

Recommendation	Neutral
Target (today's value)	\$44.00
Current Price	\$44.43
52 week range	\$36.27 - \$46.16

INTEL CORPORATION

Share Data	
Ticker:	INTC
Market Cap. (Billion):	\$207.93
Inside Ownership	0.0%
Inst. Ownership	70.4%
Beta	1.06
Dividend Yield	2.45%
Payout Ratio	37.2%
Cons. Long-Term Growth Rate	8.4%

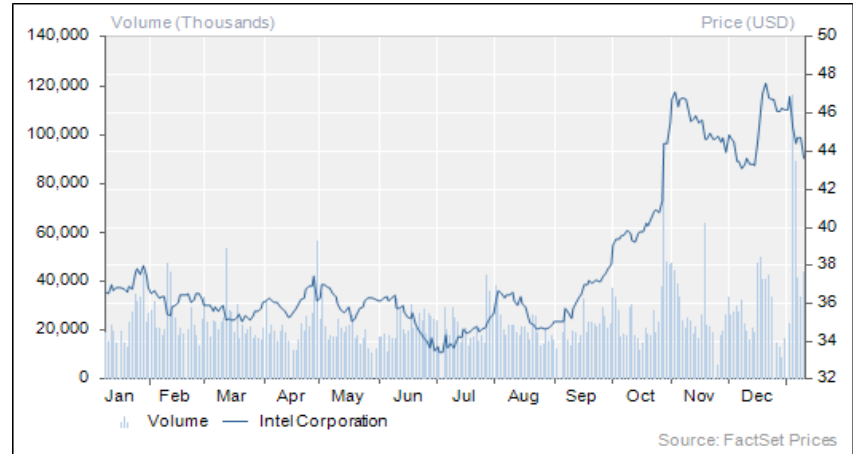
	'15	'16	'17E	'18E	'19E
Sales (billions)					
Year	\$55.4	\$59.4	\$62.1	\$64.8	\$68.9
Gr %		12.2%	4.5%	4.4%	6.3%
Cons	-	-	-	\$62.0	\$63.8
EPS					
Year	\$2.41	\$2.18	\$2.96	\$2.95	\$3.16
Gr %		-9.4%	35.7%	-0.8%	7.7%
Cons	-	-	\$3.24	\$3.25	\$3.37

Ratio	'15	'16	'17	'18E	'19E
ROE (%)	19.2%	16.0%	16.0%	22.5%	20.5%
Industry	36.4%	24.6%	28.4%	34.1%	31.6%
NPM (%)	20.6%	17.4%	17.4%	25.3%	24.4%
Industry	20.3%	14.1%	16.6%	25.1%	25.2%
A. T/O	0.57	0.53	0.55	0.49	0.48
ROA (%)	11.8%	9.6%	9.6%	12.4%	11.7%
Industry	10.3%	7.4%	9.5%	13.2%	12.8%
A/E	1.63	1.66	1.73	1.70	1.72

Valuation	'15	'16	'17	'18E
P/E	14.7	17.1	15.2	13.4
Industry	20.8	30.9	24.1	20.8
P/S	3.05	3.05	3.37	3.27
P/B	2.9	2.7	2.9	2.9
P/CF	8.7	9.3	9.1	9.5
EV/EBITDA	11.4	12.5	12.5	12.5

Performance	Stock	Industry
1 Month	-5.3%	-2.8%
3 Month	19.3%	5.5%
YTD	19.5%	20.8%
52-week	17.8%	20.0%
3-year	19.6%	37.9%

Contact: Matt Klaver
 Email: mgklaver@uwm.edu
 Phone: 414-477-0788



Summary: I recommend a neutral rating with a target of \$44. Although INTC has an opportunity to dramatically improve efficiency and increase margins, there is a lot of uncertainty regarding the technology that they have invested in and how quickly it can be adapted. This uncertainty greatly affects the company in both the short run and long run. The stock is fairly valued based on relative and DCF

Key Drivers:

- Change in the PC market: Intel's largest operating segment has always been the Client Computing Group; however, it has been shrinking as a percentage of sales in recent years. Other segments have been growing much faster as PCs have matured.
- Connectivity and automobiles: In 2017, Intel acquired the Israeli based company Mobileye. INTC also began forming partnerships with ride-sharing companies and car manufacturers to help establish its presence in the future market of self-driving cars.
- Capital Investments: Intel's persistence as a leader of innovation has created years of strong success. In addition to owning its own fabs, Intel continually increases R&D expenditures to continue to increase efficiency as well as push technological advancements.
- Competition: Growth segments are high priority for semiconductors. Intel has consistently invested high numbers into R&D while maintaining high margins. By making successful acquisitions and investments, early on Intel is able to stay ahead of their competition.

Valuation: Using a relative valuation approach, Intel appears to be fairly valued in comparison to the semiconductor industry. Due to greater precision of inputs, DCF analysis provides the best way to value the stock. A combination of the approaches suggests that Intel is fairly valued, as the stock's value is about \$44 and the shares trade at \$44.43.

Risks: Threats to the business include legal problems with AI, failure to meet innovation expectations, inability to maintain margins, and intense competition.

Company Overview

SSG's historical results are now located in All Other along with the New Technology Group.

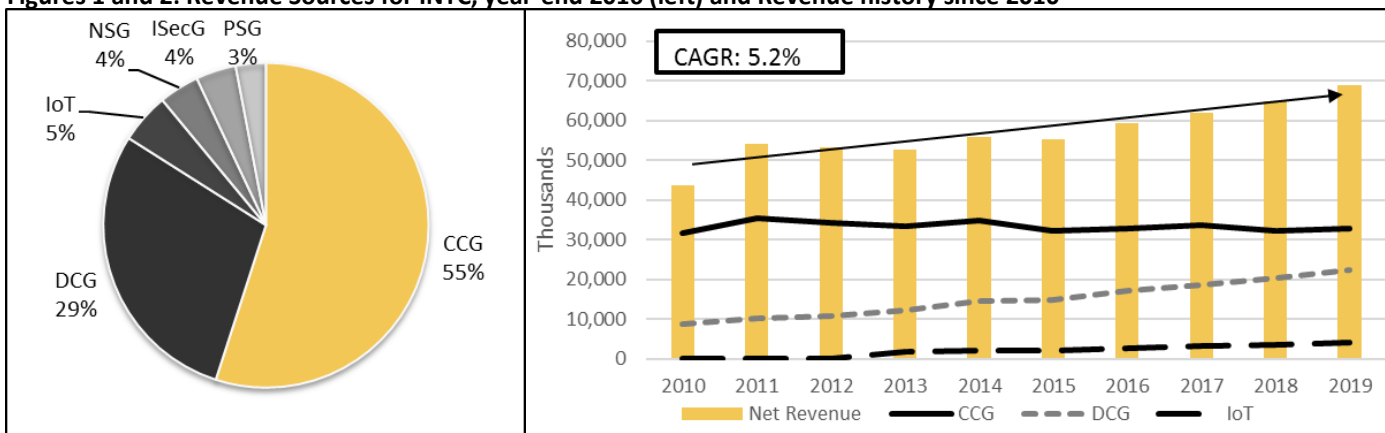
Intel Corporation (INTC) provides design and manufacturing of products that power the cloud and the connected world. Intel operates through the following segments: Client Computing Group (CCG), Data Center Group (DCG), Internet of Things Group (IoT), Non-Volatile Memory Solutions (NSG), Intel Security Group (ISecG), and Programmable Solutions (PSG). Most revenue is generated through platforms that incorporate various components and technologies, which can be enhanced through services provided by Intel.

Intel's revenue has historically come from the CCG; however, in recent years the company has seen shifts from the CCG segment into the rest of Intel's operating segments. With PC sales decreasing worldwide, Intel has been focusing on other segments with higher potential growth.

Intel made several partnerships and investments in 2017 to increase DCG revenue.

- The Client Computing Group: The CCG segment consists of platforms designed for computers, phones, mobile communication components, wireless and wired connectivity products, and tablets. This segment saw a 2% revenue increase from 2015-2016; however, it shrank from 58% of Intel's revenue to 55% led by decreasing demand for personal computers while demand for other products was strong.
- The Data Center Group: The DCG segment consists of workload based platforms and related products designed for cloud and enterprise components. This segment is comprised of high growth areas such as Artificial Intelligence (AI) and 5G networks. The segment experienced an 8% increase in revenue from 2015 to 2016.
- Internet of Things Group: The (IoT) group consists of platforms for market segments, including retail, transportation, industrial, video, buildings, and a broad range of other market segments. This segment reported a 15% increase from 2015 to 2016.
- Non-Volatile Memory Solutions: The NSG consists of NAND and flash memory used in solid-state drives. NSG observed a decrease in revenue of 1% from 2015 to 2016.
- Intel Security Group: The IsecG consists of security software products designed to create solutions to secure computers, mobile devices, and networks. IsecG grew 9% from 2015 to 2016.
- Programmable Solutions Group: The PSG consists of programmable semiconductors and related products for a range of markets including data center, automotive, and industrial. The PSG reported revenues of \$1.7 billion in 2016 as its first year as a reportable segment.
- All Other: The remaining segments that are non-reportable are in the All Other category. Results are also for the New Technology Group, which consists of operations startup businesses.

Figures 1 and 2: Revenue Sources for INTC, year-end 2016 (left) and Revenue history since 2010



Source: Company reports

Business/Industry Drivers

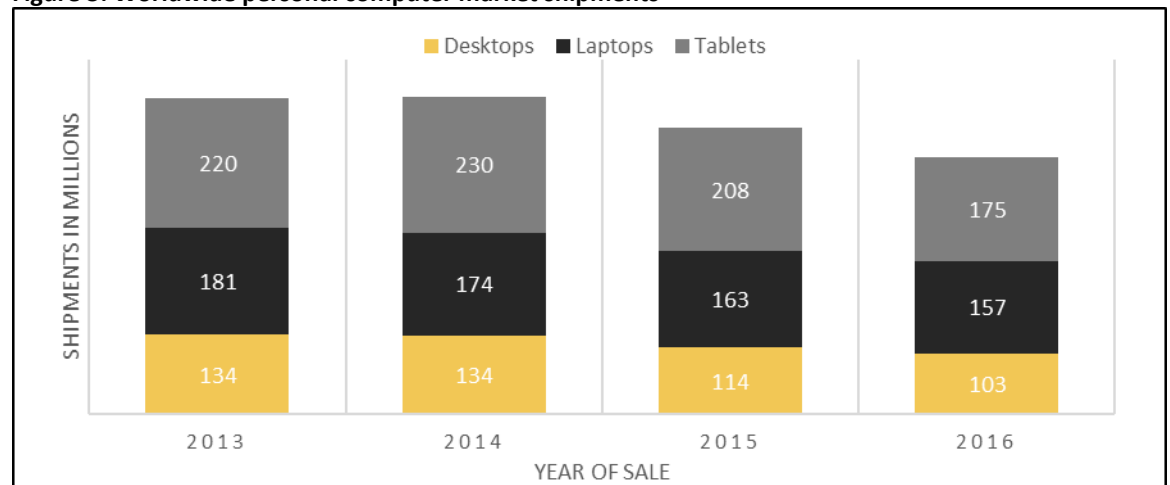
Though several factors may contribute to Intel's future success, the following are the most important business drivers:

- 1) Change in the PC
- 2) Connectivity and automobiles
- 3) Capital investments
- 4) Competition
- 5) Macroeconomic trends

Change in the PC Market

The personal computer market has been declining since 2014. The CCG makes up 55% of sales but is down from a peak level of nearly 80%. The CCG was referred to as the PCCG segment until 2015. In 2015, Intel combined its mobile segment with the PCCG segment since the mobile segment was not large enough to be reported on its own. The segment increased 2% in 2016 and underperformed in respect to the rest of its operating segments.

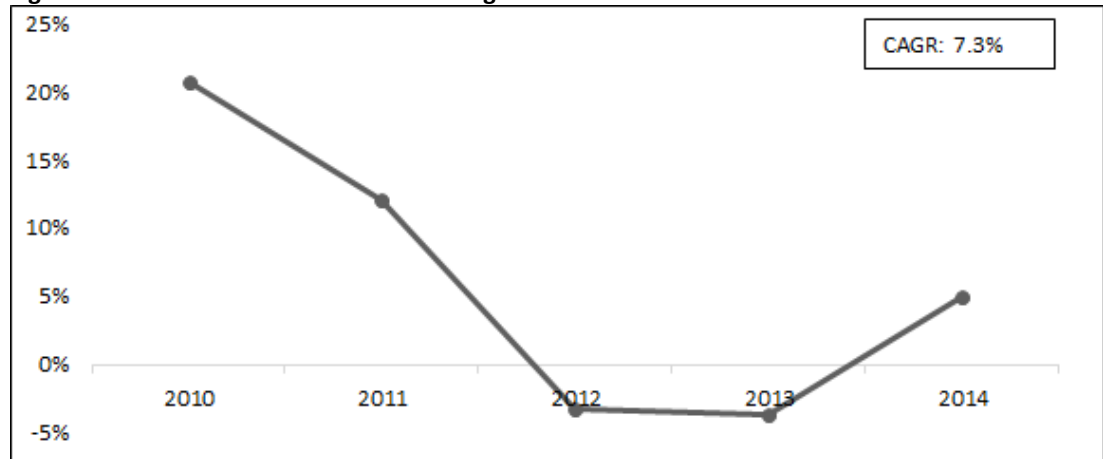
Figure 3: Worldwide personal computer market shipments



Source: Statista

In the early 2000s, the PC market began changing. Tablets have more than one-third of global personal computer shipments. Intel's CCG segment experienced declining sales in 2013 and 2014, but did manage to recover in 2015 and 2016; however, Intel's 2016 volume was down 8%, which was offset by a platform price increase of 8%. It is important for Intel to continue to fund other segments that have more growth potential, as the PC market has matured.

Figure 4: Historical PCCG and CCG revenue growth rates and CAGR



Source: Factset

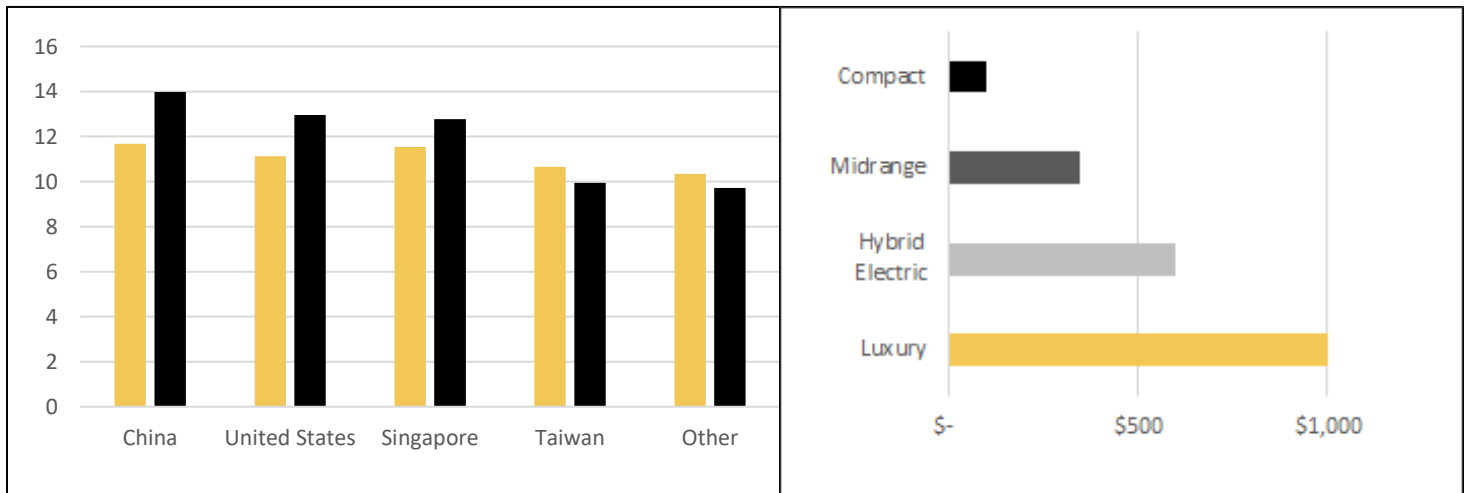
Automobiles and Connectivity

Mobileye's volume 48.7% grew from 2015 to 2016 and ASP from \$43.9 to \$45 ASP.

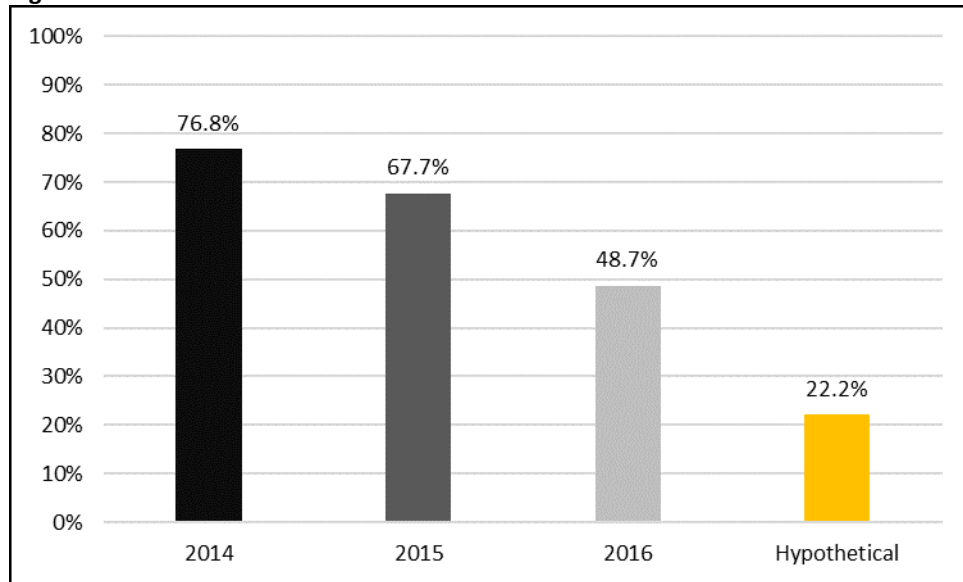
Automobiles are an increasingly important source of revenue for semiconductor companies. Intel made news recently for its partnerships with companies like Fiat Chrysler and BMW. In 2017, Intel acquired Mobileye. Mobileye had \$358 million in sales in 2016. This was a 48.7% increase over the company's 2015 revenues of \$241 million. The Israel based company manufactures sensors used in vehicles that enable assisted driving features. Features like these are becoming important to consumers. The more connected cars become the more semiconductors the car requires.

Last year, McKinsey produced a worldwide survey measuring consumers' interest in connected cars. Of the 3,000 survey participants, 41% responded that they would change vehicle brands to have more connectivity. Also, 62% of participants in China reported that they would be willing to switch brands for connectivity. By working to improve connectivity in cars, Intel is increasing the semiconductor need within the market and satisfying the consumers' growing demand. China's automotive market reported the highest willingness to change brands for connectivity in the survey. Intel's two highest growing segments, DCG and PSG, include revenues generated from AI and the automotive market.

Figures 5 and 6: Intel geographic revenue (billions) (left) and semiconductors in automobiles (right)



Source: Statista, McKinsey

Figure 7: Historic ADAS Market Growth

Source: Mobileye company reports

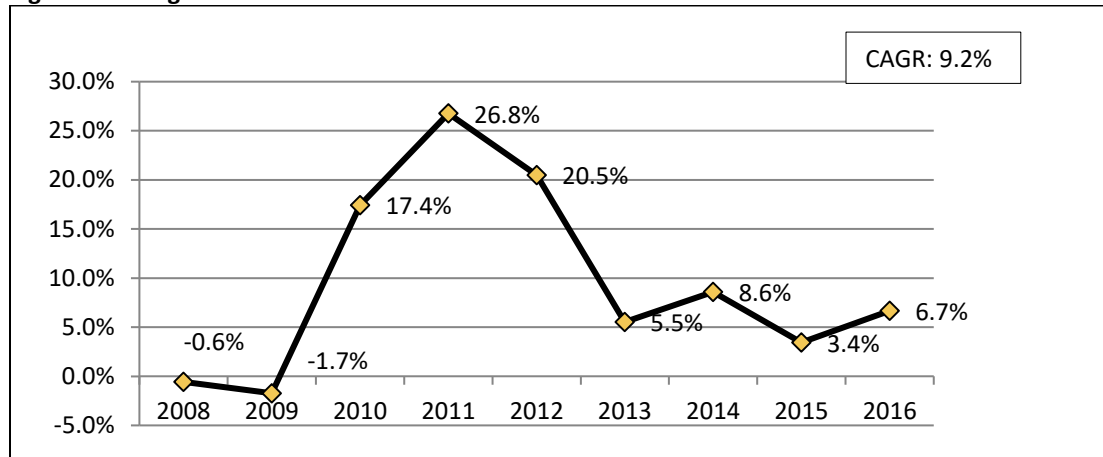
Since Mobileye accounts for over 70% of the current market it is a safe measure of growth for the market in very recent years. The market needs to have a 22.2% CAGR for the next 13 years in order to achieve a market valuation of \$70 billion. The growth has declined over the past 3 years but still remains incredibly high. It may continue to fall while technology is progressing at a potentially slower rate. As long as the rates continue to average around 22.2% for the next decade then Intel's forecasts can be assumed accurate.

Investment in Capital

Moore's Law -the numbers of transistors per square inch on an IC double every 2 years.

Intel has been a worldwide leader in innovation ever since its inception with co-founder Gordon Moore. Innovation is incredibly important to all tech firms. A biannual goal for company is to keep up with Moore's Law. In the early 2000s, when the semiconductor industry was dominated by fabs using 200 mm wafers, Intel was amongst the first to create fabs that would manufacture 300 mm wafers. Intel's new fab 42 in Arizona is designed to be one of the first fabs to produce 450 mm wafers. The switch from 200 to 300 mm wafers greatly decreases the cost of producing chips; however, while creating 450 mm wafers it was discovered that lithography costs (that increase with area) would become too large to make the process more efficient than the existing 300 mm model. After this realization the factory was shut down in 2014; however, Intel decided to resume construction of the fab in 2017. This time the fab's purpose is to produce the next smallest chip, the 7nm chip. This fab will also include equipment to potentially produce 5nm chips. In order for Intel to lead the industry in innovation and efficiency it has steadily increased R&D expense steadily over the years. Investing in R&D, the firm would not be able as cost efficient as they are.

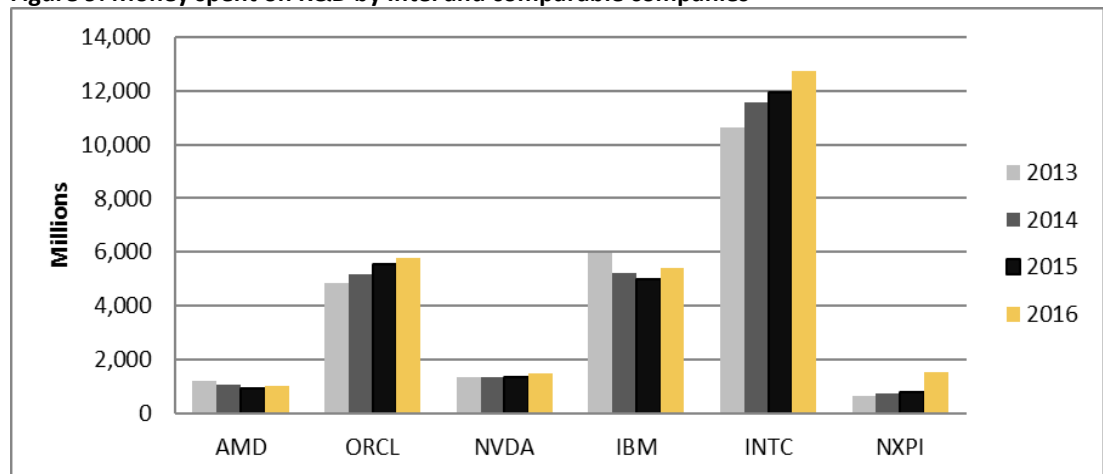
Figure 8: R&D growth rates since 2008



Source: Factset

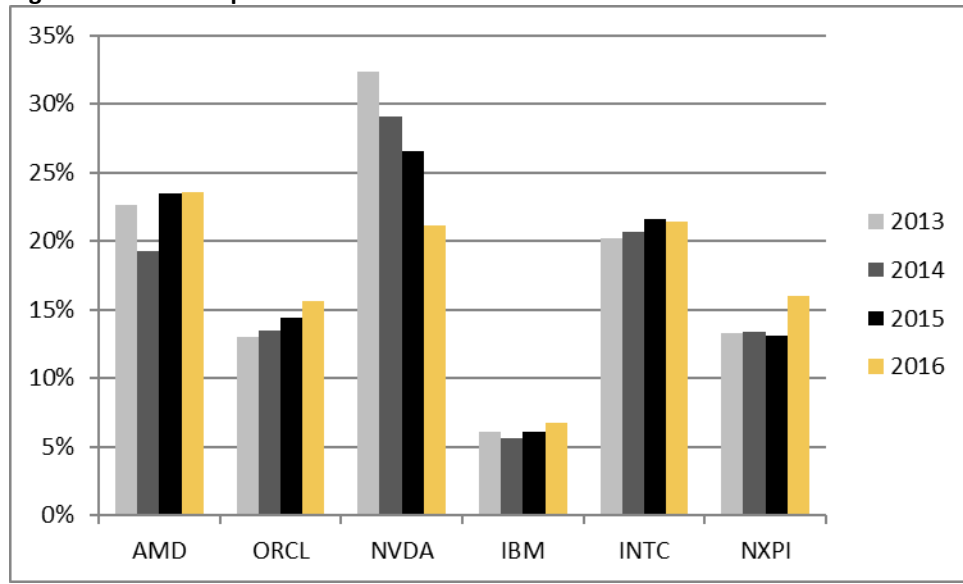
Intel has historically placed an emphasis on research, only decreasing their R&D expenses modestly during the recession and growing it strongly as the market recovered. Intel currently runs two out of a very small number of fabs that produce 10 nm chips; the only other owners are TSMC and Samsung which are the other leaders in semiconductor technology. Many fabless semiconductor companies will send their designs to TSMC rather than constructing their own fabs. In an industry where technology can become obsolete on an annual basis, particularly in the CCG segment, it is important to always be out in front leading innovation.

Figure 9: Money spent on R&D by Intel and comparable companies



Source: Factset

Figure 10: R&D as a percent of sales 2013-2016

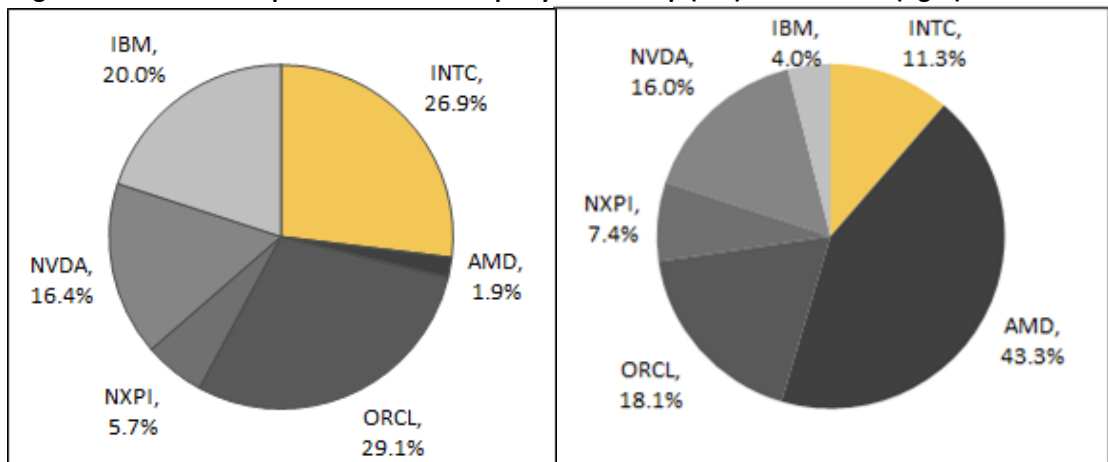


Source: Factset

Competition

The semiconductor industry is competitive. Technology can become outdated incredibly fast, and old technology is heavily discounted. Consumers are willing to upgrade their personal computers CPU on either an annual or a biannual basis. Consumers are not loyal and may switch to an alternative microprocessor manufacturers. Intel’s 7th generation processor, nicknamed “Kaby Lake,” resulted in lower platform revenue. Many consumers believed it was underwhelming and that the best part of the 7th generation release was that the price of 6th generation processors fell.

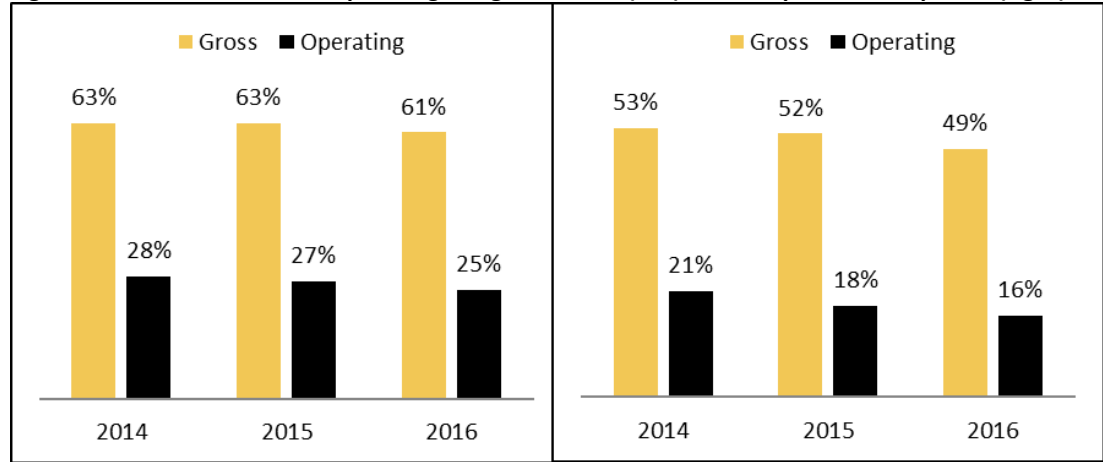
Figures 11 and 12: Comparison of INTC comps by market cap (left) and revenue (right).



Source: Company Reports

Intel has a higher than average gross and operating margins that allow it to more freely allocate funds to R&D. With the personal computer market declining, it is important to find another source of revenue that could potentially be as successful as the PC market. Semiconductor companies such as NX&P Semiconductors, Nvidia, IBM, and Oracle have announced partnerships and acquisitions in the field developing AI systems and ride sharing. Intel already announced that it plans to have a fleet of 400 AI cars produced this year.

Figures 13 and 14: Gross and operating margins of INTC (left) and comparable companies (right)



Source: Factset, Company Reports

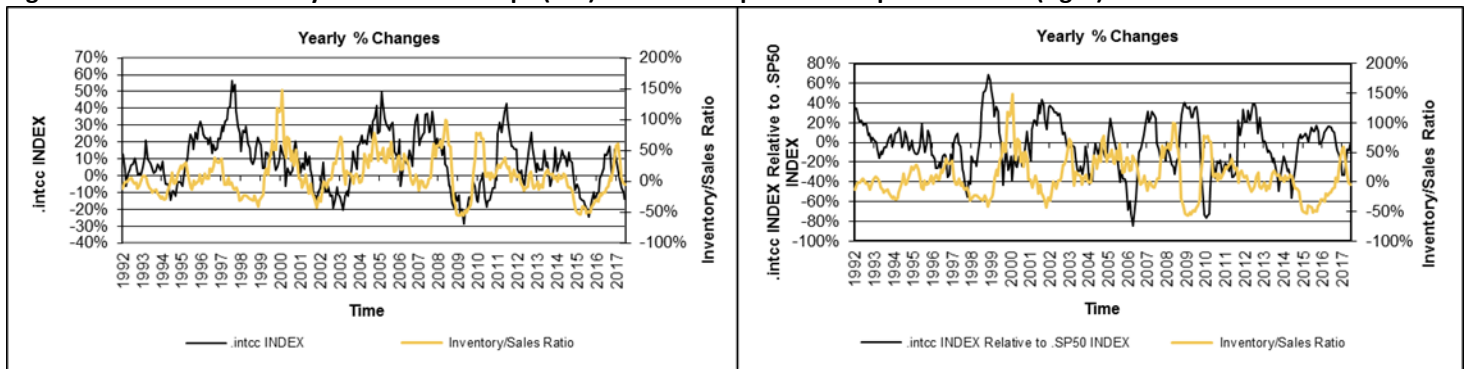
Note that "INTCC" is the name of the comparable company group.

Macroeconomic Trends

Intel's stock price is highly correlated with manufacturers confidence (ISM PMI). When the internet bubble burst and the confidence was extremely low, Intel took a large hit compared to others; however, in the recent recession it did not falter nearly as much following the 2000s bubble. When confidence begins to decline Intel's stock tends to out perform.

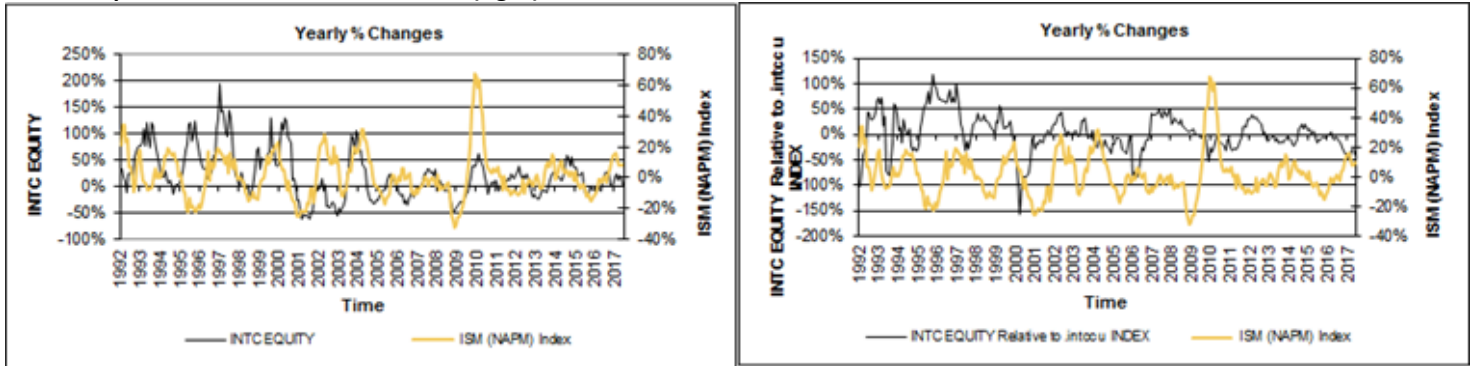
Managing inventory is also very important for semiconductor companies with their own fabs. In recent years, the stock price has moved much more closely in relation to inventory turnover. Inventory turnover typically led INTC until 2000. Price also moved in a exaggeratedly fashion with inventory turnover as well. In the past 10 years, inventory was less volatile until 2014 when inventory turnover fell 30% and stock fell 50%, followed by stock rising 50% leading a 10% increase in inventory turnover.

Figures 15 and 16: Inventory turnover to Comps (left) and relative price of comps to S&P 500 (right)



Source: Bloomberg, IMCP

Figures 17 and 18: Manufacturer confidence compared to INTC stock (left) and manufacture confidence compared to INTC comps relative to the S&P 500 index (right)



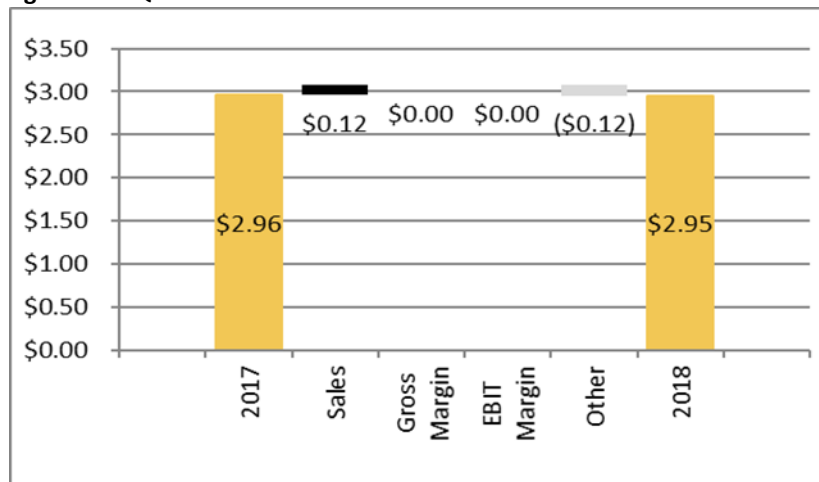
Source: Bloomberg, IMCP

Beginning in 1997, it is easy to see there correlation between INTC’s stock price and manufacture confidence. In the periods of 2002-2003 and 2009-2010, INTC’s equity did not increase nearly as much as ISM did. Following both the dotcom bubble and the 2008 recession confidence soared while the firm’s equity only increased by a fraction of the percent. On the right, it is seen that INTC did far worse than its competitors in the dotcom bubble; however, it was able to perform better during the following recession. Other comparable semiconductor companies did not do as well during the recession, but rebounded better following high manufacture confidence.

Financial Analysis

I anticipate EPS to shrink to \$2.95 in FY 2018. Increasing revenues driven by the Data Center Group and Programmable Solutions Group should increase earnings by \$0.12. I do not anticipate an increasing gross margin or EBIT margin in 2018. The company had one of its most efficient years in 2017 and should continue operating at the same efficiency for the near future. Research and development expense will increase; however, SG&A should continue to decrease as a percent of sales. INTC experienced a higher tax rate in 2017 than during previous years. I expect changes in legal policy to lower the tax rate for the following years. In 2017, INTC also sold operating assets increased other income dramatically for 2017. I anticipate that other income will regress back towards usual values in the following years. This will move than offset the lower tax rate and the net impact is a drop of 0.12 in EPS.

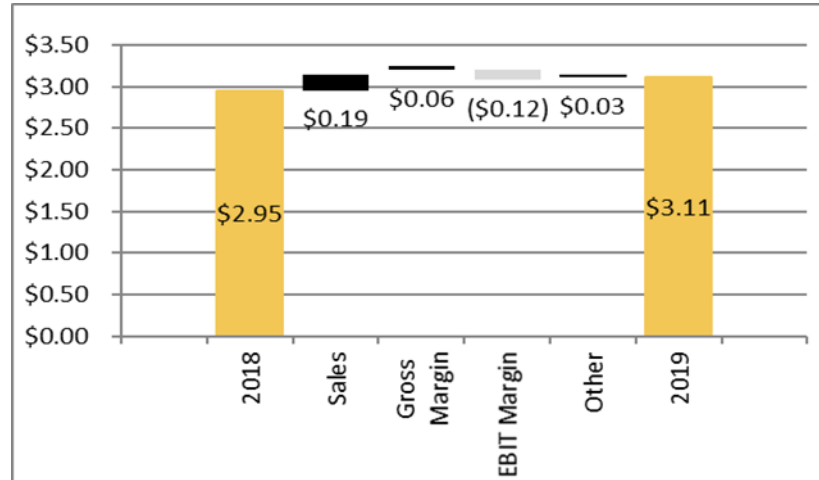
Figure 19: Quantification of 2018 EPS drivers



Source: Company Reports, IMCP

I expect 2019 EPS to increase \$0.16 to \$3.11. Intel will gain \$0.19 of earnings from increased sales. The primary driving forces include a slight recovery in the Client computing group, as well as strong performance from other operating segments including the Data center group. I anticipate that gross margin will remain strong and begin improving, adding \$0.06 to earnings in 2019. Since the other income is assumed to return to normal in 2018 and 2019, INTC will benefit from a more favorable tax rate resulting in a \$0.03 increase.

Figure 20: Quantification of 2019 EPS drivers



Source: Company Reports, IMCP

I am more pessimistic than consensus estimates for 2018 and 2019. The unusual increase in other income resulted in a very large, one-time increase in earnings. However, I anticipate stronger growth in 2019 driven primarily by the company’s improving efficiency as well as growth in newer markets.

Figure 21: Estimates EPS VS Consensus

	2018	2019
Consensus	\$ 3.12	\$ 3.54
Estimates	\$ 2.94	\$ 3.10

Source: Factset

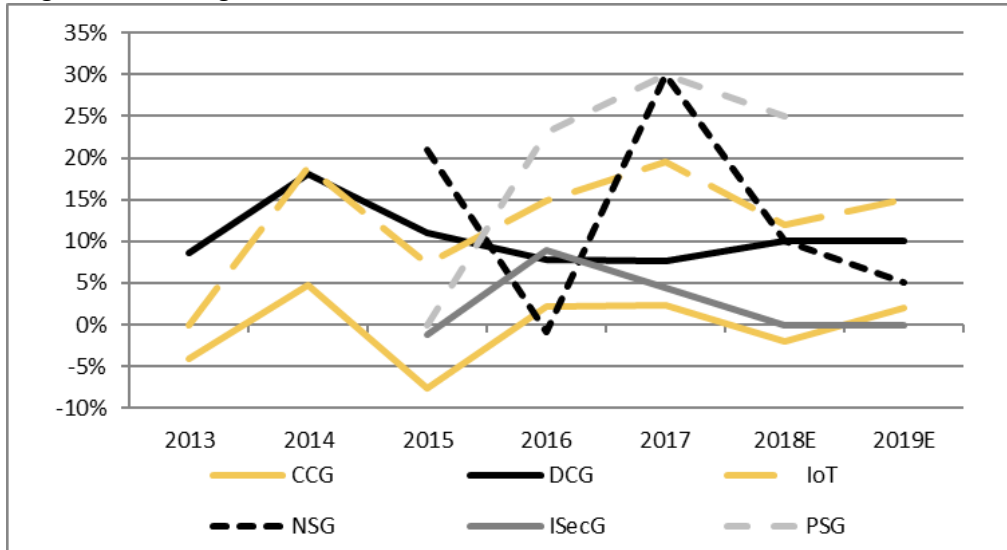
Revenues

Intel’s revenue has over the past eight years, but the growth can be volatile going into or out of a downturn. In 2018-2019, I expect the rate of growth to increase, driven by the higher growth of the Data Center Group. The Client Computing Group segment will continue to struggle with declining sales as the PC market is a mature business; however, I anticipate that due to advances in technology farther out will create a large opportunity for growth in this segment. The internet of things group should see an increase in 2018 driven by a more successful computer chip launch, following the mild setback of the 7th generation processor in 2017.

The Client Computing Group revenue should begin growing again in 2020 as the advancements in technology create a demand for higher end and more innovative computer chips. As autonomous driving becomes more available, the Data Center Group will see a short-term increase caused by investments in ride-sharing programs as well as advanced driver assist systems. The technology is becoming more reliable so growth will rise in this segment.

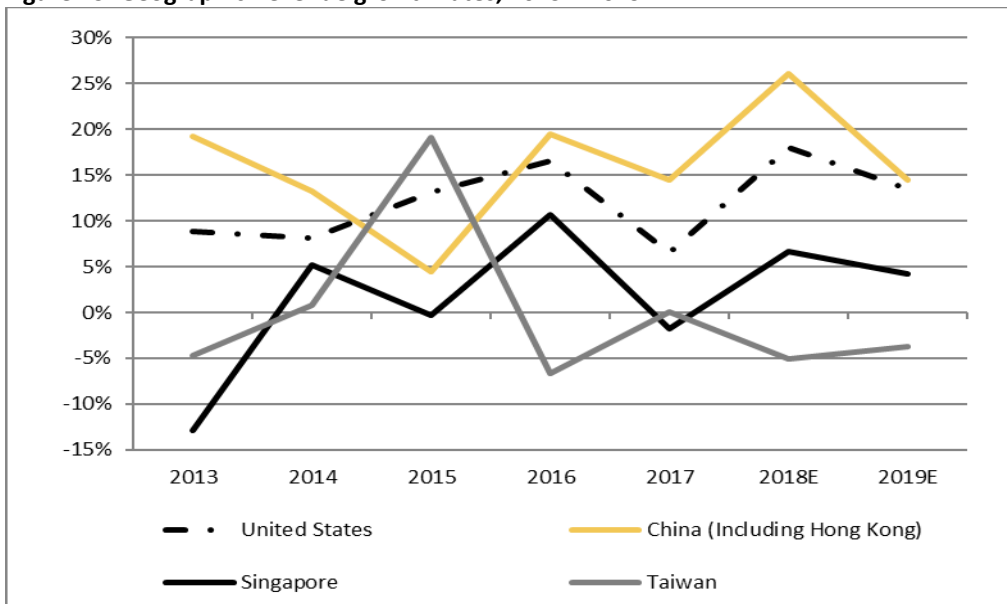
The Internet of Things Group will continue to experience growth for 2018 and 2019; however, the rate of increase will decline since the necessity of new computer chips will decline in the following high growth the last two years. The combined growth of the DCG and PSG will continue to offset the decline of the CCG in the next two and result in overall 4.5% sales growth for the company.

Figure 22: Intel segment revenues, 2013 – 2019E



Source: Company Reports, IMCP

Figure 23: Geographic Revenue growth rates, 2013 – 2019E



Source: Company reports, IMCP

Intel’s highest growth geographic segments are the United States of America and China. With China’s explosive automobile growth in the recent years and its videogame culture, it has become the company’s largest growth segment in recent years. I anticipate that with the increase in innovativeness in automobiles, China will continue to grow at a higher rate than the other geographic segments.

Return on Equity

Intel has had an unusually low ROE in 2016, but ROE recovered by 3.9% in 2017. The main reason for changes in ROE in was EBIT margin. EBIT margin fell in 2015-2016 as sales decreased and rose in 2017 as sales rebounded. Intel's asset turnover has declined as it invested for growth at a quicker rate than sales.

Figure 24: ROE breakdown, 2013 – 2019E

5-Stage SuPont	2013	2014	2015	2016	2017	2018E	2019E
EBIT / sales	23.9%	28.3%	25.7%	21.8%	28.1%	28.5%	28.5%
Sales / avg assets	0.60	0.61	0.57	0.55	0.55	0.54	0.55
Net income /EBT	79.2%	76.0%	82.2%	83.0%	82.7%	78.4%	77.3%
ROA	11.1%	12.7%	11.9%	10.0%	12.4%	11.6%	11.9%
Avg assets / avg equity	1.61	1.60	1.63	1.66	1.69	1.66	1.60
ROE	17.9%	20.3%	19.4%	16.7%	20.9%	19.3%	19.0%

Source: Company Reports

I expect ROE to decrease in the next two years to be only modestly affected by asset turnover, as INTC is grows its assets in potential growth markets that are currently in the early stages of development. I anticipate that INTC will not see the increase in ROA and ROE in the following two years.

Free Cash Flow**Figure 25: Free cash flows 2012 – 2019E**

	2012	2013	2014	2015	2016	2017	2018E	2019E
NOPAT	\$10,980	\$9,263	\$11,372	\$11,189	\$10,261	\$12,310	\$13,300	\$14,207
<i>Growth</i>		-15.6%	22.8%	-1.6%	-8.3%	20.0%	29.6%	6.8%
NWC*	6,295	7,151	8,324	7,228	11,055	7,530	12,066	14,890
Net fixed assets	52,993	60,274	64,226	63,229	77,819	93,940	96,735	102,808
Total net operating capital*	\$59,288	\$67,425	\$72,550	\$70,457	\$88,874	\$101,470	\$108,802	\$117,698
<i>Growth</i>		13.7%	7.6%	-2.9%	26.1%	14.2%	7.2%	8.2%
- Change in NWC*		856	1,173	(1,096)	3,827	(3,525)	1,011	2,824
- Change in NFA		7,281	3,952	(997)	14,590	16,121	2,795	6,072
FCFF*		\$1,126	\$6,247	\$13,282	(\$8,156)	(\$286)	\$9,493	\$5,311
<i>Growth</i>			454.9%	112.6%	-161.4%	96.5%	3423.4%	-44.1%
- After-tax interest expense	69	114	(32)	84	354	460	51	127
FCFE**		\$1,012	\$6,279	\$13,198	(\$8,510)	(\$746)	\$9,442	\$5,184
<i>Growth</i>			520.5%	110.2%	-164.5%	-91.2%	-210.9%	-45.1%
FCFF per share		\$0.23	\$1.27	\$2.80	(\$1.72)	(\$0.06)	\$2.04	\$1.16
<i>Growth</i>			462.7%	119.7%	-161.6%	-96.5%	3440.5%	-43.2%
FCFE per share		\$0.20	\$1.28	\$2.78	(\$1.80)	(\$0.16)	\$2.03	\$1.13
<i>Growth</i>			529.2%	117.2%	-164.6%	-91.1%	1372.1%	-44.3%

Source: Company Reports, IMCP

INTC's free cash flow has been volatile over the last several years. The firm sold nearly \$1 billion in both NWC and NFA in 2015. The following year the firm increased NWC by almost \$4 billion and NFA

by over \$14.5 billion. The cause for the large change in NFA was a result of the Mobileye acquisition. NWC is forecasted to fall \$4 billion in 2017 as NFA rises \$16 billion. INTC's relatively large cash balance gives it the ability to meet any funding necessary over the next few years. The firm has a remaining stock repurchase limit of \$6.8 million, or 1% of outstanding shares. I expect the firm to repurchase the remaining amount by the end of 2019. The firm has purchased \$58.2 billion since 2005.

I expect both FCF and FCFE to increase in 2018 despite a 14.2% increase in net operating capital. Share buybacks will continue in 2019, which helps to spread cash flow over fewer shares. While capital is growing, it is slower than the past while the firm has record NOPAT.

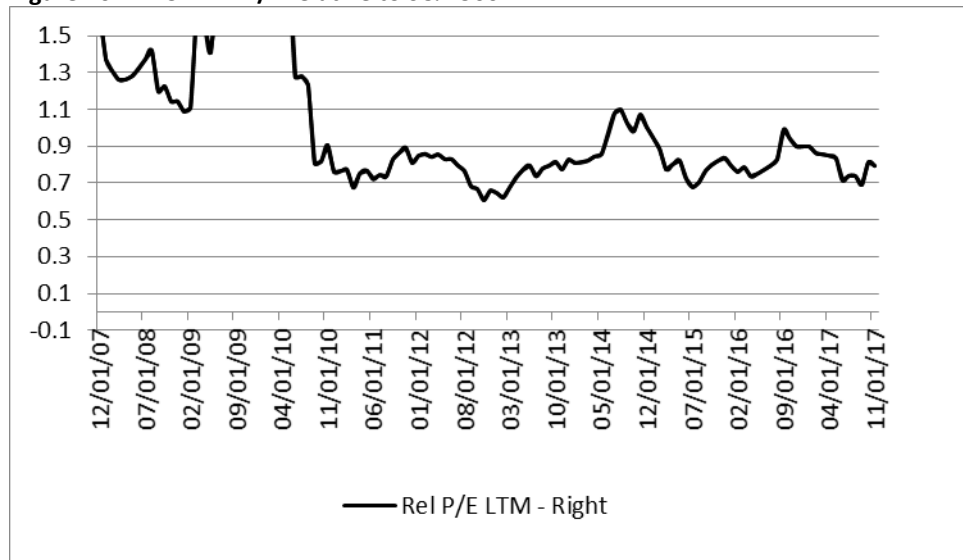
Valuation

INTC was valued using multiples and a three-stage discounting cash flow model. Based on earnings multiples, the stock is expensive relative to other firms and is worth \$46.15; however, due to the volatility of ANF's earnings the past few years, as well as the effect of recent nonrecurring expenses, this metric may be unreliable. Relative valuation shows INTC to be slightly overvalued based on its fundamentals versus those of its peers in the semiconductor industry. Price to sales valuation yielded a price of \$43.81. A detailed DCF analysis values INTC slightly lower, at \$43.71; I give this value a bit more weight because it incorporates assumptions that reflect INTC's ongoing business changes. Because of these valuations, I value the stock at \$44.00.

Trading History

INTC is currently trading relatively low compared to the previous 5 years in relation to the S&P 500. This is the result of recent earnings improvement and the fact that most analysts believe that earnings peak soon. INTC's current LTM P/E is at 15.7 compared to its five-year average of 14.6. While I expect some regression towards that number in the future, I do not believe that is likely to be the case in the near term.

Figure 26: INTC NTM P/E relative to S&P 500



Source: Factset

Assuming the firm maintains a 15.7 NTM P/E at the end of 2018, it should trade at \$18.23 by the end of the year.

- Price = P/E x EPS = 15.7 x \$2.94 = \$46.15

Discounting \$46.15 back to today at a 10.80% cost of equity (explained in Discounted Cash Flow section) yields a price of \$41.65. Given INTC's potential for earnings growth and continued profitability, this seems to be a slightly low valuation. However, this makes sense because I am less bullish about near-term earnings than consensus.

Relative Valuation

Intel is currently trading at a P/E much slightly lower than its peers, with a P/E TTM of 16.4 compared to an average of 24.7. Note that Nvidia's larger than normal P/E TTM of 49.5 drives the average up significantly. Investors are not as willing to pay a premium for INTC because they believe that there is not as much room for growth in INTC as potentially other companies such as Nvidia. INTC's P/B and P/S ratios are significantly lower than the average of the companies, but is very close to the median in both aspects. Mature semiconductor companies are already incredibly large and are not anticipated to grow very quickly, except for Nvidia.

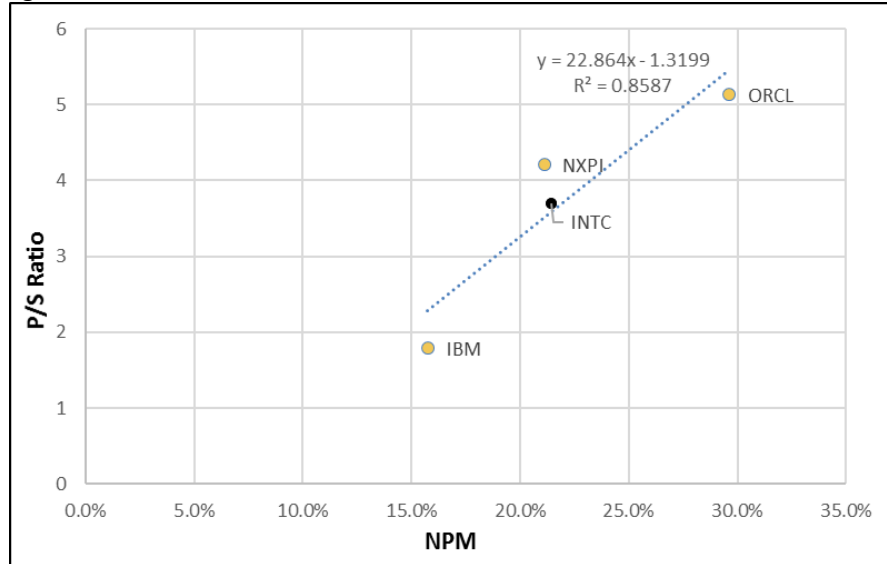
Figure 27: INTC comparable companies

Ticker	Name	Current Price	Market Value	Price Change						Earnings Growth					Beta	LT Debt/Equity	S&P Rating	LTM Dividend			
				1 day	1 Mo	3 Mo	6 Mo	52 Wk	YTD	LTG	NTM	2016	2017	2018				2019	Pst 5yr	Yield	Payout
INTC	INTEL CORP	\$45.38	\$212,378	2.1	4.9	(1.0)	24.9	26.3	(1.7)	7.8	77.7%	16.7%	19.1%	0.3%	-1.4%	1.13	36.3%	B+	2.24%	54.1%	
NXPI	NXP SEMICONDUCTORS NV	\$114.88	\$38,948	(1.1)	(3.9)	(0.5)	2.1	12.3	(1.9)	20.0	12.2%	5.7%	10.3%	11.3%		0.76	43.0%		0.00%		
ORCL	ORACLE CORP	\$49.45	\$204,703	2.0	(0.1)	0.5	1.2	20.3	4.6	8.2	31.2%	0.7%	5.9%	7.4%		1.04	104.1%	A-	1.47%	30.9%	
IBM	INTL BUSINESS MACHINES CORP	\$154.76	\$143,275	2.7	(5.1)	3.9	8.7	(14.1)	0.9	2.6	125.5%	-8.9%	1.5%	0.9%	-15.8%	1.08	226.4%	A-	3.60%	96.1%	
NVDA	NVIDIA CORP	\$241.42	\$146,301	3.8	8.3	12.7	43.4	121.9	24.8	10.1	30.0%	125.9%	65.2%	19.6%	39.9%	1.52	26.6%	B+	0.23%	11.8%	
Average			\$149,121	1.9	0.8	3.1	16.1	33.4	5.3	9.7	55.3%	#DIV/0!	28.0%	20.4%	7.9%	7.5%	1.11	87.3%		1.51%	48.2%
Median			\$146,301	2.1	(0.1)	0.5	8.7	20.3	0.9	8.2	31.2%	#NUM!	5.7%	10.3%	7.4%	-1.4%	1.08	43.0%		1.47%	42.5%
SPX	S&P 500 INDEX	\$2,699		1.3	(3.1)	4.6	9.4	15.4	0.9			0.0%	0.5%	10.2%	11.0%						

Ticker	Website	2017		P/E						2017			EV/		Sales Growth			Book		
		ROE	P/B	2015	2016	2017	TTM	NTM	2018	2019	NPM	P/S	OM	ROIC	EBIT	Current	5-yr	NTM	STM	Pst 5yr
INTC	http://www.intel.com	17.9%	2.99	15.6	17.0	22.8	12.8	14.0	14.0	21.4%	3.58	29.2%	10.5%	12.9	11.6	9.1	3.5%	3.7%	3.3%	\$15.16
NXPI	http://www.nxp.com	13.2%	2.57	17.5	19.8	17.6	15.7	17.6	15.8	21.1%	4.10	5.7%	11.3%	82.9	15.2	16.3	6.0%	5.7%	19.9%	\$44.69
ORCL	http://www.oracle.com	19.9%	3.67	14.4	17.6	21.2	16.2	17.4	16.2	29.6%	5.44	35.2%	9.9%	13.8	14.8		4.2%	4.6%		\$13.48
IBM	http://www.ibm.com	64.1%	7.30	11.1	11.3	25.2	11.2	11.2	11.1	15.7%	1.79	13.1%	10.4%	17.2	12.9		1.6%	0.0%	-5.4%	\$21.20
NVDA	http://www.nvidia.com	23.3%	23.02	98.8	79.3	50.1	38.5	59.9	50.1	21.9%	21.67	33.0%	35.4%	46.3	38.6	25.4	27.6%	11.8%	17.8%	\$10.49
Average		27.7%	7.91	31.5	29.0	27.4	18.9	24.0	21.4	22.0%	7.32	23.2%	15.5%	34.6	18.6	16.9	8.6%	5.2%	8.9%	
Median		19.9%	3.67	15.6	17.6	22.8	15.7	17.4	15.8	21.4%	4.10	29.2%	10.5%	17.2	14.8	16.3	4.2%	4.6%	10.6%	
spx	S&P 500 INDEX			17.2	18.8	22.4		20.5	18.5											

Source: Factset

Figure 28: P/S vs NPM



Source: Factset

A more thorough analysis of P/B and ROE is shown in figure 29. The calculated R-squared of the regression indicates that over 85% of a sampled firm’s P/S is explained by its NPM. Note that Nvidia is not included since its P/S is substantially higher than the groups, but with similar NPM. INTC has the second lowest P/S and second highest NPM of this grouping and according to this measure is slightly overvalued. I believe that NPM will continue to be an area of importance for investors and analysts as we begin to see investments paying off in the future.

- Estimated P/S = Estimated 2018 NPM (21.7%) x 22.864 – 1.3199= 3.6416
- Target Price = Estimated P/S (3.6416) x 2018E Sales per share(\$13.33) = \$48.54

Discounting back to the present at a 10.80% cost of equity leads to a target price of \$43.81 using this metric.

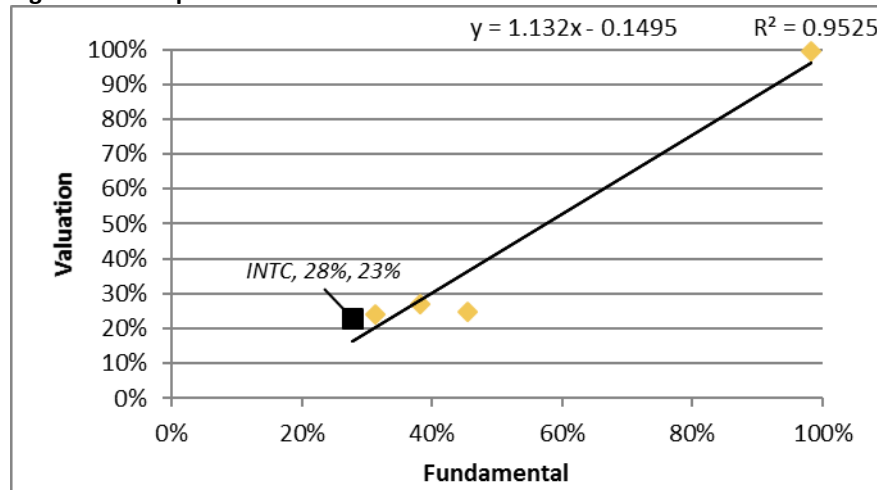
For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. An equal weighting of long term growth rate was used for fundamentals, 2017 and 2018 earnings growth, ROE, and NTM sales growth for valuation. These are then compared with equal weighted NTM P/E, current P/B, and current P/S. This resulted in a regression line which had an R-squared of 0.95. One can see that INTC is slightly above the line, so it is expensive based on its fundamentals.

Figure 29: Composite valuation, percent of range

Ticker	Name	Fundamentals					Valuation			Fund	Value	
		Weight	20%	20%	20%	20%	20%	33%	33%			33%
			LTG	2017	2018	ROE	NTM	P/E				
INTC	INTEL CORP	50%	29%	2%	28%	12%	33%	16%	21%	24%	23%	
NXPI	NXP SEMICONDUCTORS NV	100%	16%	75%	21%	-9%	37%	14%	24%	40%	25%	
ORCL	ORACLE CORP	50%	9%	49%	31%	23%	34%	18%	29%	33%	27%	
IBM	INTL BUSINESS MACHINES CORP	16%	2%	6%	100%	4%	25%	38%	10%	26%	24%	
NVDA	NVIDIA CORP	71%	100%	100%	36%	100%	100%	100%	100%	81%	100%	

Source: IMCP, Factset

Figure 30: Composite relative valuation



Source: IMCP

Discounted Cash Flow Analysis

A three stage discounted cash flow model was also used to value INTC.

For the purpose of this analysis, the company’s cost of equity was calculated to be 10.80% using the Capital Asset Pricing Model. The underlying assumptions used in calculating this rate are as follows:

- The risk free rate, as represented by the ten-year Treasury bond yield, is 2.33%.
- A ten-year beta of 1.10 was utilized since the company has higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 10.80% (2.33 + 1.10 (10.0 – 2.33)).

Stage One - The model’s first stage simply discounts fiscal years 2018 and 2019 free cash flow to equity (FCFE). These per share cash flows are forecasted to be \$1.79 and \$1.89, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of \$3.16 per share. Thus, stage one of this discounted cash flow analysis contributes \$3.16 to value.

Stage Two - Stage two of the model focuses on fiscal years 2020 to 2024. During this period, FCFE is calculated based on revenue growth, NOPAT margin and capital growth assumptions. The resulting cash flows are then discounted using the company’s 10.80% cost of equity. I assume 6.0% sales growth in 2020 through 2024 due to the payoff of current growth investing. The ratio of NWC to sales will increase from 2019 levels, and NFA turnover will rise from .84 in 2020 to .90 in 2024 as a result of increased operational efficiency as early investments begin returning higher revenue. Also, the NOPAT margin is expected to rise to 20% in 2024 from 17.6% in 2019. The increased NOPAT margin will result from sales increasing faster than assets.

Figure 31: FCFE and discounted FCFE, 2018 – 2024

	2018	2019	2020	2021	2022	2023	2024
FCFE	\$1.79	\$1.89	\$1.90	\$1.96	\$2.28	\$2.52	\$3.05
Discounted FCFE	\$1.62	\$1.54	\$1.40	\$1.31	\$1.37	\$1.36	\$1.49

Added together, these discounted cash flows total \$10.08.

Stage Three – Net income for the years 2020 – 2024 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from \$2.94 in 2018 to \$4.49 in 2024.

Figure 32: EPS estimates for 2018 – 2024

	2018	2019	2020	2021	2022	2023	2024
EPS	\$2.94	\$3.10	\$3.11	\$3.41	\$3.83	\$4.10	\$4.49

Stage three of the model requires an assumption regarding the company’s terminal price-to-earnings ratio. INTC is large and mature, but it is trying to reinvigorate growth. I believe it will be successful so I believe a market P/E of 20 is appropriate.

Given the assumed terminal earnings per share of \$4.49 and a price to earnings ratio of 20, a terminal value of \$64.16 per share is calculated. Using the 10.80% cost of equity, this number is discounted back to a present value of \$31.36.

Total Present Value – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of \$43.71 is calculated (4.10 + 8.24 + 31.36). Given INTC’s current price of \$44.43, this model indicates that the stock is slightly undervalued.

Scenario Analysis

When valuing a company it is important to take into account other factors that may cause a stock to perform either more bearish or bullish than expected. With the recent success in the stock market over the most recent recovery period, it would be safe to assume a correction in the near future. If the stock market begins to slow it would be realistic that GDP would also slow. INTC’s major operating segments and potential growth segments both rely heavily on luxury products. If instead of maintaining a 6% growth rate, the company could potentially experience slowed growth with poor economic conditions, as low as the 2% growth seen from the CCG segment in 2016.

Figure 33: Bear Case Scenario

First stage	\$4.10	Present value of first 2 year cash flow
Second stage	\$9.79	Present value of year 3-7 cash flow
Third stage	\$25.87	Present value of terminal value P/E
Value (P/E)	\$39.77	= value at beg of fiscal yr

Source: IMCP

Another possibility is that the economic climate could continue to improve with no sign of slowing down. If confidence continues to rise as well, INTC could see an increase in the spending of luxury items such as high tech automobiles and laptops. There could also be even higher than expected adoption rate of AI driving vehicles. With INTC’s current market share of advanced driver assisted systems (ADAS), the company could experience a surge in demand for its products while still having a large share of the market (70%). This could result in large growth for the second largest operating segment, DCG. Given these conditions, it would be safe to assume a 10% growth for the 3-stage model.

Figure 34: Bull Case Scenario

First stage	\$4.10	Present value of first 2 year cash flow
Second stage	\$6.41	Present value of year 3-7 cash flow
Third stage	\$37.74	Present value of terminal value P/E
Value (P/E)	\$48.26	= value at beg of fiscal yr

Source: IMCP

Business Risks

Although I have many reasons to be optimistic about Intel Corporation, there are several quality reasons why the stock could be over-valued.

Hindering of innovation:

For years, it had been standard to release new chip sets every year for notebooks, and every year there is significant change in performance from generation to generation. Due to the fast pace of technological improvements, the previous years' technology becomes quickly outdated and decreases in value alarmingly. If a new generation of computer chips is not viewed as a superior improvement to the preceding generation's it will deter people from purchasing this year's higher priced model. Intel's decreased sale volume in 2016 was made up for by an increase in price, an outcome that would be impossible to replicate year after year.

Meeting growth expectations:

Recently, Intel has made several large acquisitions. The largest of these acquisitions in recent years being the Mobileye acquisition this year. Intel has projected the market for autonomous driving semiconductors to be as large as \$70 billion by 2030. The shift to this technology could potentially take much longer; since the industry is still new, it is hard to accurately predict when and how much the industry will grow.

Inability to maintain gross margin:

One of Intel's greatest advantages has been its ability to generate a high gross margin in comparison to its peers. Intel has a large collection of its own fabs, which helps it manage costs as it does not have peers who use a fabless business model. If INTC does not continue to produce better technology and smaller chips, then it will be hard to keep leading margins.

Global economic risk:

Downturns in the world economy could adversely affect INTC's revenues. Better computers are commonly seen as luxury, so during an economic downturn consumers could switch to lower profit margin platforms. The Mobileye acquisition, and many of the corporation's technologies are seen as an expensive luxury. The Programmable Solutions Group has large exposure to this risk, as well as the Client Computing Group.

Appendix 1: Porter's Five Forces

Threat of New Entrants –Low

Currently, the ability to enter the semiconductor market is very limited. The cost to create a foundry is anywhere from \$1 billion to \$4 billion. However, many established companies are using a fabless business model, where they can simply outsource the manufacturing. Currently, it would not be feasible for a startup to use this strategy since there are very limited number of foundries available for outsourcing. However, growth of fabless companies could potentially create a need for more foundries, and if they become available, it will lower the barrier of entry.

Threat of Substitutes - Moderate

Once a new product is completed and released, it becomes very easy for other companies to reproduce the product at a lower cost. The products are protected solely by patents; depending on what is produced, a firm could only have a short period of protection before competitors are allowed to use its intellectual product.

Supplier Power - Low

There is a moderate to large number of suppliers for semiconductors. Since a few companies dominate the semiconductor industry, suppliers need to compete with each other for business. The cost of switching suppliers is also very low. These two factors remove power from the suppliers and gives that power to companies such as Intel.

Buyer Power – Low

In the B2B market, buyers make purchases in large quantities from semiconductor companies. Since there are few suppliers of specific chips, buyer power is reduced. Intel also has few to no substitutes, further weakening buyer power.

Intensity of Competition – Very High

The current market consists of several very large players. The rapid pace of technology advancement is a constant threat to any single company in the semiconductor industry. Failure to be on the edge of innovativeness alone results in substantial loss of revenues. A company lacking in innovativeness at any time will quickly experience financial stress.

Appendix 2: SWOT Analysis

Strengths	Weaknesses
High gross margins Innovative leader Efficient manufacturing	High stock based compensation diluting shares High R&D expenses High cost of creating new fabs
Opportunities	Threats
Increasingly connected world AI driving market exposure Increasing need of cloud platforms	Fall behind the curve in advancements Increased outsourcing profitability Legal problems associated with new technology

Appendix 3: Income Statement

Income Statement (in millions)								
Items	2012	2013	2014	2015	2016	2017	2018E	2019E
Sales	\$53,341	\$52,708	\$55,870	\$55,355	\$59,387	\$62,023	\$62,054	\$65,949
Direct costs	20,190	21,187	20,261	20,676	23,196	25,831	23,617	25,033
Gross Margin	33,151	31,521	35,609	34,679	36,191	36,192	38,437	40,915
SG&A, R&D, and other	18,278	18,910	19,808	20,467	23,255	23,256	24,164	25,417
EBIT	14,873	12,611	15,801	14,212	12,936	12,936	14,272	15,498
Interest	94	(151)	43	(105)	(444)	(443)	(5)	(169)
EBT	14,779	12,762	15,758	14,317	13,380	13,379	14,277	15,667
Taxes	3,868	2,991	4,097	2,792	2,620	2,620	3,426	3,917
Net income	10,911	9,771	11,661	11,525	10,760	10,759	10,851	11,750
Basic Shares	4,996.0	4,970.0	4,730.0	4,742.0	4,901.0	4,902.0	4,827.1	4,759.1
EPS	\$2.18	\$1.97	\$2.47	\$2.43	\$2.20	\$2.19	\$2.25	\$2.47
DPS	\$0.87	\$0.90	\$0.93	\$0.96	\$1.00	\$1.00	\$1.06	\$1.13

Appendix 4: Balance Sheet

Balance Sheet (in millions)								
Item	2012	2013	2014	2015	2016	2017	2018E	2019E
Cash	8,478	5,674	2,561	15,308	5,560	9,070	1,546	2,907
Operating assets ex cash	18,881	20,438	22,739	20,240	26,723	24,080	29,166	33,063
Operating assets	27,359	26,112	25,300	35,548	32,283	33,150	30,712	35,970
Operating liabilities	12,586	13,287	14,415	13,012	15,668	16,550	17,099	18,173
NOWC	14,773	12,825	10,885	22,536	16,615	16,600	13,612	17,797
NOWC ex cash (NWC)	6,295	7,151	8,324	7,228	11,055	7,530	12,066	14,890
NFA	52,993	60,274	64,226	63,229	77,819	93,940	96,735	102,808
<i>Invested capital</i>	<i>\$67,766</i>	<i>\$73,099</i>	<i>\$75,111</i>	<i>\$85,765</i>	<i>\$94,434</i>	<i>\$110,540</i>	<i>\$110,348</i>	<i>\$123,874</i>
Marketable securities	3,999	5,972	2,430	2,682	3,225	-	3,768	4,020
<i>Total assets</i>	<i>\$84,351</i>	<i>\$92,358</i>	<i>\$91,956</i>	<i>\$101,459</i>	<i>\$113,327</i>	<i>\$127,090</i>	<i>\$131,215</i>	<i>\$142,797</i>
Short-term and long-term debt	\$13,448	\$13,446	\$13,711	\$22,670	\$25,283	\$31,640	\$28,242	\$31,201
Other liabilities	7,114	7,369	7,053	3,795	5,268	7,090	8,912	10,734
Debt/equity-like securities	-	-	-	-	-	-	-	-
Equity	51,203	58,256	56,777	61,982	67,108	71,810	76,962	82,690
<i>Total supplied capital</i>	<i>\$71,765</i>	<i>\$79,071</i>	<i>\$77,541</i>	<i>\$88,447</i>	<i>\$97,659</i>	<i>\$110,540</i>	<i>\$114,116</i>	<i>\$124,625</i>
<i>Total liabilities and equity</i>	<i>\$84,351</i>	<i>\$92,358</i>	<i>\$91,956</i>	<i>\$101,459</i>	<i>\$113,327</i>	<i>\$127,090</i>	<i>\$131,215</i>	<i>\$142,797</i>

Appendix 5: Sales Forecast

Sales (in millions)								
Items	2012	2013	2014	2015	2016	2017	2018E	2019E
Sales	53,341	52,708	55,870	55,355	59,387	62,023	64,808	68,876
<i>Growth</i>		-1.2%	6.0%	-0.9%	7.3%	4.4%	4.5%	6.3%
Operating Segments								
CCG	34,688	33,270	34,872	32,219	32,908	33,661	32,250	32,895
<i>Growth</i>		-4.1%	4.8%	-7.6%	2.1%	2.3%	-2.0%	2.0%
<i>% of sales</i>	65.0%	63.1%	62.4%	58.2%	55.4%	54.3%	49.8%	47.8%
DCG	11,219	12,187	14,396	15,981	17,236	18,562	20,418	22,460
<i>Growth</i>		8.6%	18.1%	11.0%	7.9%	7.7%	10.0%	10.0%
<i>% of sales</i>	21.0%	23.1%	25.8%	28.9%	29.0%	29.9%	31.5%	32.6%
IoT	1,600	1,801	2,142	2,298	2,638	3,152	3,530	4,060
<i>Growth</i>	0	0.0%	18.9%	7.3%	14.8%	19.5%	12.0%	15.0%
<i>% of sales</i>	3.0%	3.4%	3.8%	4.2%	4.4%	5.1%	5.4%	6.0%
NSG			2,146	2,597	2,576	3,349	3,684	3,868
<i>Growth</i>				21.0%	-0.8%	30.0%	10.0%	5.0%
<i>% of sales</i>			3.8%	4.7%	4.3%	5.4%	5.7%	5.6%
ISecG			2,010	1,985	2,161	2,257	2,257	2,257
<i>Growth</i>				-1.2%	8.9%	4.4%	0.0%	0.0%
<i>% of sales</i>			3.6%	3.6%	3.6%	3.6%	3.5%	3.3%
PSG					1,669	2,053	2,669	3,336
<i>Growth</i>					-	23%	30%	25.0%
<i>% of sale</i>					2.8%	3.3%	4.1%	4.8%
Geographic Segments								
United States	8,348	9,091	9,828	11,121	12,957	13,800	15,295	17,357
<i>Growth</i>		8.9%	8.1%	13.2%	16.5%	6.5%	18.0%	13.5%
<i>% of sales</i>	15.7%	17.2%	17.6%	20.1%	21.8%	22.3%	23.6%	25.2%
China (Including Hong Kong)	8,299	9,890	11,197	11,697	13,977	16,003	17,628	20,181
<i>Growth</i>		19.2%	13.2%	4.5%	19.5%	14.5%	26.1%	14.5%
<i>% of sales</i>	15.6%	18.8%	20.0%	21.1%	23.5%	25.8%	27.2%	29.3%
Singapore	12,622	10,997	11,573	11,544	12,780	12,550	13,623	14,188
<i>Growth</i>		-12.9%	5.2%	-0.3%	10.7%	-1.8%	6.6%	4.2%
<i>% of sales</i>	23.7%	20.9%	20.7%	20.9%	21.5%	20.2%	21.0%	20.6%
Taiwan	9,327	8,888	8,955	10,661	9,953	9,954	9,445	9,096
<i>Growth</i>		-4.7%	0.8%	19.1%	-6.6%	0.0%	-5.1%	-3.7%
<i>% of sales</i>	17.5%	16.9%	16.0%	19.3%	16.8%	16.0%	14.6%	13.2%
Other	14,745	13,842	14,317	10,350	9,720	9,721	8,748	7,961
<i>Growth</i>		-6.1%	3.4%	-27.7%	-6.1%	0.0%	-10.0%	-9.0%
<i>% of sales</i>	27.6%	26.3%	25.6%	18.7%	16.4%	15.7%	13.5%	11.6%

Appendix 6: Ratios

Ratios	2012	2013	2014	2015	2016	2017	2018E	2019E
Profitability								
Gross margin	62.1%	59.8%	63.7%	62.6%	60.9%	61.7%	62.5%	63.0%
Operating (EBIT) margin	27.9%	23.3%	27.5%	25.3%	21.7%	28.0%	27.0%	27.5%
Net profit margin	20.5%	18.3%	20.9%	20.6%	17.4%	22.3%	21.1%	21.1%
Activity								
NFA (gross) turnover		0.93	0.90	0.87	0.84	0.72	0.74	0.69
Total asset turnover		0.60	0.61	0.57	0.55	0.52	0.53	0.50
Liquidity								
Op asset / op liab	2.17	1.97	1.76	2.73	2.06	2.00	1.80	1.98
NOWC Percent of sales		26.2%	21.2%	30.2%	33.0%	26.8%	23.3%	22.8%
Solvency								
Debt to assets	15.9%	14.6%	14.9%	22.3%	22.3%	24.9%	21.5%	21.8%
Debt to equity	26.3%	23.1%	24.1%	36.6%	37.7%	44.1%	36.7%	37.7%
Other liab to assets	8.4%	8.0%	7.7%	3.7%	4.6%	5.6%	6.8%	7.5%
Total debt to assets	24.4%	22.5%	22.6%	26.1%	27.0%	30.5%	28.3%	29.4%
Total liabilities to assets	39.3%	36.9%	38.3%	38.9%	40.8%	43.5%	41.3%	42.1%
Debt to EBIT	0.90	1.09	0.89	1.62	1.96	1.82	1.61	1.65
EBIT/interest	158.22	81.40	(356.91)	133.35	29.00	26.74	259.89	112.31
Debt to total net op capital	19.8%	18.4%	18.3%	26.4%	26.8%	28.6%	25.6%	25.2%
ROIC								
NOPAT to sales	20.6%	17.6%	20.4%	20.2%	17.3%	19.8%	20.5%	20.6%
Sales to NWC		7.84	7.22	7.12	6.50	6.68	5.61	5.11
Sales to NFA		0.93	0.90	0.87	0.84	0.72	0.74	0.69
Sales to IC ex cash		0.83	0.80	0.77	0.75	0.65	0.66	0.61
Total ROIC ex cash		14.6%	16.2%	15.6%	12.9%	12.9%	13.5%	12.5%
ROE								
5-stage								
EBIT / sales		23.3%	27.5%	25.3%	21.7%	28.0%	27.0%	27.5%
Sales / avg assets		0.60	0.61	0.57	0.55	0.52	0.53	0.50
EBT / EBIT		98.8%	100.3%	99.3%	96.6%	96.3%	99.6%	99.1%
Net income / EBT		79.2%	76.0%	82.2%	83.0%	82.7%	78.4%	77.3%
ROA		10.9%	12.7%	11.8%	9.6%	11.5%	11.2%	10.6%
Avg assets / avg equity		1.61	1.60	1.63	1.66	1.73	1.70	1.72
ROE		17.6%	20.3%	19.2%	16.0%	19.9%	19.0%	18.2%
3-stage								
Net income / sales		18.3%	20.9%	20.6%	17.4%	22.3%	21.1%	21.1%
Sales / avg assets		0.60	0.61	0.57	0.55	0.52	0.53	0.50
ROA		10.9%	12.7%	11.8%	9.6%	11.5%	11.2%	10.6%
Avg assets / avg equity		1.61	1.60	1.63	1.66	1.73	1.70	1.72
ROE		17.6%	20.3%	19.2%	16.0%	19.9%	19.0%	18.2%
Payout Ratio		46.6%	37.7%	39.9%	47.7%	35.6%	37.5%	37.1%
Retention Ratio		53.4%	62.3%	60.1%	52.3%	64.4%	62.5%	62.9%
Sustainable Growth Rate		9.4%	12.7%	11.6%	8.4%	12.8%	11.9%	11.4%

Appendix 7:

3-stage DCF Model

	Year						
	1	2	3	4	5	6	7
	First Stage			Second Stage			
Cash flows	2018	2019	2020	2021	2022	2023	2024
<i>Sales Growth</i>	4.5%	6.3%	6.0%	6.0%	6.0%	6.0%	6.0%
<i>NOPAT / S</i>	21.7%	21.4%	20.0%	20.5%	21.5%	21.5%	22.0%
<i>S / NWC</i>	5.37	4.63	4.70	4.71	4.73	4.74	4.70
<i>S / NFA (EOY)</i>	0.78	0.82	0.84	0.85	0.87	0.88	0.90
<i>S / IC (EOY)</i>	0.68	0.70	0.71	0.72	0.73	0.74	0.76
<i>ROIC (EOY)</i>	14.7%	14.9%	14.2%	14.8%	15.7%	16.0%	16.6%
<i>ROIC (BOY)</i>		15.4%	14.8%	15.5%	16.4%	16.7%	17.3%
<i>Share Growth</i>		-1.5%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%
Sales	\$62,054	\$65,949	\$69,906	\$74,100	\$78,546	\$83,259	\$88,254
NOPAT	\$13,441	\$14,097	\$13,981	\$15,190	\$16,887	\$17,901	\$19,416
<i>Growth</i>		4.9%	-0.8%	8.7%	11.2%	6.0%	8.5%
- Change in NWC	498	2704	617	843	891	941	1229
<i>NWC EOY</i>	11553	14256	14874	15716	16607	17549	18777
<i>Growth NWC</i>		23.4%	4.3%	5.7%	5.7%	5.7%	7.0%
- Chg NFA	2000	384	3235	3739	3571	3865	3448
<i>NFA EOY</i>	79,819	80,203	83,438	87,176	90,747	94,612	98,060
<i>Growth NFA</i>		0.5%	4.0%	4.5%	4.1%	4.3%	3.6%
Total inv in op cap	2498	3088	3852	4581	4462	4806	4677
Total net op cap	91372	94459	98311	102893	107354	112161	116838
FCFF	\$10,943	\$11,009	\$10,129	\$10,609	\$12,426	\$13,094	\$14,739
<i>% of sales</i>	17.6%	16.7%	14.5%	14.3%	15.8%	15.7%	16.7%
<i>Growth</i>		0.6%	-8.0%	4.7%	17.1%	5.4%	12.6%
- Interest (1-tax rate)	-4	-127	-134	-142	-151	-160	-169
<i>Growth</i>		3466.7%	6.0%	6.0%	6.0%	6.0%	6.0%
+ Net new debt	2959	2959	1872	1984	2103	2230	2363
Debt	28242	31201	33073	35057	37160	39390	41753
<i>Debt / tot net op capital</i>	30.9%	33.0%	33.6%	34.1%	34.6%	35.1%	35.7%
FCFE w/o debt	\$10,947	\$11,135	\$10,263	\$10,751	\$12,576	\$13,254	\$14,908
<i>% of sales</i>	17.6%	16.9%	14.7%	14.5%	16.0%	15.9%	16.9%
<i>Growth</i>		1.7%	-7.8%	4.8%	17.0%	5.4%	12.5%
/ No Shares	4656.1	4588.1	4,542.2	4,496.8	4,451.8	4,407.3	4,363.2
FCFE	\$2.35	\$2.43	\$2.26	\$2.39	\$2.82	\$3.01	\$3.42
<i>Growth</i>		3.2%	-6.9%	5.8%	18.2%	6.5%	13.6%
* Discount factor	0.90	0.82	0.74	0.66	0.60	0.54	0.49
Discounted FCFE	\$2.12	\$1.98	\$1.66	\$1.59	\$1.69	\$1.63	\$1.67
	Third Stage						
Terminal value P/E							
Net income	\$13,444	\$14,223	\$14,648	\$16,512	\$19,041	\$20,945	\$23,570
<i>% of sales</i>	21.7%	21.6%	20.2%	20.7%	21.7%	21.7%	22.2%
EPS	\$2.89	\$3.10	\$3.22	\$3.67	\$4.28	\$4.75	\$5.40
<i>Growth</i>		7.4%	4.0%	13.9%	16.5%	11.1%	13.7%
Terminal P/E							14.29
* Terminal EPS							\$5.40
Terminal value							\$77.21
* Discount factor							0.49
Discounted terminal value							\$37.74
	Summary						
First stage	\$4.10	Present value of first 2 year cash flow					
Second stage	\$6.41	Present value of year 3-7 cash flow					
Third stage	\$37.74	Present value of terminal value P/E					
Value (P/E)	\$48.26	= value at beg of fiscal yr 2018					