP)	3.85	4.32	1.77
ROE (GAAP)	23.2%	27.8%	21.8%
Net margin	4.9%	6.0%	5.2%
Revenue/Book Value (GAAP)	4.712487683	4.65	4.19
Invested Funds	**THO (LTM)**	**THO Historical**	**Peers' Median (LTM)**
Cash/Capital	15.8%	15.6%	6.3%
NWC/Capital	13.0%	15.3%	23.0%
Operating Assets/Capital	51.9%	44.7%	48.3%
Goodwill/Capital	19.3%	24.7%	21.1%
Capital Structure	**THO (LTM)**	**THO Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.01	0.01	0.33
Cost of Debt	5.0%	5.0%	5.0%
CGFS Rating (F-score, Z-score, and default Probabili	AA		
WACC	8.9%	10.7%	8.6%

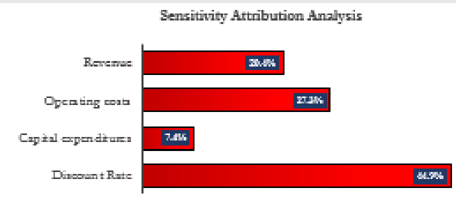
Porter's 5 forces (Scores are percentiles)



Valuation

Forecast Assumptions	Explicit Period (12 years)	Continuing Period
Revenue Growth CAGR	3%	2.5%
Average Operating Margin	8%	8%
Average Net Margin	5%	5%
Growth in Capital CAGR	10%	3%
Growth in Claims CAGR	3%	3%
Average Return on Capital	12%	7%
Average Return on Equity	13%	7%
Average Cost of Capital	10%	11%
Average Cost of Equity	12%	12%





December 7, 2018

Cognex: (CGNX)

Zachary Girvin

Sector: Information Technology
Industry: Electronic Equipment and Components
Current Price: $43.92
Target Price: $33.00

Company Description: Cognex vision helps companies improve product quality, eliminate production errors, lower manufacturing costs, and exceed consumer expectations for high quality products at an affordable price. Typical applications for machine vision include detecting defects, monitoring production lines, guiding assembly robots, and tracking, sorting and identifying parts. With such a broad range of products and systems,

Short

Current Price: $43.92
Target Price: $33.00
Market Cap: 7.56 B

Key LTM Data		
	CGNX	Peers
NOPAT Margin	19.3%	12.03%
Adj. NI Margin	19.3%	10.88%
ROIC	1.77%	2.71%
ROE	1.68%	2.38%
Total Debt/Capital	0.00%	12.18%
Kd	-	4.51%
Credit Rating	-	bbb
Ke	11.77%	13.23%
WACC	11.77%	11.69%

Thesis:

Great margins, growing FCF, no debt, and a short? I'm betting against the market after taking a look at the Massachusetts based machine –vision company Cognex (**COGN**ition **EX**pert) The company has a great product, but seems to be having trouble selling their top-of-the-line scanners and defect detectors. This misstep in the balance sheet will only be compounded in error if the market is on edge, and the company is not making the sales it needs to be. Their YoY Q3 revenues are down, but estimates for Q4 are higher than they were just one year ago. While they have consistently beaten earnings in the past, with a few small misses, Cognex will have to step their sales up in the last quarter if they want to turn their 20% tumble for the year around.

Catalysts:

- Short Term: Market Volatility
- Mid Term: Decrease of margins due to backlog and recievables
- Long Term: Anybody's Guess

Earnings Performance:

2017 was a great year for Cognex, beating revenue estimates every quarter. In 2018 Q1, they missed revenues by a small lot, and with the overall economy at it's peak, emotions looked to outweigh analysis as people sold out at the company's all time high. A quick look at their financial show high margins, which begs the question why a company with no debt and great margins tank after a record year? Revenue grew 43.6% last year and look to continue hit double digit marks for the closing year.

CGNX US Equity | 96) Actions | 97) Export | 98) Settings | Financial Analysis
ADJ Cognex Corp | Periodicity Annuals | Cur USD
1) Key Stats | 2) I/S | 3) B/S | 4) C/F | 5) Ratios | 6) Segments | 7) Addl | 8) ESG | 9) Custom
11) Adj Highlights | 12) GAAP Highlights | 13) Earnings | 14) Enterprise Value | 15) Multiples | 16) Per Share | 17) Stock Value

In Millions of USD	2014 Y	2015 Y	2016 Y	2017 Y	Current/LTM	2018 Y Est	2019 Y Est
12 Months Ending	12/31/2014	12/31/2015	12/31/2016	12/31/2017	09/30/2018	12/31/2018	12/31/2019
Market Capitalization	3,576.8	2,865.6	5,467.4	10,611.7	7,139.0		
- Cash & Equivalents	146.2	348.4	420.8	404.5	527.4		
+ Preferred & Other	0.0	0.0	0.0	0.0	0.0		
+ Total Debt	0.0	0.0	0.0	0.0	0.0		
Enterprise Value	3,430.6	2,517.1	5,046.6	10,207.1	6,611.7		
Revenue, Adj	426.4	450.6	520.8	748.0	793.4	800.2	902.8
Growth %, YoY	20.5	5.7	15.6	43.6	11.4	7.0	12.8
Gross Profit, Adj	332.4	348.0	405.2	579.3	599.5	600.2	678.7
Margin %	77.9	77.2	77.8	77.4	75.6	75.0	75.2
EBITDA, Adj	140.3	135.6	175.4	276.6	248.7	248.1	295.6
Margin %	32.9	30.1	33.7	37.0	31.3	31.0	32.7
Net Income, Adj	108.5	104.5	149.9	257.1	216.6	215.4	240.0
Margin %	25.4	23.2	28.8	34.4	27.3	26.9	26.6
EPS, Adj	0.61	0.59	0.86	1.44	1.23	1.20	1.42
Growth %, YoY	45.4	-2.4	45.3	66.8	38.1	-16.5	18.8
Cash from Operations	156.0	128.3	182.1	224.3	236.0		
Capital Expenditures	-20.9	-18.2	-12.8	-28.8	-36.1	-34.2	-29.6
Free Cash Flow	135.0	110.1	169.3	195.6	199.9	206.7	231.5

Cash:

I always like to look at the cash a company holds before anything else. A company like CGNX had 31% of assets in cash last year, raising a red flag for their outlook. With no interest payments to make why is this not getting cycled in to spur organic growth that a firm in the IT world needs. Their Capex has increased, but they

In Millions of USD except Per Share	2012 Y	2013 Y	2014 Y	2015 Y	2016 Y	2017 Y
12 Months Ending	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017
Total Assets						
+ Cash, Cash Equivalents & STI	150.3	225.5	146.2	348.4	420.8	404.5
+ Cash & Cash Equivalents	45.2	40.6	55.7	52.0	79.6	106.6
+ ST Investments	105.1	184.8	90.5	296.5	341.2	298.0

have not invested enough it seems, especially with their low RRR given a comp with competitors on page 1. This issue of cash and not having a good next idea that can drive profits and possibly lead them to be acquired led me to dig into some other items next. One important note is also their R&D costs which have increased, but I'm not sure it is to the extent that a machine vision company might need.

Forecast:

Remember, CGNX looks like a solid company. So I decided to boost revenue in the explicit period to see the firm's reaction. These were the revenue projections I used in the proforma. Double digit revenue growth fro years couldn't pick this company out of the dirt. I asked myself why this would be, there is no debt, assumptions make sense for the given industry and discount rate remained at Ke. This posed some questions about the underlying fundamentals of the firm, which shed some light on the topic. This company has a great portfolio of products, in an industry that is highly competitive, and in my belief will take off. This issue in the tech world as everyone knows, great ideas don't always promise that windfall return, and have a higher chance of crashing than soaring. I'm not one to usually bet against the market, but if we look at the industry now, and our basically decade long bull market, uncertainty is looming. And with eroding fundamentals, an uncertain outlook, and a priceto FCF of $54.19 I'm watching CGNX by the second. The market has had mixed feelings on this company in the past couple months, and I think we are going to see a sharp downturn very soon.

	Revenues	Adj. EBITDA Margin
$	777.84	27.018%
$	1,116.31	31.020%
$	1,541.07	33.657%
$	2,131.36	34.020%
$	2,830.46	35.275%
$	3,616.09	31.396%
$	4,453.95	27.870%
$	5,302.11	24.696%
$	6,117.25	21.874%
$	6,861.33	19.406%
$	7,507.12	17.290%
$	8,041.56	15.527%
$	8,466.53	14.116%
$	8,797.47	13.058%
$	9,060.66	12.353%
$	9,290.17	12.000%
$	9,525.49	12.000%

Rev Growth		Adj. EBITDA
43.5%	$	346.28
38.0%	$	518.67
38.3%	$	725.10
32.8%	$	998.46
27.8%	$	1,135.31
23.2%	$	1,241.30
19.0%	$	1,309.39
15.4%	$	1,338.11
12.2%	$	1,331.50
9.4%	$	1,297.97
7.1%	$	1,248.58
5.3%	$	1,195.13
3.9%	$	1,148.77
3.0%	$	1,119.23
2.5%	$	1,114.82
2.5%	$	1,143.06

Short Interest:

A quick look to the chart shows a relatively high short interest for the company. With a high daily volume, this is a stock that I feel would be a good candidate to short and I think many investors have a similar outlook. I want the fund to take a look at this and realize, we can time this decision just right, and get in before the stock takes any more hits. The float has increased since last year

Accounts Receivables:

I wanted to check the fundamentals of the company and decided to look at the all important Accounts Receivables. Here I found an issue. The A/R had over doubled and without reason. Their COGS/Remains about the same 22% and their CCC looks to have no material change, but A/R does. In a year with such significant growth in revenue, why is there now a large issue with collections. This is hurting the financials for Cognex and if this isn't cleaned up in the year, which I don't believe it will be, we are all going to see CGNX continue its plunge.

In Millions of USD except Per Share	2012 Y	2013 Y	2014 Y	2015 Y	2016 Y	2017 Y
12 Months Ending	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017
+ Accounts & Notes Receiv	42.4	53.0	40.1	42.8	55.4	119.4
+ Accounts Receivable, Net	42.4	53.0	40.1	42.8	55.4	119.4
+ Notes Receivable, Net	0.0	0.0	0.0	0.0	0.0	0.0

The issue I see with this is they aren't getting their money back quick enough and they need that money to start new research on other products which will open new markets and fuel similar growth to last year.

Inventory:

Here's the smoking gun. Cognex looks great on paper, as long as that paper isn't their balance sheet. Inventories have came out of no where and don't seem to be moving. If their warehouses are full in 2017 and their 2018 Q1 earnings are missed, do you really think they sold all of these items?

In Millions of USD except Per Share	2012 Y	2013 Y	2014 Y	2015 Y	2016 Y	2017 Y
12 Months Ending	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017
+ Inventories	26.2	25.7	29.2	37.3	27.0	67.9
+ Raw Materials	12.7	13.1	18.2	27.3	18.2	33.9
+ Work In Process	4.2	4.5	5.1	3.1	2.8	2.1
+ Finished Goods	9.3	8.1	5.9	6.9	6.0	31.9
+ Other Inventory	0.0	0.0	0.0	0.0	0.0	0.0

I would be okay if their raw material were up, after a great year, why not take on some more and try to move some product. I'm not okay with stagnant finished goods that all but sextupled in a calendar year. Where are they selling this stuff and why is it not getting sold anymore. From everything I've read the product is great, the price point is fair, as it allows a company to make back their money outlayed by saving costs and operating so much more efficiently. The only thing left is a backlog and a missed sales quota.

Conclusion:

Cognex is a risk no doubt about it. If you buy in now, they may have another terrible year and drop to $30 a share. If you short them, they might have collected on all of their receivables, and sold the entire warehouse of inventory, sending them to $50 or $60 bucks a share. They might have, but how are we kidding, they are losing efficiency and they can't find customers for their cameras. They have cash sitting in their accounts, which I might add they aren't paying much of, and they don't know what to do next. Last time I checked growth and stagnant didn't mean the same thing. I love looking at a company and seeing a pile of cash slowly get smaller and inventories slowly getting bigger, and thinking I only wish I shorted them sooner. Look at the facts and short CGNX.

SIENA*college*   BJORKLUND FUND

Cognex Corporation (CGNX) — CENTER FOR GLOBAL FINANCIAL STUDIES — BEARISH

Analysis by Zachary Girvin	Current Price:	$41.80	Intrinsic Value	$30.28	Target 1 year Return: -20.6%	
12/7/2018	Divident Yield:	0.5%	Target Price	$33.00	Probability of Price Increase: 0%	

1-year Price Volume Graph

Description

Cognex Corporation provides machine vision products that capture and analyze visual information in order to automate tasks primarily in manufacturing processes worldwide.

General Information

Sector	Information Technology
Industry	Electronic Equipment, Instruments and Compon
Last Guidance	May 8, 2018
Next earnings date	February 11, 2019

Market Assumptions

Estimated Equity Risk Premium	6.77%
Effective Tax rate	23%

Market Data

Market Capitalization	$7,562.64
Daily volume (mil)	0.62
Shares outstanding (mil)	172.19
Diluted shares outstanding (mil)	178.72
% shares held by institutions	94%
% shares held by investments Managers	85%
% shares held by hedge funds	3%
% shares held by insiders	4.66%
Short interest	6.63%
Days to cover short interest	7.67
52 week high	$70.00
52-week low	$36.16
Volatility	33.45%

Past Earning Surprises

Quarter ending	Revenue	EBITDA
10/1/2017	3.94%	-0.51%
12/31/2017	0.34%	3.83%
4/1/2018	-0.25%	-1.11%
7/1/2018	3.06%	4.31%
9/30/2018	2.31%	1.79%
Mean	1.88%	1.66%
Standard error	1.0%	5.0%

Market and Credit Scores

Recommendation (STARS) Value--3
Recommendation (STARS) Description--Hold
Quality Ranking Value--B+
Quality Ranking Description--Average
Short Score--2
Market Signal Probability of Default % (Non-Ratings)--0.15%
CreditModel Score (Non-Ratings)--N/A

Industry and Segment Information

LTM Revenues by Geographic Segme	LTM Revenues by Business Segments
Europe--43%	Machine Vision Technology--100%
--	--
Greater China--14%	--
--	--
--	--

Peers

MTS Systems Corporation	Rockwell Automation, Inc.
FARO Technologies, Inc.	Keysight Technologies, Inc.
Novanta Inc.	Hangzhou Tech Company Limited
Trimble Inc.	Roper Technologies, Inc.
Badger Meter, Inc.	V Technology Co., Ltd.

Management	Position	Total Compensations Growth	Stock Price Growth During Tenure
Willett, Robert	CEO, President & Executive Director	47.99% per annum over 5y	17.07% per annum over 5y
Curran, John	Senior VP of Finance & Administration, Treasu		0% per annum over 0y
Morin, Richard	Senior VP & Secretary	5.08% per annum over 5y	17.07% per annum over 5y
DiPalma, Sheila	Senior VP of Corporate Employee Services &		0% per annum over 0y
Shillman, Robert	Founder, Executive Chairman & Chief Culture (	-100% per annum over 4y	5.93% per annum over 4y
Conway, Susan	Senior Director of Investor Relations		

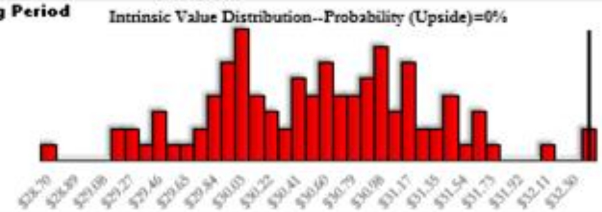
Profitability	CGNX (LTM)	CGNX Historical	Peers' Median (LTM)
Return on Capital (GAAP)	19.8%	17.09%	10.58%
Operating Margin	28%	30.58%	14.33%
Revenue/Capital (GAAP)	0.70	0.56	0.74
ROE (GAAP)	11.7%	11.8%	11.8%
Net margin	18.8%	22.6%	9.4%
Revenue/Book Value (GAAP)	0.622994796	0.52	1.26
Invested Funds	**CGNX (LTM)**	**CGNX Historical**	**Peers' Median (LTM)**
Cash/Capital	29.6%	35.3%	16.8%
NWC/Capital	6.5%	10.3%	11.1%
Operating Assets/Capital	55.4%	46.5%	36.3%
Goodwill/Capital	8.5%	8.4%	21.7%
Capital Structure	**CGNX (LTM)**	**CGNX Historical**	**Peers' Median (LTM)**
Total Debt/Market Capitalization	0.02	0.02	0.36
Cost of Debt	5.0%	5.0%	4.2%
CGFS Rating (F-score, Z-score, and default Probabili	AA		
WACC	12.0%	11.8%	9.3%

Porter's 5 forces (Scores are percentiles)

Valuation

Forecast Assumptions	Explicit Period (14 years)	Continuing Period
Revenue Growth CAGR	18%	2.5%
Average Operating Margin	23%	12%
Average Net Margin	23%	8%
Growth in Capital CAGR	15%	3%
Growth in Claims CAGR	18%	3%
Average Return on Capital	18%	6%
Average Return on Equity	18%	6%
Average Cost of Capital	12%	12%
Average Cost of Equity	12%	12%

Intrinsic Value Distribution--Probability (Upside)=0%



Sensitivity Attribution Analysis