

illumina

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Recommendation

BUY

Market Price: \$321.22

Target Range: \$283.45 – 363.92

DCF Valuation: \$373.80

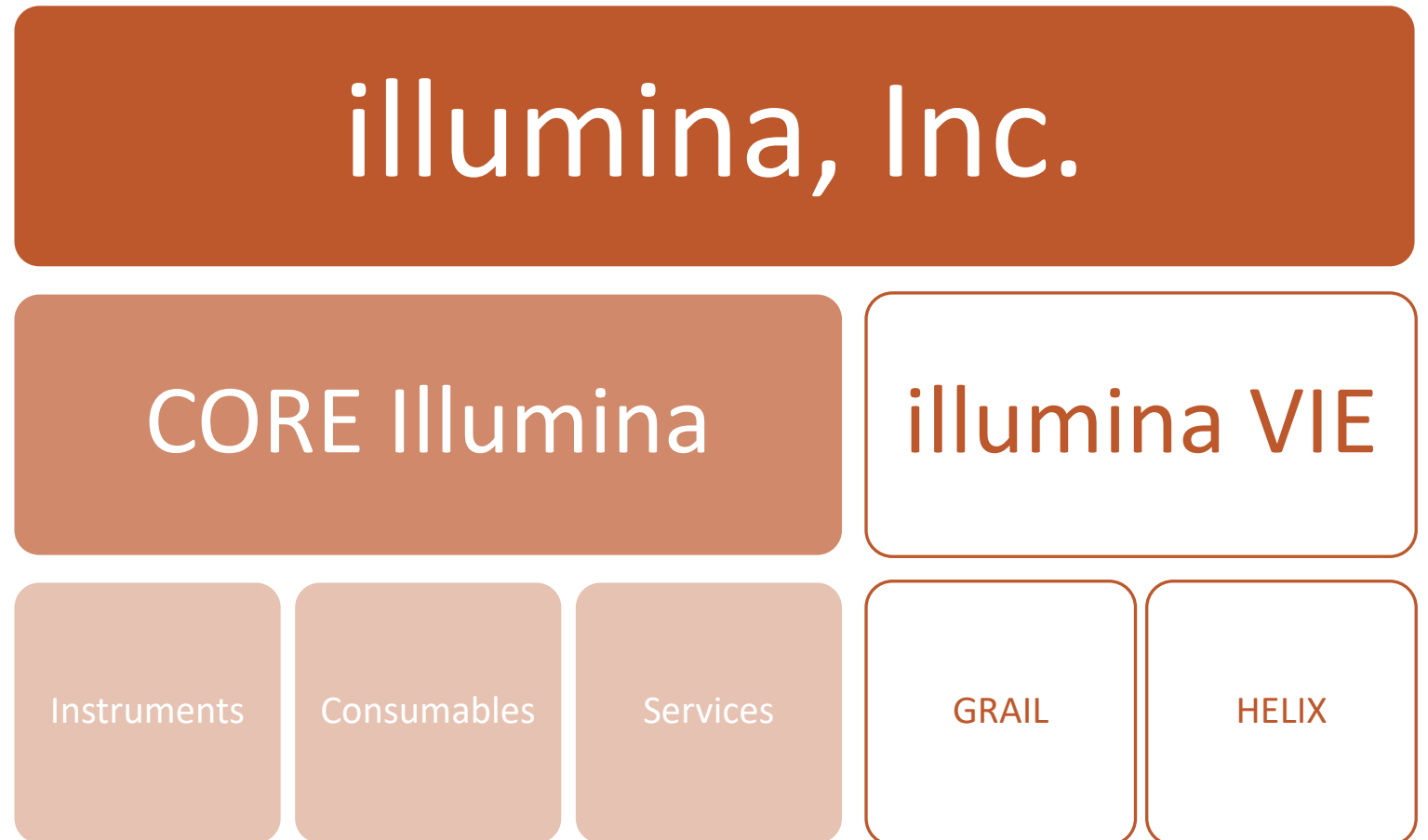
- Strong Growth
- Market Disruptor
- Demand for Gene Therapy

DCF Sensitivity Table

		WACC		
		10.50%	11.00%	11.50%
Growth	2.75%	363.92	356.1	348.49
	3.00%	337.87	330.23	323.20
	3.50%	295.87	289.58	283.45

Background

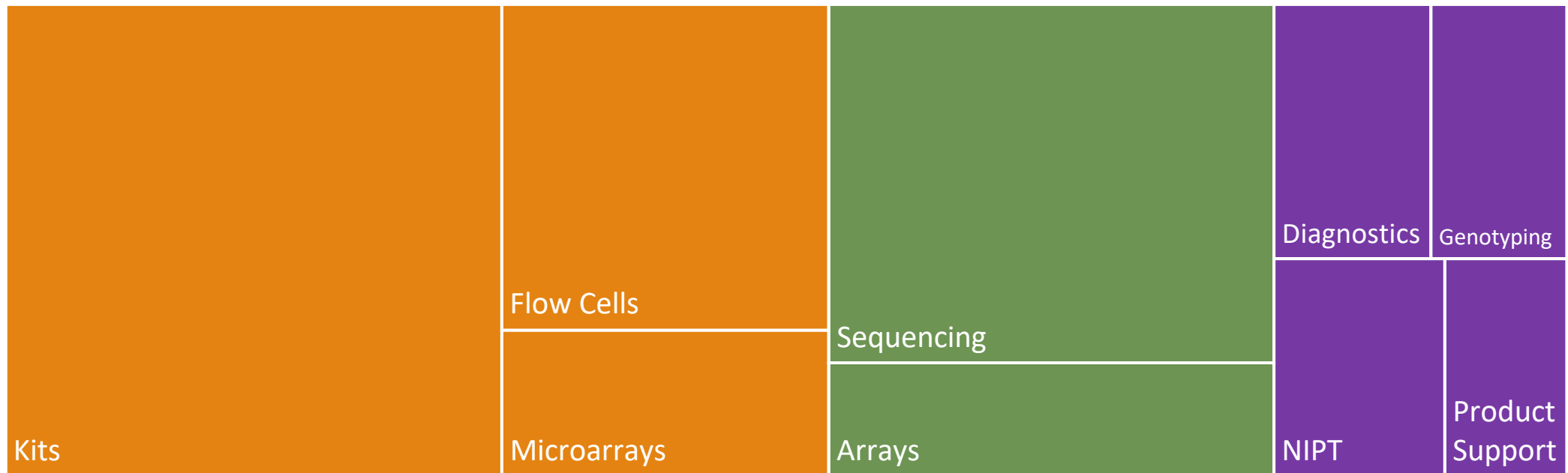
- Founded in 2006, San Diego, CA
- Sector - Health
- Industry - Life Sciences Tools & Services
- Business to Business
- New - Direct to Consumer



Background: What does illumina do?

illumina Core Business Segments

■ Consumables ■ Services ■ Instruments



The Future of DNA Sequencing

- US Biotech Research funding pegged to 5.56% of total funding for next 10 years.
- DNA Sequencing is becoming part healthcare in developed countries.
- As more DNA is collected companies are able to create targeted diagnostic and gene therapy solutions.

Services

Genetic Testing & Diagnosis

Test Type

Diagnostic

Prenatal & Newborn
- NIPT

Carrier Testing

Genotyping: Whole
Genome Testing
(WGS)

Application

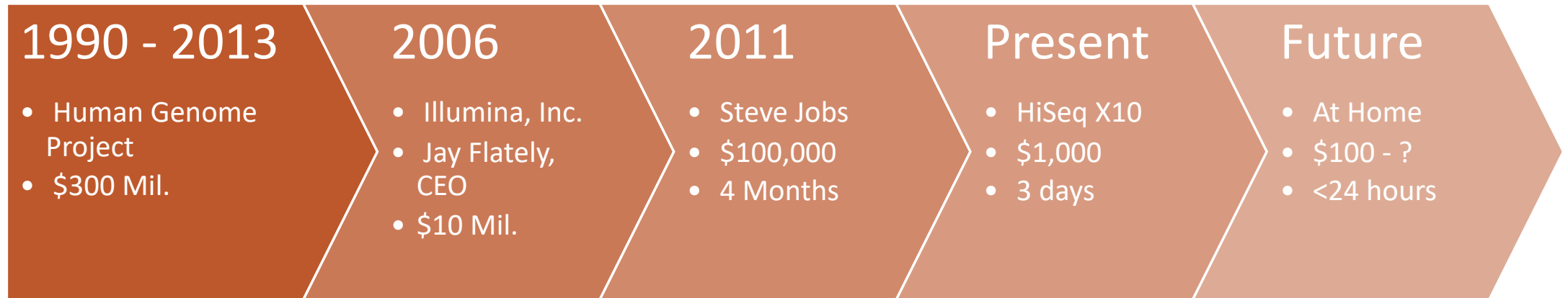
Cancer Diagnosis

Genetic Disease
Detection

Cardiovascular Disease
- Jay Flately

ancestry.com or
23andme.com or
Steve Jobs

DNA Sequencing Timeline



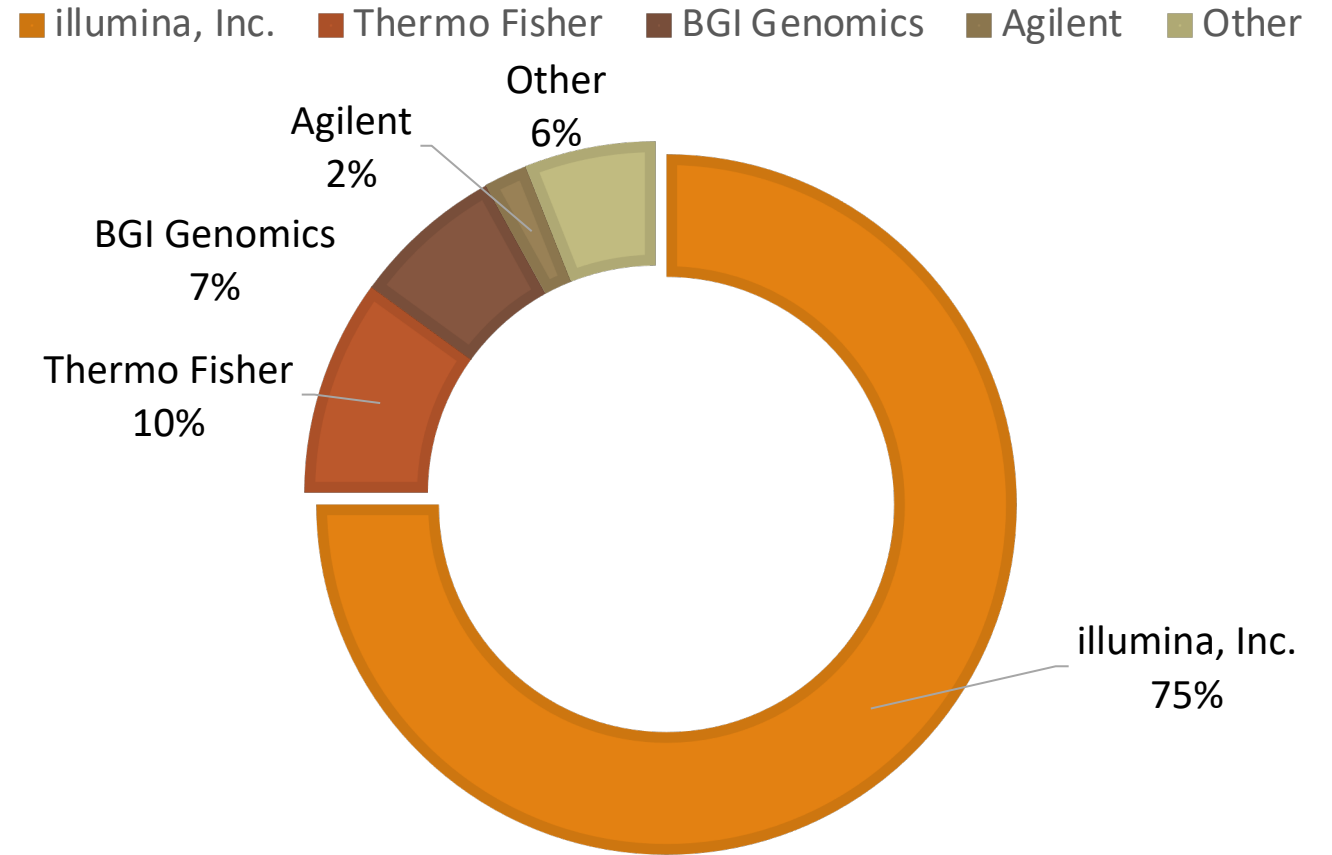
[Want] to democratize genetic information by making the tools exponentially cheaper and easier to use.”

- Jay Flatley
Former CEO

Strengths

- Existing Customers
 - 95% of ALL gene sequencing done using illumina's instruments
- Direct to Consumer
- Speed and Accuracy – NovaSeq

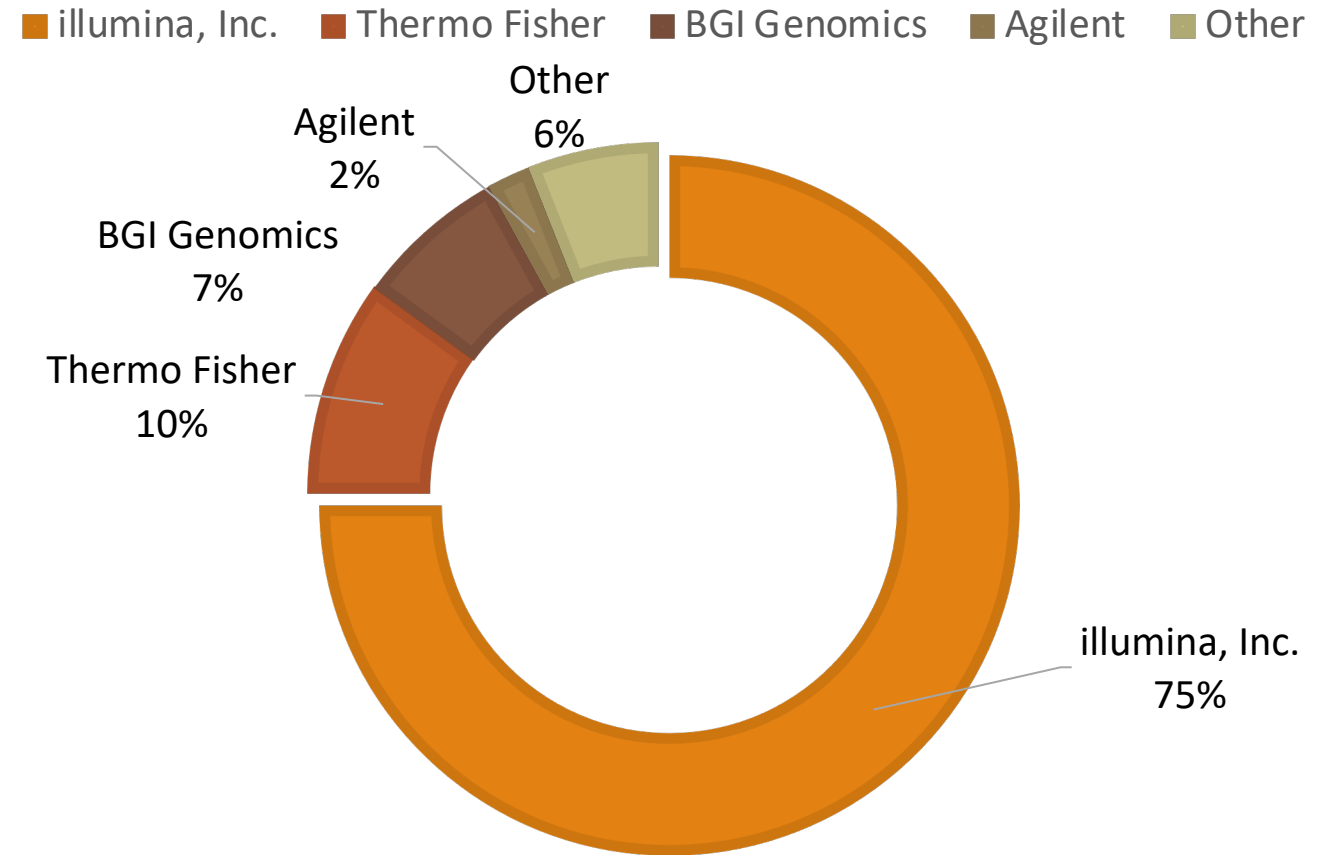
Market Share



Weaknesses

- Legal Actions & M&A
- Direct to Consumer
- Cannibalizing their own product

Market Share



Recommendation & Key Ratios

BUY

- Strong Growth
- Market Disruptor
- Demand for Gene Therapy

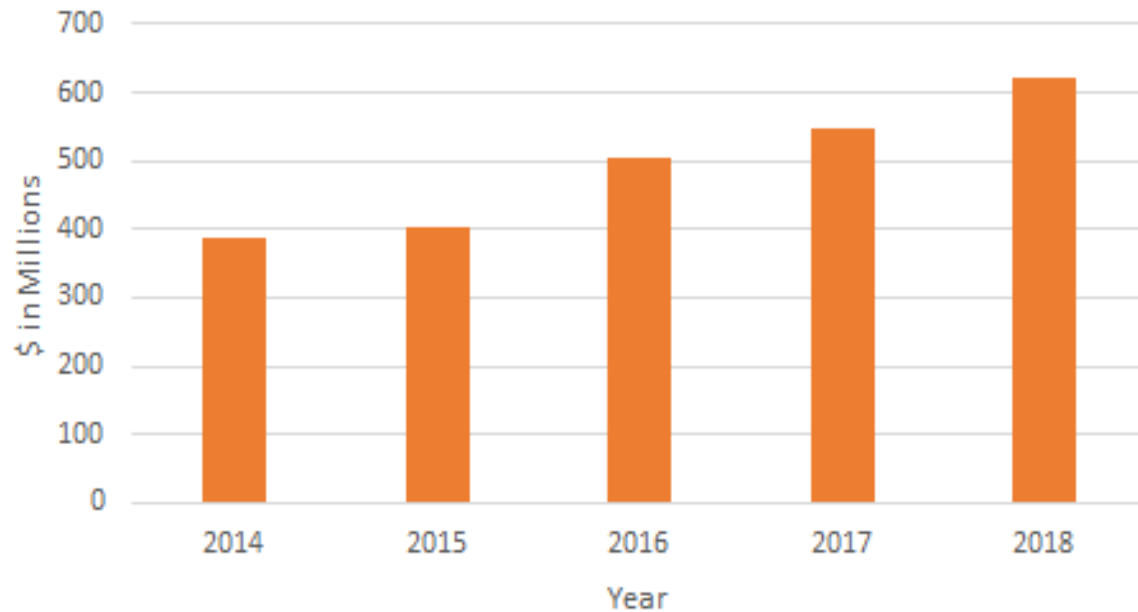
Key Ratios

- Return on Research Capital
- Return on Equity
- Price Earning Ratio

Weaknesses

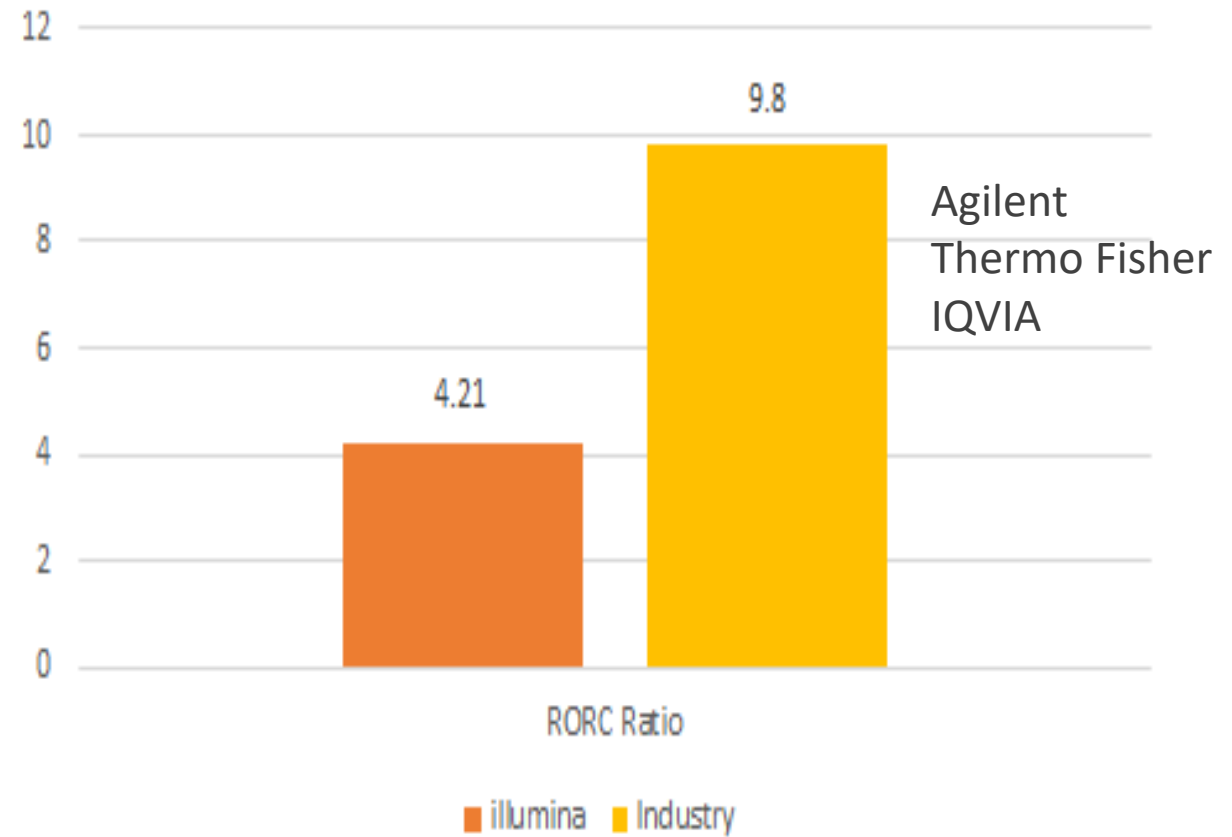
- Profits decreased from previous year
- Transition to innovative culture
- Smaller company

illumina R&D Cost by Year

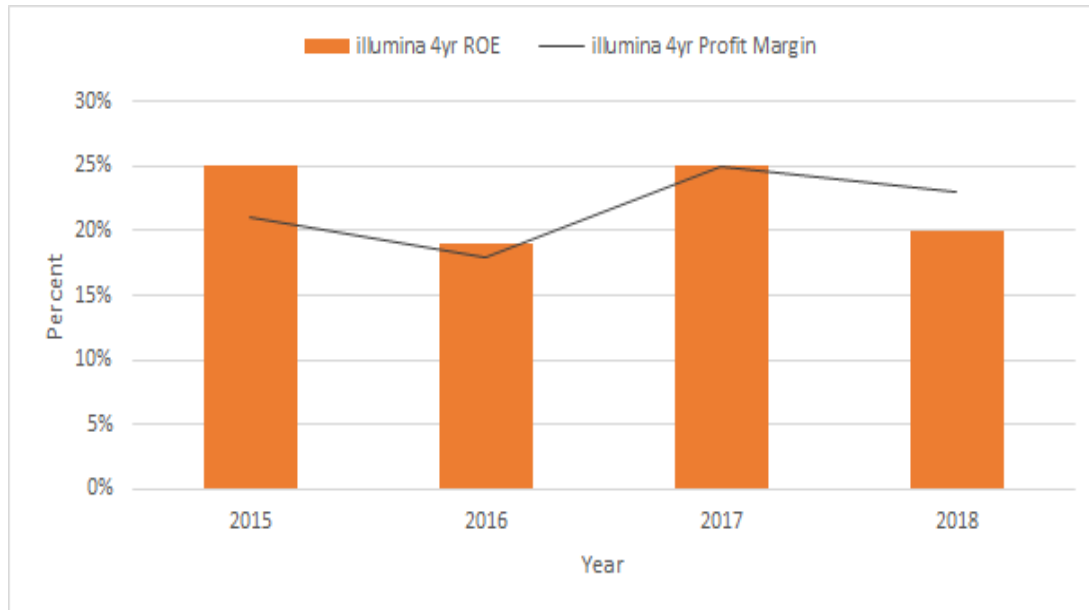


RORC Ratio

illumina vs. Industry 2018

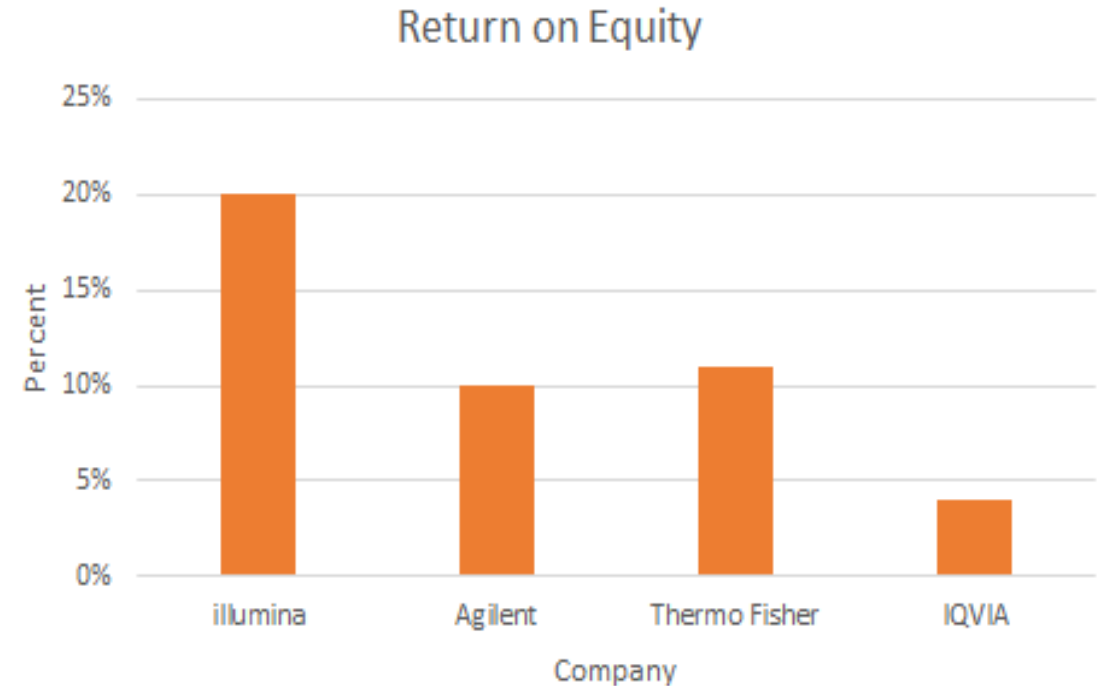


Strengths

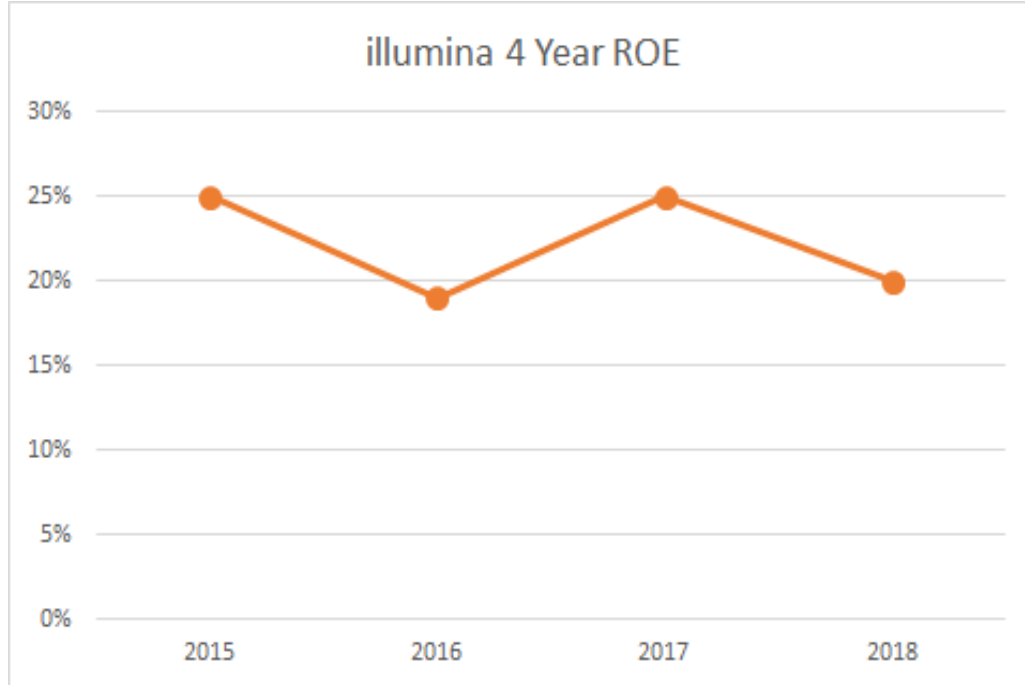


- Low Debt
- Profit Margin consistent
- Asset Turnover Ratio is low
 - Consolidating Business, spun off GRAIL and HELIX

ROE Ratio



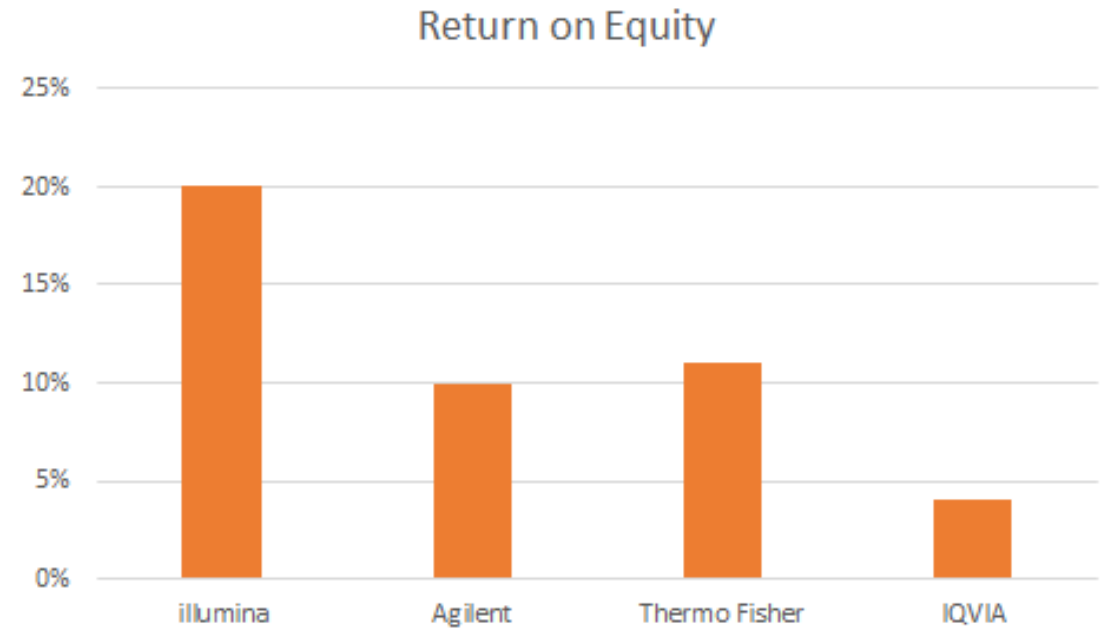
Weaknesses



Spun off
Helix & Grail

Low Debt
Ratio

ROE Ratio



Decreasing
Profit Margin

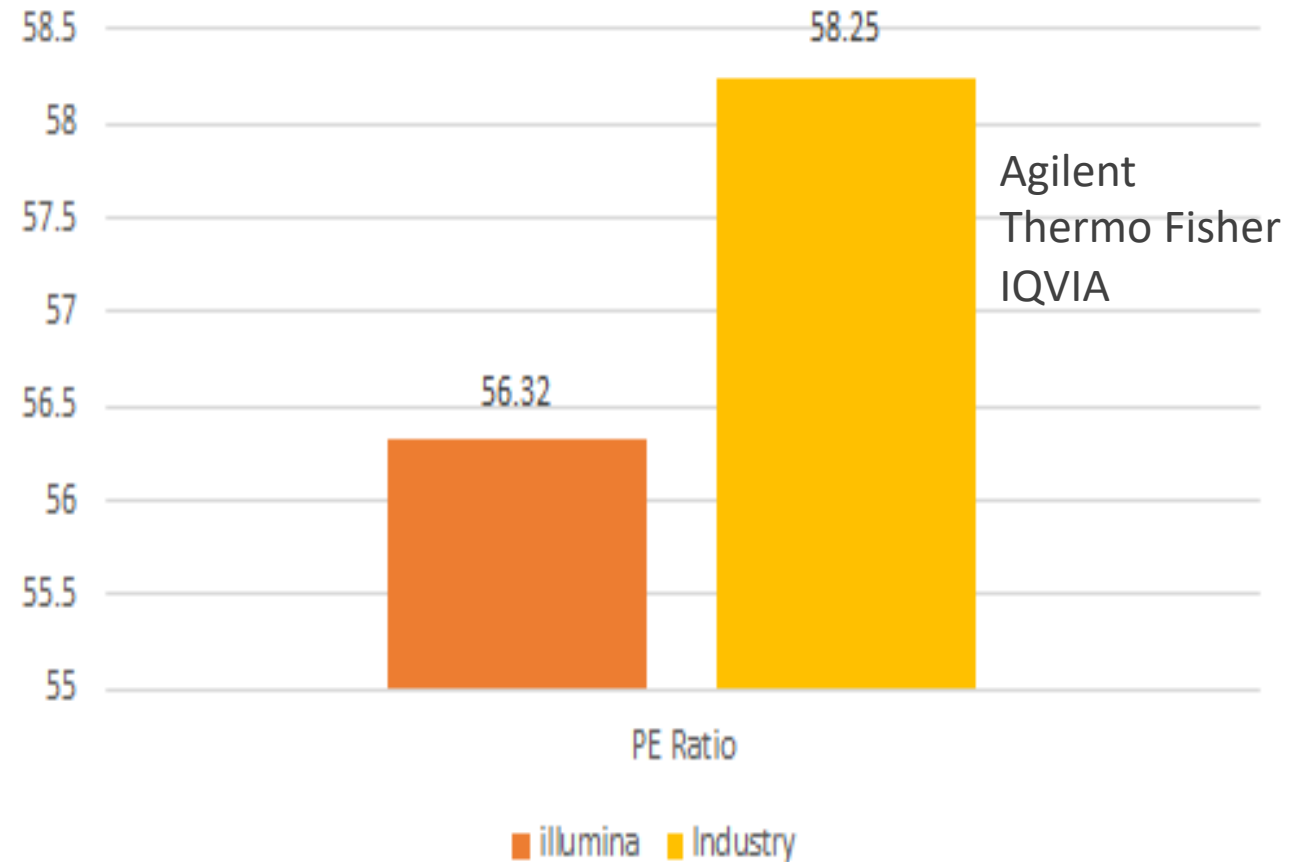
Strengths

- Room to grow
 - Potential to exceed industry average
- Healthy Growth

Company	PE Ratio
Thermo Fisher	41
Agilent	51
illumina	56
IQVIA	123

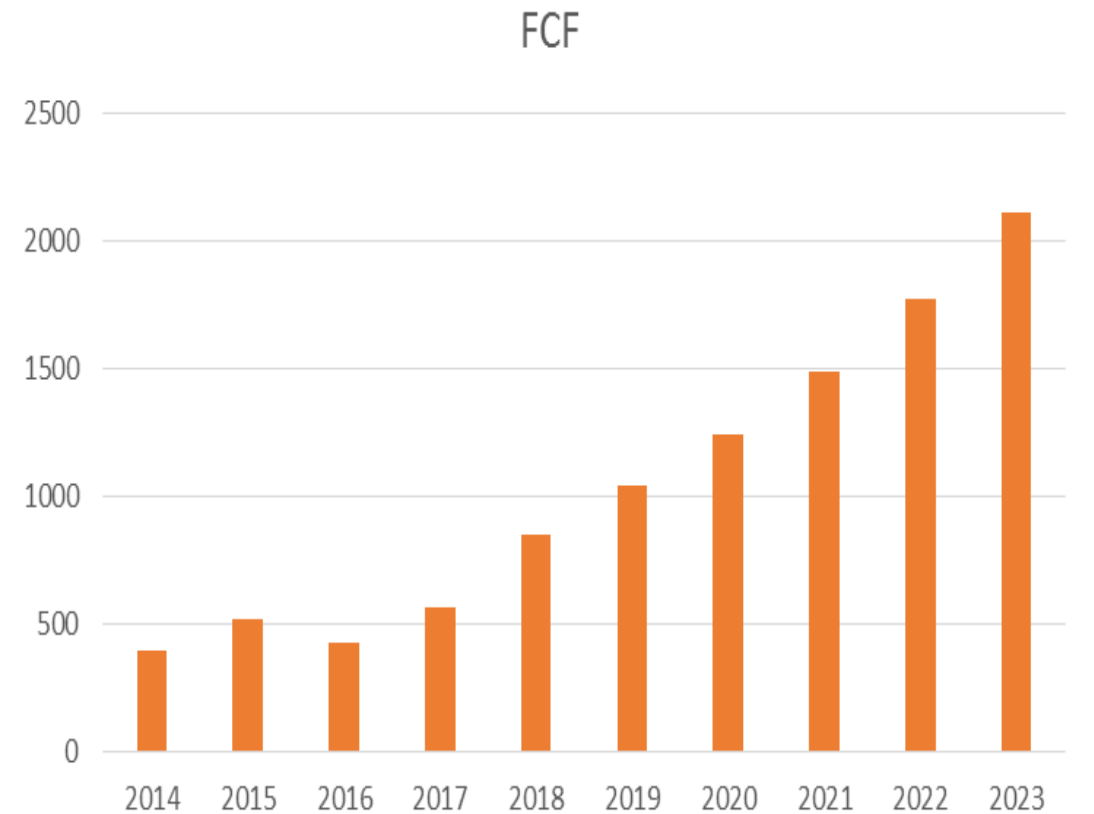
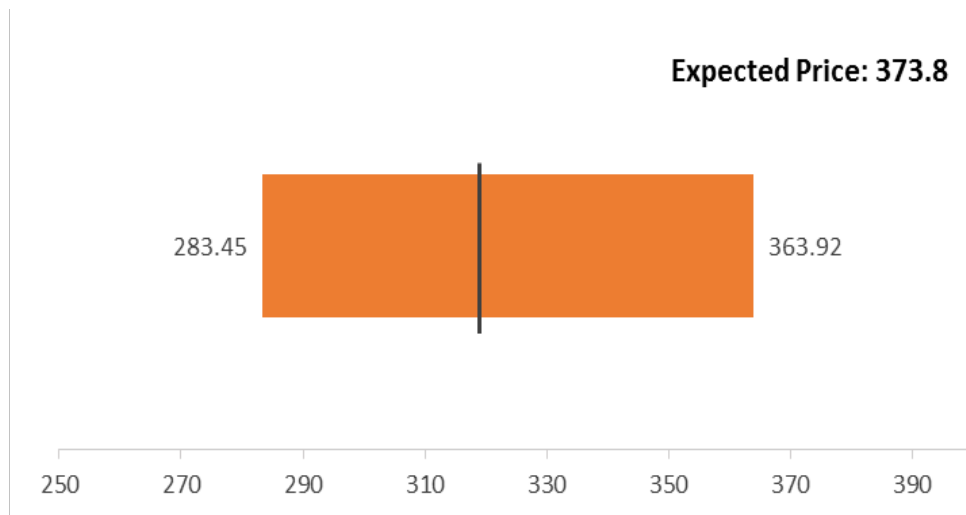
P/E Ratio

Illumina vs. Industry P/E Ratio 2018



Discounted Cash Flows

- Average Growth Rate: 15%
- Long-Term Growth Rate: 3%
- WACC: 11.34%



Weighted Average Cost of Capital

$$WACC = w_D r_D (1 - t) + w_S r_S = 11.34\%$$

Equity

○ $W_S: 75\%$

○ $r_S: 14.06\%$

○ $CAPM = r_{RF} + \beta (r_m - r_{RF})$
 $= 3\% + 1.2 (9.59\%) = 14.06\%$

Debt

○ $W_D: 25\%$

○ $r_D: 3.379\%$

Bond	Principle	Weight	Int. Rate
2019	633	33.32%	2.90%
2021	517	27.21%	3.50%
2023	750	39.47%	3.70%
1,900			3.38%

Multiples Valuation

Multiples Method: \$310

- EPS: \$ 5.32
- Average PE Ratio: 58.26

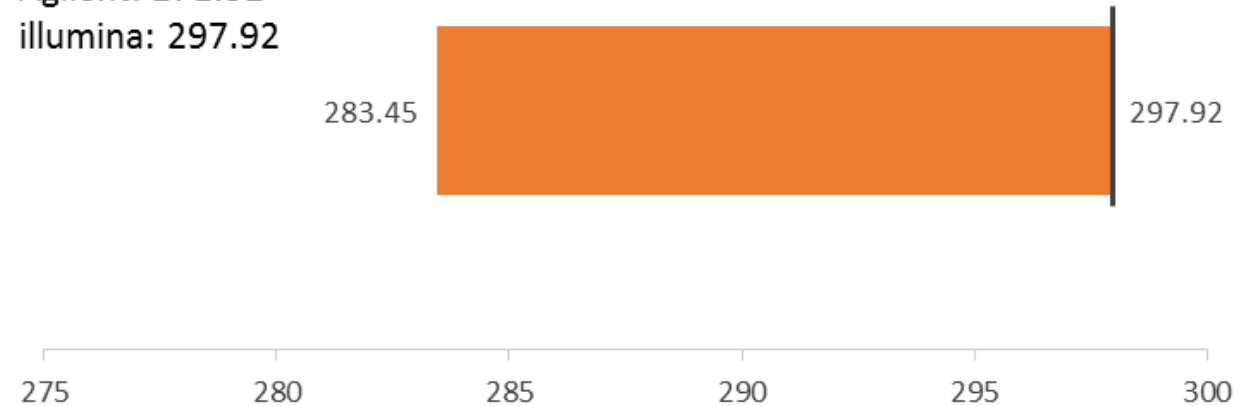
Company	PE Ratio	Valuation
Genomic Health	18	95.76
Thermo Fisher	41	218.12
Agilent	51	271.32
illumina	56	297.92
IQVIA	123	654.36

Competitors:

Thermo Fisher: 218.12

Agilent: 271.32

illumina: 297.92



Multiples Evaluation Range

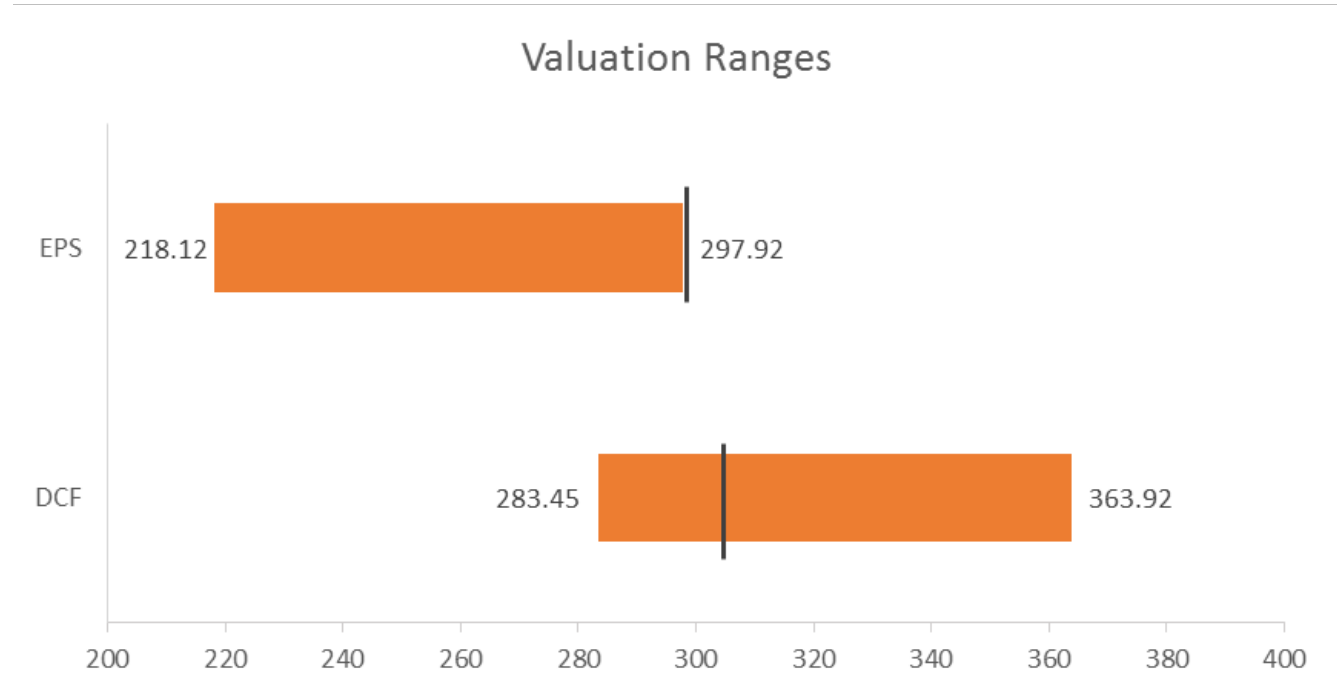
Valuation Summary

BUY

Market Price: \$321.22

Target Range: \$322.14 – 415.50

DCF Valuation: \$373.80



Appendix

SUMMARY OUTPUT				1yr						SUMMARY OUTPUT				5yr					
Regression Statistics										Regression Statistics									
Multiple R	0.592684									Multiple R	0.432752								
R Square	0.351274									R Square	0.187275								
Adjusted R Square	0.286402									Adjusted R	0.106002								
Standard Error	0.079958									Standard E	0.054525								
Observations	12									Observatio	12								
ANOVA										ANOVA									
	df	SS	MS	F	Significance F						df	SS	MS	F	Significance F				
Regression	1	0.034619	0.034619	5.414833	0.042267					Regression	1	0.006851	0.006851	2.30428	0.159978258				
Residual	10	0.063933	0.006393							Residual	10	0.02973	0.002973						
Total	11	0.098551								Total	11	0.036581							
Coefficienttandard Err		t Stat	P-value	Lower 95%	Upper 95%	lower 95.0%	Upper 95.0%			Coefficienttandard Err		t Stat	P-value	Lower 95%	Upper 95%	lower 95.0%	Upper 95.0%		
Intercept	0.022673	0.023119	0.98072	0.349861	-0.02884	0.074185	-0.02884	0.074185		Intercept	-0.0123	0.015765	-0.77994	0.45349	-0.047423087	0.022831	-0.04742	0.022831	
ILMN	1.1853	0.509373	2.326979	0.042267	0.050347	2.320254	0.050347	2.320254		ILMN	-0.52728	0.347354	-1.51799	0.159978	-1.301233102	0.246675	-1.30123	0.246675	

BETA CALCULATIONS

Agilent	Thermo Fisher	Waters	IQVIA	Macrogen	Myriad	Genomic Health		EPS Ratio
318,000,000	431,566,561	73,115	197,599,861	42,353,301	70,600,000	36204877		5.32
1.58	6.82		1.13		1.91			
79.9	278.64	218	138.84	17.9	34.34	67.55		
25,408,200,000	120,251,706,557	15,939,070	27,434,764,701	758,124,088	2,424,404,000	2,445,639,441		
51	41	#DIV/0!	123	#DIV/0!	18	#DIV/0!		
	PE Ratio	valuation		Illumina				
Genomic Health	18	95.76		58.25				
Thermo Fisher	41	218.12		309.89				
Agilent	51	271.32						
Illumina	56	297.92						
IQVIA	123	654.36						

MULTIPLE VALUATIONS

	10.00%	10.50%	11.00%	11.50%	12.00%
2.50%	59,451	58,164	56,911	55,691	54,503
2.75%	54,676	53,496	52,347	51,229	50,139
3.00%	50,697	49,606	48,544	47,510	46,503
3.50%	44,444	43,493	42,568	41,667	40,789
3.75%	41,943	41,048	40,177	39,329	38,503
4.00%					
	10.00%	10.50%	11.00%	11.50%	12.00%
2.50%	404.43	395.67	387.15	378.85	370.77
2.75%	371.94	363.92	356.10	348.49	341.08
3.00%	344.88	337.46	330.23	323.20	316.35
3.50%	302.34	295.87	289.58	283.45	277.48
3.75%	285.32	279.24	273.32	267.55	261.93

DFC – SENSITIVITY TABLE
