SAF/No.23/April 2018

Studies in Applied Finance

INVESTMENT THESIS FOR AGILENT TECHNOLOGIES, INC. (NASDAQ: A)

Peter J. Boutros

Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise



Investment Thesis for Agilent Technologies, Inc. (NASDAQ: A)

By Peter J. Boutros

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About the Series

The Studies in Applied Finance Series is under the general direction of Professor Steve H. Hanke (hanke@jhu.edu), Co-Director of The Johns Hopkins Institute of Applied Economics, Global Health, and study of Business Enterprise and Dr. Hesam Motlagh (hnekoor1@jhu.edu), a Fellow at The Johns Hopkins Institute of Applied Economics, Global Health, and study of Business Enterprise.

This working paper is one in a series on applied financial economics, which focuses on company valuations. The authors are mainly students at The Johns Hopkins University in Baltimore, MD who have conducted their work at the Institute as undergraduate researchers.

<u>Author</u>

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Summary

This paper is an extensive financial analysis of Agilent Technologies, Inc. (NASDAQ: A). We investigated historical company performance, life science market trends, capital allocation, and potential cash flows to evaluate Agilent's investment potential. Using a probabilistic discounted cash flow (PDCF) model and a Monte-Carlo simulation to quantify our model's uncertainty, we computed a fundamental valuation of the company. This analysis was supplemented with an examination of Agilent's debt structure and management compensation strategy.

Acknowledgements

This work would not be possible without the guidance and training of Prof. Steve Hanke and Dr. Hesam Motlagh. Additional thanks to Tal Boger for draft comments and edits.

Keywords: Agilent Technologies, Inc., Life Sciences, Discounted Cash Flow, Free Cash Flow, Monte-Carlo Simulations, Investment Thesis, Management Compensation, Proxy Statement.

Investment Thesis for Agilent Technologies, Inc. (NYSE: A)

By Peter J. Boutros



Agilent Technologies

Company Name	Agilent Technologies, Inc.
Date	12/19/2017
Fiscal year ends (current period)	10/2017 (Q4 ended 10/2017)
Current Price	\$67.75
52 week high (date)	\$70.93 (11/28/2017)
52 week low (date)	\$45.38 (12/30/2016)
Market Cap	\$21,815.5M
Enterprise Value	\$21,152.5M
Total Debt	\$2,011M
Cash	\$2,678M
Net Cash/Share	\$2.07
Dividend	11.97%
Shares Outstanding/Float	322.0M/320.7M
Current P/E	34.45x
2019 P/E (EPS)	23.81x (\$2.85)*
2018 P/E (EPS)	26.26x (\$2.58)*
2017 P/E (EPS)	29.25x (\$2.32)*
2016 EPS	\$1.98**
2015 EPS	\$1.74**
2014 EPS	\$3.04**

*Consensus Estimates as of 12/19/2017 **Comparable Actual from Bloomberg

Analyst Recommendation: SELL

Average Free Cash Flow/Share Estimate: \$38.43

TABLE OF CONTENTS

Executive Summary	1
Catalysts/Risks	2
Catalysts	2
Risks	2
Company Description	2
Business Segments	3
Life Sciences and Applied Markets	3
Diagnostics and Genomics	3
Agilent CrossLab	4
Historical Performance	6
Balance Sheet	6
Income Statement	7
Model of the Company	7
Value Drivers	7
Modeling Assumptions	. 10
Probabilistic Discounted Cash Flow (PDCF) Model	. 11
Model Tuning Parameters	. 12
Results, Discussion, and Sensitivity Analysis of the Model	. 13
Monte Carlo Simulation Results	. 13
Analyst Recommendations and Relative Valuation	. 17
Analyst Recommendations	. 17
Relative Valuation	. 18
Capital Allocation Discussion	. 19
Capital Sources Analysis	. 19
Cash Analysis	. 19
Equity Analysis	. 19
Debt Analysis	. 19
Historical Allocation Analysis	. 23

Investment Thesis for Agilent Technologies, Inc. (NYSE: A) by Peter J. Boutros

Divestitures	
Mergers and Acquisitions	
Compensation and Corporate Governance	
Executives and Board of Directors	
Compensation Structure	
Inside Trading	
Conclusions and Investment Decision	0

Executive Summary

Agilent Technologies, Inc. is a developer and manufacturer of equipment, consumables, software, and services that are critical for running modern life science laboratories. They offer products used in genomic, pharmaceutical, diagnostic, and chemical analysis labs around the world. Using ten years of financial disclosures, guidance from recent management earning call transcripts, a probabilistic discounted cash flow (PDCF) model of the company's forecasted profitability, and a Monte Carlo simulation to quantify the uncertainty of our model, we estimate the fundamental value of this business to be \$38.43 per share (representing a 43.3% discount of the current \$67.75 stock price). Agilent has experienced strong top line growth after the divestment of their electronic measurement portfolio in 2014. Since then, Agilent has focused on expanding their presence in life science applications for commercial, government, and academic laboratories. Unfortunately, this recent increase in revenue growth and margin expansion has not produced sufficient free cash flow to warrant the current stock price. For these reasons, we rate Agilent Technologies, Inc. a 'SELL'.

Catalysts/Risks

Catalysts

- While successful in growing top line sales in successive periods after a large divestiture in 2014, Agilent has not increased free cash flow substantially to continue paying seasonal dividends and simultaneously grow their asset base.
- Agilent experiences intense competition with companies that sell similar products. They rely on customer loyalty and dependence on the services they provide.
- Agilent's worldwide sales have generated over \$2 billion in cash and cash equivalents that the company is unable to freely use without accruing losses from repatriation taxes. While the recent restructuring of the US tax code may alleviate this problem, currently Agilent has no path to easily repurpose this cash.
- Agilent operates internationally and is subject to the effects of exchange rates of foreign currency. While Agilent operates extensive hedging programs to offset a negative impact on revenue, they are often unable to completely eliminate these effects.

Risks

- Agilent has seen strong growth since they divested their electronic measurement unit. Their intense focus on growing in the life science market may be a risk to this investment thesis. If Agilent can continue their strong top line growth and extend their near-term rates they may have sufficient strength to increase their fundamental value beyond what our model estimates
- Agilent has also pushed new initiatives to successfully increase operating margins through site optimization and key acquisitions. Further activity to expand the bottom line may also affect this investment thesis.

Company Description

Agilent Technologies, Inc. is a developer and manufacturer of analytic instruments, consumables, and software used in life science research laboratories. Beginning as a spin-off of Hewlett-Packard's "Medical Products and Instrument Group" division in 1999, Agilent initially offered products in electronic component testing, chemical analysis, and medical devices end-markets. From fiscal years 2000 through 2014, Agilent has divested individual divisions in the analytic instrument and semiconductor testing markets, while expanding their footprint in the life science analysis industry. In November 2014, Agilent separated the electronic measurement division into a separate publically traded company, Keysight Technologies. In fiscal year 2014, the electronic measurement segment generated over 2.9 billion in revenue, or $\sim 42\%$ of Agilent's net revenue. While a significant portion of Agilent's total sales, this segment specializing in instrumentation characterization equipment had formed a distinct market footprint from the life science equipment that encompassed the remaining products offered by Agilent. Management's decision to spin off this division was motivated by focused strategic initiatives to

grow each distinct product group and management's confidence that both groups could operate as a distinct companies. The remaining life science, diagnostics, and chemical analysis business segments continued to operate under the Agilent Technologies name. In 2015 Michael R. McMullen was promoted to Chief Executive Officer to lead this "new Agilent" with a focus on analytic laboratory technology. Mr. McMullen has lead Agilent with strong organic top line growth and 11 consecutive quarters of operating margin expansion.

Within the United States, Agilent is headquartered in Santa Clara, California with other research laboratories in the San Francisco Bay area. Internationally, Agilent has seven sites in China and manufacturing locations in Germany and Japan. Agilent expands their product portfolio by inhouse product development and bolt-on acquisitions of small-cap life science analytic equipment manufacturers.

Business Segments

After the divestment of the electronics measurement division into Keysight Technologies in November 2014, Agilent reorganized their business operations into three major segments worldwide: Life Sciences and Applied Market, Diagnostics and Genomics, and Agilent CrossLab. Financial data dated back to 2013 were revised to adhere to this change.

Life Sciences and Applied Markets

This segment produces instrumentation and software used to perform liquid chromatography (LC), mass spectrometry (MS), gas chromatography, and cellular spectroscopy. Additionally, this sector offers bioinformatics software, vacuum technology, microfluidics equipment, associated laboratory automation modules, and robotics equipment. In fiscal 2016 the Life Sciences and Applied Markets segment grossed \$2.1 billion, or 49.3% of Agilent's total sales. The products in this segment are sold in markets including the pharmaceutical industry, non-profit life science research institutions, natural gas and petroleum refineries, environmental law enforcement agencies, and food production organizations for quality assurance review. Competitors in this segment include Danaher Corporation, Thermo Fischer Scientific Inc., and Waters Corporation. Recent growth in this sector is motivated by the Ultivo Triple Quadrupole LC-MS product line offering high throughput mass spectroscopy analysis with a dramatically reduced desktop footprint.

Diagnostics and Genomics

The diagnostics and genomics portfolio provides reagents, instruments, and other consumables used in life science research. Specifically, this segment provides materials for analyzing the mutation, genotype, gene expression, and sequencing of DNA strands. This segment grossed \$709 million in fiscal 2016, a 16.9% margin on total revenue. The main customer segment for the diagnostic and genomics segment includes for-profit diagnostic pathology laboratories, testing services, and hospital pathology departments. Competitors in this segment include Leica Biosystems, Inc., Abbott Laboratories, and Roche Ventana Medical Systems, Inc. The introduction of the Agilent SureSelectXT HS reagent kit has provided the most substantial

growth in this operating segment since its introduction in fiscal 2017. This kit provides integration of molecular barcode techniques to automate detection of low frequency genetic mutations.

Agilent CrossLab

This operating segment encompasses vendor neutral consumables and services used in life science laboratories. This includes chemistries, analysis software, sample preparation, and laboratory instruments. The CrossLab segment comprised 33.8% of Agilent's total growth in fiscal 2016, or \$1.4 billion. Additionally the segment offers educational, compliance, and maintenance services for a wide array of laboratory clients. The CrossLab segment serves clients in the pharmaceutical, academic life science, natural gas and petroleum refining, environmental law enforcement, food production, and diagnostics markets. The main competitors in this segment are Danaher Corporation, Thermo Scientific Inc., and Waters Corporation. Growth in the fiscal year 2017 net sales of this segment was driven by the expanded liquid chromatography column portfolio of laboratory consumables.



Figure 1 - Agilent Technologies, Inc. (NYSE: A) Historical Earnings by Segment, Net of Keysight Divesture [Source: Agilent 10-K Reports 2013-2017]

Figure 1 shows Agilent's historical net revenue by operating segment net of the Keysight divestment in 2014. Due to Agilent's business segment reorganization in fiscal 2015, we are presenting data from fiscal years 2013 through 2016. The Life Science and Applied Markets segment has seen stagnant growth over the four years presented in this figure, with an average growth rate of 0.63% and a standard deviation of 1.92%. This flat evolution is due to modest growth in the pharmaceutical sector offset by a decline in sales in life science research

institutions. This segment is a major revenue driver for Agilent and comprises costly sample analysis instrumentation that is not frequently replaced year-to-year. The Diagnostics and Genomics segment grew an average of 3.79% with a standard deviation of 3.67% in the past four fiscal years, led by strong penetration into diagnostic and clinical markets. The CrossLab segment has seen strong historical growth, with an average growth rate of 5.10% and a standard deviation of 2.89%. Agilent reports that this growth has been led by consumers in the pharmaceutical, biotechnology, and food manufacturing markets.



Figure 2 - Agilent Technologies, Inc. (NYSE: A) End Market as % of Net Revenue in Q4 of Fiscal 2017 [Source: Agilent Q4 2016 Investor Presentation, 11/15/2016] 'Analytic Laboratory' and 'Diagnostic & Clinical' end markets are highlighted in blue and green, respectively

Figure 2 shows Agilent's end market exposure as a margin on net revenue for Q4 of fiscal 2017. Agilent's footprint in the pharmaceutical and biotechnology market has consistently been the largest driver of their net sales, followed closely by their customer base in the chemical and energy segments. While small changes in each customer base will affect Agilent's top line, their market exposure is distributed sufficiently to avoid sensitivity of macroeconomic factors from any single market.



Historical Performance

Figure 3 - Agilent Technologies, Inc. (NYSE: A) Five Year Total Return: Agilent, S&P 500 Index, and Health Care Sector Index [Source: Bloomberg Terminal; <COMP> Accessed 12/19/2017)]

The total five year returns for the S&P 500 and Agilent are 106.14% and 140.89%, respectively. Agilent's stock price tracked the S&P500 from 2012 through the closing of the Keysight divestment in 2014 when the price held at ~\$40/share. The stock began to climb after management reported strong earnings in 2016. Since early 2017, Agilent has typically outperformed the S&P500 Health Care sector, which had a five year total return of 124.55% when accessed at the time of this report.

Balance Sheet

Please refer to the 'Balance Sheet' tab in the attached spreadsheet

The largest changes in Agilent's balance sheet are the decreases in accounts receivable, inventory, goodwill, and property related to the divestment of the electronic measurement division in fiscal 2014. Since 2014, Agilent has performed small bolt-on acquisitions that have not drastically impacted their balance sheet, but have provided them with intellectual property to enter new markets. Additionally, some modifications of the 'other assets' line items dealing with deferred tax assets represent an early adoption of accounting rules reclassifying all deferred tax assets as 'non-current' in fiscal 2016. Lastly, following the Keysight divestment in 2014 (and into their Q3 2017 results) Agilent has increased the cash and cash equivalents listed on their balance sheet. With over 95% of their cash held overseas, this capital allocation strategy may be

used to avoid paving repatriation taxes and is therefore not reflective of the working capital used to operate the business.

Income Statement

Please refer to the 'Income Statement' tab in the attached spreadsheet

After adjusting for the removal of the electronic measurement segment, Agilent's income statement shows consistent top line organic revenue growth in both products and services, with a ~4% increase in net sales in fiscal 2016 compared to a relatively flat decline of 0.25% in 2015. Additionally the total cost of products and services has remained stable during period, expanding the earnings before taxes (EBT) of continued operations from \$293 million in 2013 to \$544 million in 2016. This bottom line growth indicates that management's decision to divest the electronics division and focus operational resources to expanding Agilent as a life science equipment company has shown successful.

Model of the Company

Value Drivers

Please refer to the 'Value Drivers' tab in the attached spreadsheet

USD (\$) in Millions												
Model Input Parameters												
Period Ending	Oct. 31, 2012	Oct. 31, 2013	Oct. 31, 2014	Oct. 31, 2015	Oct. 31, 2016	Pro-Rated 2017E	Average	Std. Dev.	Trend			
Net Reveue	6,858	3,894	4,048	4,038	4,202	4,377						
% growth year-to-year			3.95%	-0.25%	4.06%	4.17%	2.99%	2.16%	\sim			
Operating Costs & Expenses (% of Sales)												
Cost of products (net of D&A)	33.64%	29.61%	29.25%	30.78%	28.99%	28.11%	29.66%	1.91%	$\sim \sim$			
Cost of services and other	9.42%	11.86%	12.45%	12.41%	12.87%	13.34%	12.40%	1.38%				
Research and development	9.74%	8.65%	8.84%	8.17%	7.83%	7.61%	8.38%	0.73%	$\sim \sim$			
Selling, general and administrative	26.49%	30.41%	29.62%	29.45%	29.82%	27.54%	29.82%	0.42%	\sim			
EBITDA [% of revenue]	20.71%	19.47%	19.84%	19.19%	20.49%	23.39%	19.94%	0.65%	~/			
EBITDA	1,420	758	803	775	861	1,024						
Non Operating Costs												
Non-Operating Costs	0.120/	0.40%	0.22%	0.170/	0.200/	0.400	0.240/	0.040/				
Interest income [as % of Net Revenue]	-0.13%	-0.18%	-0.22%	-0.17%	-0.26%		-0.21%	0.04%	\sim			
Interest expense [as % of Total Debt]	4.28%	3.96%	6.61%	3.99%	3.77%		4.58%	1.36%	/\			
Other expense (income), net [as % of Net Revenue]	-0.23%	-0.18%	2.20%	-0.42%	0.24%	-0.40%	0.46%	1.19%	<u> </u>			
Depreciation & Amortization [as % of Net Revenue]	4.39%	9.55%	9.49%	6.27%	5.85%	4.87%	7.79%	2.31%	/ ~~~			
Continued Op. EBT Margin [as reported]	15.21%	7.52%	5.66%	11.89%	12.95%							
Continued Op. EBT Margin [calc. by PJB]	15.21%	7.52%	5.66%	11.89%	12.95%	17.58%	9.50%	3.48%	\sim			
Provision (benefit) for income taxes [as % of EBT]	-10.55%	23.21%	-1.31%	8.75%	15.07%	12.13%	11.43%	10.35%	$\wedge -$			
Income (loss) from discontinued operations, net of tax									\wedge			
expense (benefit)	0.00%	13.07%	7.83%	-0.92%	0.00%	0.00%	5.00%	6.66%	\square			

Figure 4 - Agilent Technologies, Inc. (NYSE: A) Value Drivers Overview [Source: Agilent 10-K Reports 2012-2017]

Note: Fiscal 2012 margins still contain the financials of the electronic testing portfolio (divested in fiscal 2014) and were not used in statistics

Figure 4 shows the margin structure for Agilent, where fiscal years from 2013 onward are shown net of the Keysight spinoff. Cost margins have remained steady from fiscal years 2013 through 2016, with a slight reduction in the cost of products (net of depreciation and amortization) and research and development. Specifically, a reduction in the margin of depreciation and amortization on net sales and the interest expense as a margin on total debt have grown Agilent's EBT margin from $\sim 7\%$ in 2013 to $\sim 13\%$ in 2016.

In addition to the above value drivers, we will further analyze the historical performance of this company through a redefinition of two common financial metrics: working capital and capital expenditures (CAPEX).

First, we will redefine 'working capital' as:

Working Capital = Current Assets – Current Liabilities – Cash and Cash Equivalents Eq. 1

When analyzing the current portion of Agilent's balance sheet, we consider the amount of cash and cash equivalents held as a capital allocation decision that is not representative of the capital necessary for day-to-day operations. This is clear in our analysis of Agilent's balance sheet, which revealed an accumulation of cash and cash equivalent held overseas.

Second, we will modify the definition of CAPEX as:

```
CAPEX = (Depreciation \& Amortization) + \Delta(Long - Term Assets) Eq. 2
```

This definition achieves a broad interpretation of CAPEX, splitting the metric into maintenance (Depreciation and Amortization) and growth (change in the Long-Term Assets) of the company's long-term balance sheet.

Additional Calculations Required	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average	Std. Dev.
Working Capital Calculation												
Current Assets	3,761	3,182	3,961	6,169	5,569	4,629	4,983	5,500	3,686	3,635		
Current Liabilities	1,663	1,330	1,123	3,083	1,837	1,893	1,602	1,702	976	945		
Cash and Cash Equivalents	1,826	1,405	2,479	2,649	3,527	2,351	2,675	3,028	2,003	2,289		
Working Capital	272	447	359	437	205	385	706	770	707	401		
Change in Working Capital		175	(88)	78	(232)	180	321	64	(63)	(306)		
Change in Working Capital (Margin)		3.03%	-1.96%	1.43%	-3.51%	2.62%	4.73%	0.92%	-1.56%	-7.28%	-0.18%	3.75%
CAPEX Calculation												
Long-Term Assets	3,883	3,825	3,651	3,527	3,488	5,907	5,703	5,331	3,793	4,167		
Depreciation and Amortization	191	201	162	202	253	301	372	384	253	246		
CAPEX		143	(12)	78	214	2,720	168	12	(1,285)	620		
CAPEX (Margin)		2.48%	-0.27%	1.43%	3.24%	39.66%	2.48%	0.17%	-31.82%	14.75%	3.57%	5.14%
Invested Capital (IC) Calculation												
Invested Capital	4,155	4,272	4,010	3,964	3,693	6,292	6,409	6,905	4,500	4,568		

Figure 5 - Agilent Technologies, Inc. (NYSE: A) 10 Year Historical Cash Flow Drivers [Source: Agilent 10-K Reports 2007-2017]

Agilent's capital allocation strategy has been difficult to analyze over this period, since transient changes of the balance sheet from the Keysight divestiture produce noisy capital expenditure (CAPEX) and change in working capital metrics. To acquire well determined statistics for these metrics, we analyzed ten years of financial data producing the Cash Flow Driver data presented in Figure 5 above. The data in Figure 5 for fiscal years 2013 and 2014 are presented without correcting for the Keysight spin off to compare with the early historical data.



Figure 6 - Agilent Technologies, Inc. (NYSE: A) Change in Working Capital, 2008-2016 [Source: Agilent 10-K Reports 2007-2017]

Agilent's yearly change in working capital (Equation 1) has been volatile due to fluctuations in cash and short term debt used to make small bolt-on acquisitions and divestitures leading up to 2014 (Figure 5). Between fiscal years 2012 and 2014, Agilent expanded its current asset base through small acquisitions of smaller life science analytic companies. The increasing negative change in working capital seen in fiscal years 2015 and 2016 may indicate that the Keysight divestment has led to operational efficiency in allocating working capital.



Figure 7 - Agilent Technologies, Inc. (NYSE: A) CAPEX, 2008-2016 [Source: Agilent 10-K Reports 2007-2017]

Agilent's ten year historical CAPEX has been slightly below depreciation and amortization levels due to small scale electronics divestitures in the lead up to 2014 reducing long term assets year-to-year (Figure 5). The large positive spike in 2012 is caused by the acquisition of Dako A/S, a company focused on antibodies, reagents, and other pathology instruments for \sim \$2.1

billion. This acquisition doubled Agilent's goodwill from \$1.57 billion in 2011 to \$3.02 billion in 2012. The dip in 2015 is caused from the Keysight divestment, producing a reduction in goodwill and manufacturing property associated with the electronic testing business.

Modeling Assumptions

In constructing our PDCF of Agilent Technologies, Inc., we made the following assumptions:

- 1) We have used four years of historical financial data to compute averages and standard deviations for all value driver and revenue growth assumptions, except where noted below. Our model is limited to four years of previous data due to Agilent's business segment restructuring efforts in fiscal 2015 which limited our ability to use retroactively adjusted financial statements back to fiscal 2013.
- 2) Forecasting assumptions were guided by Q4 2017 financial data released by Agilent's management and discussion from the most recent earnings call. We are assuming 5%, 8%, and 7% growth of the Life Science and Applied Markets, Diagnostics and Genomics, and CrossLab business segments respectively. While this is a bullish assumption, Agilent's preliminary fiscal 2017 results appear to reflect similar growth rates. Management guidance believes this level of growth is sustainable in the near term. To temper this level of market penetration, our model assumes that the above segment growth rates will taper to 3%, 6%, and 5% by 2020, and further to 2%, 3%, and 3% by 2023. This is a bullish revenue growth assumption that further confirms our 'sell' rating for this stock.
- 3) Operating costs have generally seen reductions, net of Keysight. Management guides that operating margins have expanded for the 11th consecutive quarter due to a 'New Agilent' cost structure program initiated in 2015. We are assuming an aggressive cost structure reduction that will remain throughout the forecasting period. As in Assumption #2, this is a bullish assumption that bolsters our 'sell' rating.
- 4) Similarly, management guides a positive non-operating expense outlook with a reduced depreciation and amortization, other income, and net interest cost structure. We further assume a 15% effective tax rate, which is a conservative estimate matching management guidance.
- 5) By 2016, any financial ties to Keysight have been consolidated in the 'Other Income (Expense)' non-operating income statement expense line item. Thus, we have chosen to not project any 'Income (loss) from discontinued operations, net of tax expense (benefit)' in our PDCF and do not include this line item as an input parameter for our Monte Carlo simulation.
- 6) As stated in the previous section, we are using the statistics computed from the ten year historical CAPEX and change in working capital data (with large outliers removed) as inputs for our model. Additionally, we are making a bullish assumption that Agilent will not grow its long term asset base and maintain CAPEX at depreciation and amortization levels. This optimistic assumption will further support our investment thesis. Similarly,

we will assume change in working capital will be zero throughout the forecasting period, assuming no expansion of the current portion of Agilent's balance sheet. This may change as changes to tax laws may affect Agilent's cash storage overseas.

Probabilistic Discounted Cash Flow (PDCF) Model

Please refer to the 'PDCF_tuned' tab in the attached spreadsheet

Our model of Agilent Technologies, Inc. uses a PDCF model to forecast future financial results and estimate the fundamental value of the company. This PDCF assumes a 10% discount rate throughout the projected period and a 1.5% long-term growth rate in the model's terminal value computation. Our model uses Monte Carlo techniques to estimate the probability distribution of our fundamental value by treating each revenue growth rate, recurring cost model input parameter, and cash flow driver as a random variable. By assuming each random variable follows a normal distribution with an assumed mean and standard deviation outlined in Figure 8 and using n=100,000 Monte Carlo simulations drawing from those probability density functions, we can generate a distribution of the fundamental free cash flow per share for Agilent.

Model Input Parameters									
Revenue Growth Parameters	Assumed	Average	Std. Dev.	Trend					
Life Sciences and Applied Markets Business	5%	0.63%	1.92%	$\rightarrow \leftarrow$					
Diagnostics and Genomics Business	8%	3.79%	3.67%	\leq					
Agilent CrossLab Business	7%	5.10%	2.89%	\sim					
Operating Costs & Expenses (% of Sales)									
Cost of products (net of D&A)	28.10%	29.66%	1.91%	$\sim \sim$					
Cost of services and other	11.80%	12.40%	1.38%						
Research and development	7.50%	8.38%	0.73%	\sim					
Selling, general and administrative	28.00%	29.82%	0.42%	/					
Non-Operating Costs									
Interest income [as % of Net Revenue]	-0.50%	-0.21%	0.04%	$\sim \sim$					
Interest expense [as % of Total Debt]	4.00%	4.58%	1.36%						
Other income (expense), net [as % of Net Revenue]	-0.45%	0.46%	1.19%						
Depreciation & Amortization [as % of Net Revenue]	4.50%	7.79%	2.31%						
Provision (benefit) for income taxes	15.00%	11.43%	10.35%	$ \rightarrow - $					
Income (loss) from discontinued operations, net of tax				\wedge					
expense (benefit)	0.00%	5.00%	6.66%						
Cash Flow Drivers									
Change in Working Capital	0.00%	7.67%	3.75%	\sim					
Capital Expenditures (CAPEX)	4.50%	6.25%	5.14%						
Degree of Operating Leverage	Assumed	Min.	Avg.	Max.					
DOI	1.00	1.50	6.12	14.12					

Figure 8 - Agilent Technologies, Inc. (NYSE: A) PDCF Model Input Parameters [Source: Agilent 10-K Reports 2013-2017]

As stated in the modeling assumptions, all listed revenue growth rates are near-term assumptions that are tapered off in the ten years of forecasting. The assumptions highlighted in green of Figure 8 are deviations from historical means that were chosen to match management guidance. We have chosen these aggressive assumptions to produce a bullish valuation of Agilent's revenue generation and margin structure.

Model Tuning Parameters

Next, we will analyze a series of tuning parameters used to assess how well the future cash flows our model projects compare to Agilent's historical profitability. First, we will investigate the Free cash flow Return On Invested Capital (FROIC), which indicates how efficiently a business can convert invested capital into steady free cash flow. We will then analyze the Potential Free Cash Flow Yield (PFCFY), a parameter that designates how well free cash flow can be generated from top line revenues. Next, the Long-Term Asset Turnover (LTAT) ratio describes how efficiently the business can convert long-term assets into top-line sales. Lastly, we will study how management distributes invested capital into both short- and long-term assets via the ratio of Long-Term Assets to Invested Capital (LTA/IC).

	Model Tuning Parameters													
		Мос	del	Historical										
	Min.	Avg.	Max.	Trend	Min.	Avg.	Max.	Trend						
FROIC	16.05%	20.17%	24.09%	/	13.51%	16.78%	23.11%	<						
PFCFY	16.43%	16.75%	17.46%		16.20%	21.14%	28.40%	\sim						
LTAT	1.07	1.32	1.51		0.68	0.94	1.16	\searrow						
LTA/IC	91.22%	91.22%	91.22%		76.84%	87.04%	93.88%	\sim						
%DCF in TV	48.47%													

Figure 9 - Agilent Technologies, Inc. (NYSE: A) Model Tuning Parameters [Source: SEC 10-K 2013-2017]

Figure 9 shows that both the FROIC and PFCFY parameters are projecting profitability within levels seen by Agilent over the past four years. The maximum values dominating the historical trends are in fiscal years 2013 and 2014 where 'Income from discontinued operations net of tax expenses' from Keysight added significantly to Agilent's EBT margins. Due to this, the peak PFCFY of our model is still below the maximum levels seen historically. If we instead compare our model output to the PFCFY levels seen in fiscal years 2015 and 2016 (16.20% and 16.85%, respectively), our model produces a steady increase in profitability. Our model's LTAT parameter shows growth consistent with our bullish assumption that CAPEX is held constant at the cost of depreciation and amortization (and thus Agilent is not expanding their long-term asset base in the future). Additionally our assumption that the change in working capital will remain at zero indicates the LTA/IC remains flat during the entire forecasting period. While aggressive, these results are consistent with our optimistic model of Agilent's productivity.

Results, Discussion, and Sensitivity Analysis of	f the Model
--	-------------

Model Valuation of Company									
Sum of DCF	9,809								
+ Cash and Cash Equiv. (Q4 2017 Earnings Report)	2,678								
= Equity Value	12,487								
/ Diluted Shares Outstanding	325								
Estimated FCF/share	\$38.42								
Current Price	\$67.75								
% Gain/Loss	-43.28%								

Figure 10 - Agilent Technologies, Inc. (NYSE: A) PDCF Model Valuation [Source: SEC 10-K 2013-2017]

Using the most recent report of cash from Agilent's Q4 2017 earnings report, our model predicts a fundamental value estimate of \$38.43 per share, or a 43.28% downside compared to the opening price of \$67.75 on 12/19/2017. Our model assumes strong near-term revenue growth, robust operating margins, a CAPEX cost structure limited to maintenance of the long-term asset base, and zero investment into the current asset base. With all of these bullish assumptions, we do not believe Agilent Technologies can produce the free cash flow necessary to achieve its current market value with our discount rate of 10%.

Monte Carlo Simulation Results

A Monte Carlo simulation with 100,000 iterations was performed to quantitatively express our uncertainty with our estimate, using parameter distributions defined by historical statistics and management guidance. This simulation further confirms that Agilent should be given a 'Sell' recommendation. Our simulation produced a mean share price of \$38.44, a median price of \$38.36, a standard deviation of \$7.33, skewness of 0.054, and a kurtosis value of 3.02. This places the current price of \$67.75 in the 99th percentile of the distribution.

Investment Thesis for Agilent Technologies, Inc. (NYSE: A) by Peter J. Boutros



Figure 11 - Agilent Technologies, Inc. (NYSE: A) PDCF Monte Carlo Simulation Results

Reviewing the average FROIC estimate from our simulation in Figure 12, our simulation has produced a mean value of 21.60% with a standard deviation of 6.79%. Additionally, we see that the historical FROIC bounds encompass \sim 61% of the model's output. This gives us further confidence that our model is projecting profitability compatible with Agilent's historical results.



Figure 12 - Agilent Technologies, Inc. (NYSE: A) PDCF Avg. FROIC Results

Next, we will review the average LTAT generated by our model in Figure 13 below. In this case, the mean value was computed as 1.36 with a standard deviation of 0.21. For this parameter, the historical bounds only accounted for \sim 14% of the LTAT distribution.

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Figure 13 - Agilent Technologies, Inc. (NYSE: A) PDCF Avg. LTAT Results

To further analyze the contribution of each modeling assumption to our Monte Carlo simulation, we performed a sensitivity analysis on each parameter's contribution to the overall price output variance. The abbreviated results are seen below in Figure 14:





The sensitivity analysis shows that the 2026E CAPEX and change in working capital estimates contributed 46.7% and 24.5% to the fundamental value estimate variance, respectively. Though we already reduced our uncertainty for these metrics by analyzing ten years of financial data, we need to assess if this contribution is a function of our PDCF design or the dynamics of the parameters and the modeling assumptions. We can observe the individual contribution of each parameter as a scatter plot of input value to stock price output in Figure 15 below:



Figure 15 - Agilent Technologies, Inc. (NYSE: A) PDCF Monte Carlo Parameter Correlation Scatter Plot

Note that neither the CAPEX 2026E parameter or the change in working capital 2026E estimate have a strong correlation to the stock price output of the model. Instead, their contribution to the model variance is simply a function of the PDCF as we designed it.

Overall, inspection of our model tuning parameters and our Monte Carlo simulation results indicate that our model is projecting realistic profitability consistent with Agilent's historical results. Specifically, our model's bullish revenue growth assumptions have projected free cash flows and overall value creation consonant with recent free cash flow generation. Our PDCF's use of a 10% discount rate and 1.5% terminal growth rate prevent the magnitude of free cash flows we are projecting from warranting the current stock price. As Agilent's management appears to be running their organization more efficiently and expanding their top line following the Keysight divestment, our hurdle rate is averting a valuation consistent with the present market value.

Analyst Recommendations and Relative Valuation

Analyst Recommendations



Figure 16 - Agilent Technologies, Inc. (NYSE: A) Analyst Recommendation [Source: Bloomberg Terminal; <ANR> Accessed 12/19/2017)]

Figure 16 shows recent analyst recommendations as, obtained from a Bloomberg Terminal using the command <ANR> on December 19th, 2017. Currently, 0% of Wall Street analysts agree with our 'sell' recommendation, with 71.4% of analysts recommending a 'buy', and the remaining 28.6% rating the stock a 'hold'. The twelve month target price consensus is currently \$74.92/share. Our analysis shows that Agilent is unable to provide the free cash flow necessary to warrant this price.

Wall Street Comparison Output													
FY		2017		2018	2018 2019								
Sales (\$M)		4,462		4,738		5,032		5,245					
Cons		4,454		4,751		5,024		5,323					
EBITDA (\$M)		1,097		1,165		1,238		1,290					
Cons		1,075		1,177		1,285		1,382					
adj-Inc. (\$M)		733		783		835		873					
Cons		754		840		920		1,046					
adj-EPS (\$M)	\$	2.26	\$	2.41	\$	2.57	\$	2.69					
Cons	\$	2.32	\$	2.58	\$	2.84	\$	3.30					
Implied P/E	\$	17.03	\$	15.96	\$	14.95	\$	14.30					
Cons	\$	30.19	\$	27.07	\$	24.56	\$	21.20					
UL-FCF (\$M)		787		835		887		924					
Cons		649		803		922		1,000					

Figure 17 - Agilent Technologies, Inc. (NYSE: A) Wall Street Consensus [Source: Bloomberg Terminal; <EE I Y> Accessed 12/19/2017)]

Looking at our model's financial estimates compared to consensus estimates of analysts on Wall Street, we can see our aggressive top and bottom line assumptions are also being used. In particular, our top line sales and EBITDA estimates are right in line with other analysts. Our adjusted income and unlevered free cash flow estimates are slightly below the consensus right now, possibly indicating that our effective income tax rate assumptions may not agree with other analysts. Still, we believe that the small gap in free cash flow cannot explain the overall stock price discrepancy for this company.

Relative Valuation

Backpage												
A US Equity				÷			-	Equity	7 Relative	Valuation		
Comp Source BICS Best Fit (Algo) 🔹 🥜 Region Global 🔹 Mkt Cap > 🛛 1B												
vs Comps Group Dynamics vs Self												
Analysis of A US Mult	iples - Pr	remium to	Comp	6				3M 61	M 1Yr	2Yr 5Yr		
Current v	s 2Yr Ave	rage Histo	rical P	remiur	n	2Yr	Historical Prem	ium Range	Implied	@ Hist Avg		
Metric	Current	Hist Avg	Diff	# SD	3M Trend	Low	Range	High	Multiple	Price (USD)		
Current Price							🔵 Current 🛛 🔶 H	ist Avg		67.75		
11) BF P/E	-16%	-18%	1%	0.4	m	-26%		-12%	25.5x	66.63		
12) BF EV/EBITDA	-8%	-11%	3%	0.7	\sim	-22%	•	-4%	17.0x	65.32		
13) BF EV/EBIT	-13%	-17%	4%	0.6	~~	-29%	•	- 8%	18.7x	64.92		
14) BF EV/Rev	-15%	-21%	6%	1.0	\sim	-34%	•	-11%	4.1x	62.78		
15) LF P/BV	-19%	-27%	8%	0.9	~	-43%	•	-12%	4.1x	60.91		
) View All (Comps Below		
							tiples					
Name				Mkt Ca	p (USD)	BF P/E	BF EV/EBITDA	BF EV/EBIT	BF EV/Ret	v LF P/BV		
1) Agilent Technologi	ies Inc				21.82B	25.9x	17.7x	19.6x	4.4	x 4.5x		
Current Premium t	o Comps	Mean				-16%	- 8%	-13%	-15	% -19%		
Mean (Including	A US)				16.92B	30.9x	19.1x	22.5x	5.2	x 5.6x		
🛛 🖞 Thermo Fisher Sci	entific In	c	0.75		77.75B	18.4 x	16.9x	18.5×	4.3	x 3.1x		
3) Waters Corp			0.70		15.75B	24.7x	17.1x	19.4x	6.0	x 6.0x		
4 Mettler-Toledo Int	ternationa	lI	0.64		16.24B	32.0x	22.5x	24.4 x	5.9	x 31.7×		
5) Bruker Corp			0.55		5.40B	26.1x	15.3x	18.8×	3.0	x 7.4x		
Grey values are exclu	uded from	group sta	ts.						10) A	nalyze List		

Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2017 Bloomberg Finance L.P. SN 25535 657 GMT-6:00 UH43-5611-1 20-0ec-2017 08:55:07

Figure 18 - Agilent Technologies, Inc. (NYSE: A) Equity Relative Valuation [Source: Bloomberg Terminal; <EQRV> Accessed 12/19/2017)]

Though our PDCF is performing a fundamental value estimate on this company, it is beneficial to review the consensus relative valuations being used to price Agilent. Figure 18 shows the average Price to Earnings (P/E) ratio for Agilent accessed from a Bloomberg Terminal using the command $\langle EQR \rangle$ on December 19th, 2017. Agilent's consensus P/E (currently at 25.9) is below the peer mean value of 30.9x, indicating that some analysts consider Agilent cheaper than many of its competitors. This puts Agilent in-line with P/E multiples for Waters Corp (24.7x) and Bruker Corp. (26.1x), while far from the group leader of Thermo Fisher Scientific (18.4x). This may help explain why the market has valued Agilent so highly: they see Agilent as an attractive investment with growth potential compared to its similarly priced competitors. Additionally, Agilent is currently trading over one standard deviation above its 2 year historical mean for all of the valuation multiples shown in Figure 18. This demonstrates that the market may be overvaluing the company by using a lower discount rate compared to our analysis.

Capital Allocation Discussion

To further support our investment thesis, we will analyze the capital allocation decisions made by Agilent Technologies. This will allow us to analyze how management's distribution of capital, the structure of management compensation, and recent insider transactions may influence our conclusion.

Capital Sources Analysis

Agilent holds a market capitalization of \$21.8 billion as of December 19th 2017, which is below the \$74.7 billion market capitalization of Fischer Scientific Inc. (NYSE: TMO) but a premium to the mean capitalization of \$15.5 billion for the comparable peer group. This places Agilent as a large cap stock that should be low risk with moderate growth.

Cash Analysis

Agilent reported \$2,289 million in cash and cash equivalents in fiscal 2016, compared to \$2,003 million in fiscal 2015. These funds consist of accounts at global financial institutions, money market funds, and short-term instruments that mature within 90 days. Agilent reports that it uses this cash to fund capital expenditures, supply working capital, pay dividends, perform stock repurchases, and other liquidity requirements for global operations. It important to note that Agilent has \sim \$2,181 million (or 95.3%) of their cash and cash equivalents held overseas. Potentially as a strategy to avoid repatriation taxes, this strategy limits these funds from truly contributing as a capital source for short-term funding.

Equity Analysis

Total stockholder's equity for fiscal 2016 was reported as \$4,243 million, compared to \$4,170 million in fiscal 2015. Agilent paid \$150 million in dividends back to shareholders in 2016, which is well within one standard deviation of their five year historical trend ($\bar{x} =$ \$144 million, $\sigma =$ \$27 million). Additionally Agilent reported a net income of \$676 million in fiscal 2016, providing sufficient coverage of their dividend program.

Agilent has a consistent share repurchase program that allows management to modulate dilution of common stock. Agilent spent \$434 million in fiscal 2016 to repurchase ~10.7 million shares of common stock, compared to \$267 million and \$200 million in fiscal years 2015 and 2014 respectively.

Debt Analysis

The corporate debt ratings for Agilent Technologies are outlined below in Figure 19:

Investment Thesis for Agilent Technologies, Inc. (NYSE: A) by Peter J. Boutros

A US \$ Market 4	P66.5	50/69.07P 1×1		
A US Equity 1) Company Tree	Rating	92) Alert	Page 1/1	Credit Rating Profile
Agilent Technologies Inc				
1) Bloomberg Default Risk. DRSK.» Moody's 2) Outlook 3) Issuer Rating 4) Long Term Rating 5) LT Corp Family Rating 6) Senior Unsecured Debt 7) Short Term 8) Probability of Default 9) Spec Grade Liquidity Rtg	STABLE WR Baa2 WR Baa2 WR WR WR	Fitch 16) Outlook 17) LT Issuer 18) Senior Ur Egan-Jon 19) LC Senior 20) FC Senior 21) LC Comm 22) FC Comm	Default Rating Isecured Debt es Ratings Cor Unsecured Unsecured ercial Paper ercial Paper	sTABLE BBB+ BBB+ A- A- A1 A1 A1
10) Standard & Poor's 11) Outlook 12) LT Foreign Issuer Credit 13) LT Local Issuer Credit 14) ST Foreign Issuer Credit 15) ST Local Issuer Credit	SP I STABLE BBB+ BBB+ NR NR	20 7330 7500 Germanu 4	9 59 9204 1210 Hone	Kona 852 2977 6000

Figure 19 - Agilent Technologies, Inc. (NYSE: A) Debt Rating [Source: Bloomberg Terminal; <CRPR> Accessed 12/19/2017)]

Agilent holds lower medium investment grade ratings from the major Credit Rating Agencies. The near-term debt distribution for Agilent Technologies can be seen below in Figure 20:



Figure 20 - Agilent Technologies, Inc. (NYSE: A) Debt Distribution [Source: Bloomberg Terminal; <DDIS> Accessed 12/19/2017)]

These data represented as a table is shown in Figure 21:

A US I	Equity	1) View All Mat	turities 2)	Actions -	12) Settings	Debt D	istribution
3) Matu Show A	urity Profile 5 8)Char	Summary Statistics Curr USD (MLN)	S History Breakdown By D	ebt Type	✓ « Add Co	omparisons and Settir	1as Ö
		·					
					* ///111		4
_	Devied	T-+-1	Agilent	Technologies	Inc (Million)		a + - a il
	Period	1 otal	t	1 900	Revolve	r Uut	
013	Total	1,980		1,800		180	820
21)	2019	180		E O O		180	820
22)	2020	500		500		0	0
23)	2022	400		400		0	0
24)	2023	600		600		0	0
25)	2026	300		300		0	0
Statisti	cs						
Entity		Total Del	ot Total Is	ss WtAv	vg Fixed Cpn	WtAvg Mty	WtAvg Yrs
Agilent	t Technolog	ies 1,98	0	5	3.90	10/03/2022	4.79
	Austral:	la 61 2 9777 8600 Brazil 551	1 2395 9000 Europe 4	4 20 7330 7500 G	ег лалу 49 69 9204 1210	0 Нопу Копу 852 2977 би	000
	vapati o.	5 5201 0500 Siligapore	05 0212 1000 0	.5. 1 212 516 20	SN 255353 EST GMT	F-5:00 H443-5411-1 20-6	 0ec-2017 08:56:30

Figure 21 - Agilent Technologies, Inc. (NYSE: A) Debt Distribution (Table) [Source: Bloomberg Terminal; <DDIS> Accessed 12/19/2017)]

Agilent Technologies reported \$1,912 million in long-term debt in fiscal 2016, with \$0 in short-term debt. With \$2,687 million in cash and cash equivalents (as of December 19th, 2017), Agilent holds a Net Cash/Share ratio of 1.49, showing they have sufficient cash to cover their total debt obligations. Agilent holds four segments of long-term senior notes that total \$1.8 billion. Figure 21 outlines the senior notes principals of \$500 million, \$400 million, \$600 million, and \$300 million which reach maturity in 2020, 2022, 2023, and 2026 respectively. Additionally, Agilent entered into a credit facility agreement in 2014 that can provide up to \$820 million that concludes in 2019. As of December 19th, 2017 Agilent has used \$180 million of this revolver. In conclusion, Agilent holds over \$680 million in debt with maturities in the next three years. While our free cash flow projection along with the substantial cash and cash equivalents listed on their balance sheet indicates substantial coverage, this may decrease the capital available for reinvestment into the company's operations.

We can further analyze how Agilent's bonds are actively trading within the credit market. Of the debt items outlined in Figure 21, we focused our analysis on the unsecured senior note for 500M with a 5.00% coupon rate that is set to mature on 07/15/2020.

A 5 07/15/20	\$ ↑106.21 4 At 8:58	4 037	49.9 bj Sou	p <mark>vs</mark> T 1. rce BMRK	. 875	12/15/2020			
A 5 07/15/20 Corp)	Settings 👻			Page	1/11 Security	Descript	ion: Bond	
				94) Notes	i i	95) Buy		96) Sell	
25) Bond Descripti	on 🛛 26) Is	suer Description							
Pages	Issuer Inf	formation				Identifiers			
11) Bond Info	Name	AGILENT TECHNO	LOGIES INC			ID Number	EI32326	63	
12) Addtl Info	Industry	Medical Equipme	ent & Device	es Manufac	tur	CUSIP	00846UA	4G6	
14) Guarantors	Security I	information			Ĩ	ISIN	US00846	SUAG67	
15) Bond Ratings	Mkt Iss	US Domestic				Bond Ratings			
16) Identifiers	Country	US	Currency	USD		Moody's	Baa2		
17) Exchanges	Rank	Sr Unsecured	Series			S&P	BBB+		
18) Inv Parties	Coupon	5.000000	Туре	Fixed		Fitch	BBB+		
19) Fees, Restrict	Cpn Freq	S/A				Composite	BBB		
21) Coupons	Day Cnt	30/360	Iss Price	99.5350	0	Issuance & Tra	ding		
Quick Links	Maturity	07/15/2020				Amt Issued/Ou	utstanding	9	
20)ALLQ Pricing	MAKE WHO	LE @30.000000 u	ntil 07/15/	20/BULLET		USD 500,000.00 (M) /			
33)QRD Quote Recap	Iss Sprd	+195.00bp vs	T 3 ½ 05/1	5/20		USD	500,00	(M) 00.00	
34) TDH Trade Hist	Calc Type	(1)STREET CON	VENTION			Min Piece/Increment			
SUCAUS Corp Action	Pricing Da	ate		07/13/20	10	2,000.00) / 1,00	0.00	
3)CN Sec News	Interest A	ccrual Date		07/20/20:	10	Par Amount		1,000.00	
38)HDS Holders	1st Settle	Date		07/20/20:	10	Book Runner	BofA	ML, BCLY, CS	
39)VPRD Underly Info	1st Coupo	n Date		01/15/20:	11	Reporting		TRACE	
	CALL @ M.	AKE-WHOLE +30			1				
m Send Bond	1								
Australia б Јарал 81 З	1 2 9777 8600 B 3201 8900	razil 5511 2395 9000 Е Singapore 65 6212 1000	urope 44 20 733 U.S. 1 21	0 7500 Germany 2 318 2000 SN	y 49 69 Cop N 25535	9 9204 1210 Hong Kong Pyright 2017 Bloomber 3 EST GMT—5:00 H443	: 852 2977 60 9 Finance L ≔5411-1 20-0		

Figure 22 - Agilent Technologies, Inc. (NYSE: A) Overview an Agilent Corporate Bond with a Maturity Date of 07/15/2020 and Coupon Rate of 5.00% [Source: Bloomberg Terminal; <DDIS> - <DES> Accessed 12/19/2017)]

Figure 22 shows an overview of this bond, as accessed using a Bloomberg Terminal on 12/19/2017. We can see the bond's initial issue price, that the \$500M bond has been fully issued, and the bond has a rating of lower tier investment grade (i.e., Baa2 from Moody's). We can also review recent yields for this bond, outlined in Figure 23 below:

A 5 07	/15/20	\$ †1	06.214	Ξ.	037		4	49.9 b	p <mark>vs</mark>	T 1.87	5 1	2/15/	2020				
		At	9:00						rce B	MRK							
A 5 07/1	5/20 Co	rp	1) A	ctions	-	97)	Set	tings				P	age 1 Tr	ade	/Qu	ote	Recap
Range 11	/17/17 E	08:00	:00 - 12/	(19/17 🗃	17	:30:0	0	9.	Buy		96)	Sell				_	
2) Trade Re	cap 3	Quote I	Recap														
Source TR	IC 🔽 S	how Tic	ks All	•	C	ond	Code	e Definitio	ons								
High 106.	366 I	.ow 10	05.843														4
Date	Time S	ize(M)	Price	Yield	RPS	RP	CР	Sprd	Bend	chmark	CC	Trd Da	Trd Time	Act	Ind	Re	ATS
		> 99			Al 🔹												
12/18 15:	47:2	165	106.239	2.478	S	D	C .	53.1	T 1 7₀	12/15/		12/18	15:47:23			n	
12/18 15:	47:2	165	106.206	2.491	в	D	C	54.4	T 1 %	12/15/		12/18	15:47:22			m	
12/08 11:	40:3 5	000+ e	106.491	2.401	S	D	C	48.7	T 1.75	11/15/		12/08	11:40:37			m	
12/08 10:	06:4 5	000+ e	106.439	2.421	В	D	¢	51.5	T 1.75	11/15/		12/08	10:06:43			m	
12/05/09:	35:0	200	106.365	2.462	В	D	C	51.6	T 1.75	11/15/	жX	12/05	09:34:31	X		m	
12/05 09:	34:4	200	106.322	2.478	В	D	C	53.2	T 1.75	11/15/		12/05	09:34:31			С	
12/05 09:	34:3	200	106.365	2.462	S	D	D	51.6	T 1.75	11/15/		12/05	09:34:31				
12/04 13:	14:5	100	106.431	2.439	В	D	C	51.0	T 1.75	11/15/		12/04	13:14:36			m	

Australia 61 2 9777 6600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 55 6212 1000 U.S. 1 212 318 2000 Copyright 2017 Bloomberg Finance L.P. N 25555 SET GMT-610 HH3-541-1 20-0ec-2017 09:00:50

Figure 23 - Agilent Technologies, Inc. (NYSE: A) Historical Bond Prices from 11/17/2017 through 12/19/2017 [Source: Bloomberg Terminal; <DDIS> - <TDH> Accessed 12/19/2017)]

Recently this specific bond has reported a yield of 2.478 which (as seen in Figure 24) is slightly below the currently yield curves for both the US Health Care Composite bond and overall US Corporate bond groups of similar ratings.



Figure 24 - Agilent Technologies, Inc. (NYSE: A) Agilent Bond Yield Curve, with US Health Care and US Corporate Composite Groups

Historical Allocation Analysis

Divestitures

In November 2014, Agilent divested its entire Electronics Measurements portfolio into Keysight Technologies, Inc. to separate the electronics and live science testing equipment portfolios. The separation of Keysight was done through a pro-forma tax-free share distribution with current Agilent shareholders. Specifically, each shareholder received a share of Keysight common stock for every two common stock shares of Agilent. In fiscal 2014, the electronics testing division accounted for ~42% of Agilent's total revenue, totaling over \$2.9 billion. Additionally, Agilent exited the nuclear magnetic resonance in 2014 business due to sluggish sales.

Mergers and Acquisitions

Agilent acquired Dako A/S and their portfolio of antibodies, reagents, and software in 2012 for \$2.143 billion in cash, where ~\$700 was paid directly to cover Dako's debt obligations. This acquisition was a large investment for Agilent to enter into the pathology marketplace.

In fiscal 2016, Agilent acquired Seahorse Bioscience and their line of instruments and software to assay cellular metabolism and bioenergetics. The sale was completed for \$242 million in cash

Additionally, Agilent purchased the cloud laboratory core management software company iLab Solutions LLC for \$26 million in cash.

Lastly, Agilent purchased the European company Muliplicom NV for €68 million in cash in fiscal 2017. This purchase added new diagnostic products to the existing Diagnostics and Genomics business segment.

Overall, we feel these small bolt-on type acquisitions were a positive capital allocation strategy to grow Agilent's footprint in the diagnostic clinical market and pharmaceutical end markets. Additionally, the laboratory management and training services offered through the CrossLab business segment were acquired through these small acquisition deals.

Compensation and Corporate Governance

Next, we will review the compensation structure for Agilent's Named Executive Officers (NEOs) to analyze how management incentives may influence their strategic initiatives and capital allocation tactics.

Executives and Board of Directors

Michael R. McMullen was appointed as the President and CEO of Agilent Technologies Inc. since March of 2015 after the retirement of William Sullivan. He previously served as Chief Operating Officer (COO, September 2014 to March 2015), President of the Chemical Analysis Group (September 2009 to September 2014), and the General Manager of the Chemical Analysis Solutions Unit from January 2002 to September 2009. Mr. McMullen has substantial experience working for Agilent, and in Hewlett-Packard before the creation of Agilent.

The other Named Executive Officers for fiscal year 2016 are: Dider Hirsh, Senior Vice President and Chief Financial Officer (CFO), Mark Doak, Senior Vice President and President of Cross-Lab Group, Patrick Kaltenback, Senior Vice President and President of the Life Sciences and Applied Markets Group, and Jacob Thaysen, Senior Vice President and President of Diagnostics and Genomics Group.

Compensation Structure

Agilent's compensation committee is composed of independent, non-employee directors, as outlined by the New York Stock Exchange standards and Rule 16b-3 under the Securities Exchange Act of 1934. This committee evaluates the performance of named executive officers and determines the specific metrics used to quantify their compensation packages. In 2017 (as reported in Agilent's 8-K filing on 07/18/2017), Agilent's compensation committee expanded from 10 to 11 members, adding Mr. Hans E. Bishop to the board. The rational for Mr. Bishop's addition to the committee was unclear; further expansion of the board may blur accountability for compensation decisions.



Figure 25 - Agilent Technologies, Inc. (NYSE: A) Management Compensation Breakdown [Source: SEC DEF-14A Filed 2017-08-07)]

In fiscal 2016, ~88% of Mr. McMullen's compensation was considered "at-risk" compensation, and thus could vary based upon performance. The other named NEO's closely align with the CEO compensation package with ~80% tied to performance.

Base Salary

The Agilent compensation committee has designed the base salary to be at most 80% of the NEO compensation package. Additionally, the base salary is designed to be (on average) within the 25th percentile of benchmark peer groups, as outlined in Figure 26:

Name	FY15 Salary	FY16 Salary	Increase	Percentile
Michael R. McMullen	\$950,000	\$1,050,000	11%	38th
Didier Hirsch	\$600,000	\$600,000	0%	45th
Mark Doak	\$425,000	\$475,000	12%	25th
Patrick Kaltenbach	\$475,000	\$500,000	5%	<25th
Jacob Thaysen	\$400,000	\$440,000	10%	28th

Figure 26 - Agilent Technologies, Inc. (NYSE: A) Management Base Salary Overview [Source: SEC DEF-14A Filed 2017-08-07)]

Short-Term Incentives for NEOs

The short-term incentive for Agilent upper management is separated into three metrics is outlined in Figure 27:

Progr	ram / Feature	FY16 Design	FY17 Design
Short	Performance Period	Annual	No change
Term	Primary Financial Metrics	ROIC / Revenue	Operating Margin / Revenue
Incentive (STI)	Key Business Initiatives	0% - 25% of target bonus	No change

Figure 27 - Agilent Technologies, Inc. (NYSE: A) Management Short-Term Incentives [Source: SEC DEF-14A Filed 2017-08-07)]

Where the performance based metrics are determined using:

Financial Goals	Annual Salary	x	Individual Target Bonus % (varies by individual)	×	Financial Portion of Target Bonus (75% to 100%)	x	Attainment % (based on actual performance)
Key Business Initiatives	Annual Salary	x	Individual Target Bonus % (varies by individual)	×	Strategic Portion of Target Bonus (0% to 25%)	x	Attainment % (based on actual performance)

Figure 28- Agilent Technologies, Inc. (NYSE: A) Performance Short Term Incentive Calculation [Source: SEC DEF-14A Filed 2017-08-07))]

Overall, the use of return on invested capital (ROIC) as a performance metric in fiscal 2016 appears to be a valid choice, as it normalizes the metric to the amount of invested capital in the company. In fiscal 2017 Agilent will change this metric to the overall operating margin. Agilent management would like to further motivate their executives to push initiatives to expand the margin structure of the company. Unfortunately, the Key Business Initiative goals are almost exclusively 'adjusted income' metrics for the individual business segments that remove the effects of acquisitions and integration costs.

Long-Term Incentives for NEOs

Long-term incentives (LTIs) at Agilent are typically equity based with a three or four year vesting period. The distribution of LTIs is shown in Figure 29 below:

Program	/ Feature	FY16 Design	FY17 Design	
	Stock Options (Time-Based Vesting)	Not Granted	No change	
	LTPP Shares (Relative TSR)	30% of target LTI value	No change	
	LTPP Shares (Financial Metric)	30% of target LTI value (Financial Metric = OM)	30% of target LTI value (Financial Metric = EPS)	
Long-Term Incentives (LTI)	RSUs (Time-Based Vesting)	40% of target LTI value	No change	
	One Year Post-Vest Holding Period	Apply to LTPP and RSUs	No change	
ong-Term Incentives (LTI)	Payout Caps	Lower of: ✓ 2X cap on # of LTPP shares ✓ 3X cap on LTPP payout dollar value	No change	

Figure 29 - Agilent Technologies, Inc. (NYSE: A) Management Long-Term Incentives [Source: SEC DEF-14A Filed 2017-08-07)]

Note that the financial metric driving 30% of the total LTI package was previously a function of operating margin during fiscal 2016 and will be changed to adjusted earnings per share (EPS) metric for fiscal 2017. This adjusted EPS metric will remove the effects of acquisitions, corporate costs, and amortization among other effects. This change could effectively help top executives hide the effect of their capital allocation decisions from affecting their stock options. The vesting periods for all LTIs are outlined below:

Equity Vehicle	Weighting	Metric	Vesting	Holding Period	Methodology for Determining Target Award	Payout Range
Performance Stock Units	30%	Relative Total Shareholder Return	100% after 3rd year			
Performance Stock Units	30%	Operating Margin %	100% after 3rd year	One-year post- vest holding period	Divide the target award amount by the product of the 20-day average stock price, preceding the grant date, multiplied by the applicable accounting valuation	Lesser of 2X share target or 3X dollar target value'
Restricted Stock Units	40%	None	25% each year over 4 years			n/a

Figure 30 - Agilent Technologies, Inc. (NYSE: A) Management Long-Term Incentives [Source: SEC DEF-14A Filed 2017-08-07))]

In conclusion, Agilent's compensation structure appears appropriately weighted with short- and long-term compensation that is both at-risk and dependent on operating performance. Recent transitions towards using adjusted accounting metrics as performance metrics (such as non-GAAP EPS) is a worrisome sign that management may obscure negative impacts of capital allocation decisions to boost compensation.

Insider Trading

ΑU	IS \$ Market	Nol 1 46	P66.50/	69.0)7 P 🗧	L×1			
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24) Colo	r Legend		Shrs Out 322.0M	1 81	Out 0.42 Floa	at/Shrs Out	99.58 SI	8 Out 1.23	4
ŀ	Holder Name	Portfolio Name	Source	Opt	Position!	% Out	Latest Chq	File Dt	
			Insider 🔹	AU -					
1	MCMULLEN MICHAEL R		Form 4		304,139	0.09	-1,262	12/07/17	1
2	HIRSCH DIDIER		Form 4		184,532	0.06	-419	12/07/17	1
3	CLARK PAUL N		Form 4		87,520	0.03	-3,659	05/25/17	1
4	CULLEN JAMES GILBERT		Form 4		80,825	0.03	184	05/24/17	1
5	BOON HWEE KOH		Form 4		73,001	0.02	4,182	08/30/17	1
6.	KALTENBACH PATRICK K		Form 4		70,504	0.02	0	11/28/17	2
1.	DOAK MARK		Form 4		67,958	0.02	0	12/18/17	2
R	HERBOLD ROBERT JOHN		Form 4		62,955	0.02	8,625	05/15/17	2
9,	FIELDS HEIDI KUNZ		Form 4		61,854	0.02	125	06/16/17	2
10.	GRAU DOMINIQUE P		Form 4		60,699	0.02	-191	12/07/17	100
11.	KUNZ HEIDI		Proxy		57,719	0.02	0	01/17/17	2
12	YAMADA TADATAKA		Form 4		43,778	0.01	6,255	03/16/17	2
13	THAYSEN JACOB		Form 4		40,459	0.01	0	11/28/17	2
14	ANCHER-JENSEN HENRIK		Form 4		39,023	0.01	-663	11/17/17	2
15.	TANG MICHAEL		Form 4		34,026	0.01	-598	11/17/17	2
16.	GONSALVES RODNEY		Form 4		25,360	0.01	-438	11/17/17	2
1).	SCANGOS GEORGE A		Form 4		15,253	0.00	3,868	03/16/17	2
18.	PODOLSKY DANIEL K		Form 4		14,615	0.00	4,955	03/16/17	2
19,	RATAJ SUE H		Form 4		10,860	0.00	3,866	03/16/17	1 <u></u>
	Australia 61 2 9777 860 Japan 81 3 3201 8900	Ю Brazil 5511 2395 90 Singapore 65 6212	000 Europe 44 20 7 1000 U.S. 1	330 750 212 318	00 Germany 49 69 90 8 2000 Copyr: SN 255353 E	204 1210 Hong ight 2017 Blo ST GMT—5:00) Kong 852 2977 Юпбегу Finance Н443-5411-1 20	6000 L.P. Dec-2017 09:	:03:45

Figure 31 - Agilent Technologies, Inc. (NYSE: A) Insider Equity Holders [Source: Bloomberg Terminal; <HDS> Accessed 12/19/2017)]

Figure 31 shows how much stock is owned by Agilent management, with President and CEO Michael McMullen holding over 300,000 shares, or 0.09% of outstanding shares. This is a relatively small holding in Agilent, as the top 15 holders of equity in Agilent hold at least 1.3% of the outstanding shares. This can be Figure 32 below:

AUS \$ Market	Non	P66.50/ 439	69.0)7 P	1×1			
A US Equity	25) Export	Settings				Security	v Ownersł	nin
AGILENT TECHNOLOGIES INC						Second,	CUSIP 0084	46U10
1) Current 2 Historical 3 M	atrix 4 Ownership S	Summary	\$ Insi	der Transactions	6 Optio	ns 7) Debt		
Search Name All Holders, Sorted	by Size 21) Sa	ave Search	22)	Delete Search	23)	Refine Search		_
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24) Color Legend	Shr	s Out 322.0M	1 %1	Dut 91.61 Flo	at/Shrs Out	99.58 SI	% Out 1.23	4
Holder Name	Portfolio Name	Source	Opt	Position	% Out	Latest Chg	File Dt	
		Au 🔹	AU -					
1 T ROWE PRICE GROUP INC		ULT-AGG		28,550,633	8.87	-1,259,227	09/30/17	1
2 BLACKROCK		ULT-AGG		23,753,172	7.38	360,834	09/30/17	1
1 EVANGUARD GROUP		ULT-AGG		23,243,992	7.22	1,150,323	09/30/17	1
(EFMR LLC		ULT-AGG		18,358,538	5.70	-1,354,847	09/30/17	1
1 ESTATE STREET CORP		ULT-AGG		13,928,169	4.33	-362,029	09/30/17	1
6 ESTATE FARM MUTUAL AUTO INSU	Multiple Portfolios	Multi		11,948,695	3.71	-229	09/30/17	1
I. EJPMORGAN CHASE & CO		ULT-AGG		11,460,323	3.56	-1,208,439	09/30/17	1
8 BNY MELLON		ULT-AGG		5,673,546	1.76	-48,011	09/30/17	1
9 EPUTNAM INVESTMENTS LLC	PUTNAM INVESTMENT LLC	13F		5,141,378	1.60	-1,571,256	09/30/17	1
1 PRIMECAP MANAGEMENT COMPAN	PRIMECAP MANAGEMENT C	13F		4,889,900	1.52	-167,120	09/30/17	100
1 GOLDMAN SACHS GROUP INC		ULT-AGG		4,886,307	1.52	-546,028	12/19/17	1
2 CANTILLON CAPITAL MANAGEME	CANTILLON CAPITAL MANA	13F		4,870,677	1.51	-142,582	09/30/17	1
1 MAMERICAN CENTURY COMPANIES	AMERICAN CENTURY COMP	13F		4,297,636	1.33	-284,450	09/30/17	1
1 TIAA-CREF		ULT-AGG		4,010,166	1.25	-1,085,318	11/30/17	1
1 D E SHAW & COMPANY LP	D E SHAW & CO	13F		3,911,551	1.21	498,337	09/30/17	1
11 ENORTHERN TRUST CORPORATIO	NORTHERN TRUST CORPOR	13F		3,855,675	1.20	256,473	09/30/17	1
1. ORBIMED ADVISORS LLC	ORBIMED ADVISORS LLC	13F		3,638,900	1.13	-175,200	09/30/17	1
B GEODE CAPITAL MANAGEMENT LL	GEODE CAPITAL MANAGEM	13F		3,479,681	1.08	132,863	09/30/17	1
1 EVICTORY CAPITAL MANAGEMENT	VICTORY CAPITAL MANAG	13F		3,330,488	1.03	253,250	09/30/17	1
Australia 61 2 9777 860 Japan 81 3 3201 8900	0 Brazil 5511 2395 9000 Singapore 65 6212 100	Europe 44 20 7. 0 U.S. 1	330 750 212 318	0 Germany 49 69 9 3 2000 Copyr SN 255353 1	204 1210 Hong ight 2017 Blo EST GMT—5:00) Kong 852 2977 Somberg Finance) H443-5411-1 20	6000 L.P. Dec-2017 09	:04:1

Figure 32 - Agilent Technologies, Inc. (NYSE: A) All Equity Holders [Source: Bloomberg Terminal; <HDS> Accessed 12/19/2017)]

The timing of insider stock trades can be seen in Figure 33 below. While no buy transactions were reported in this period, a steady stream of insider sales were recorded during Agilent's rise in price from mid-2016. Additionally, the largest insider trade in this period was conducted about one month before the closing of the divestment of Keysight.



Figure 33 - Agilent Technologies, Inc. (NYSE: A) Insider Equity Trades [Source: Bloomberg Terminal; <GPTR> Accessed 12/19/2017)]

Agilent has identified the following peer group in their proxy statement disclosure:

Actavis Alexion Pharma Allergan Bard (C.R.) Becton, Dickinson **Biogen Idec Boston Scientific** CareFusion Celgene Cerner Covidien Danaher DENTSPLY Intl **Edwards Lifesciences** Forest Labs Hospira

Intuitive Surgical Lab Corp of America Mylan PerkinElmer Perrigo Quest Diagnostics Regeneron Pharma St. Jude Medical Stryker Thermo Fisher Varian Medical Systems Vertex Pharmaceutical Waters Zimmer Holdings Zoeti

Conclusions and Investment Decision

Our analysis has provided evidence that Agilent Technologies, Inc. has seen strong top line revenue growth and a series of bolt-on acquisitions to expand profitability into fiscal 2017. Following the divestiture of their electronic measurement sector in 2014 to focus their capital allocation and acquisition strategies to grow market share, Agilent has become a premier competitor in the producer of analytic devices, software, and services for life science laboratories. Although this growth has made Agilent an attractive investment, we believe that the extensive operating cost structure, uncertain far-term growth rates, and the large accumulation of cash overseas that can be tied behind repatriation taxes are preventing Agilent from further expanding free cash flow. Our probabilistic free cash flow model estimates a fundamental value of \$38.43 per share for Agilent, which represents a 43.28% downside to the current stock price of \$67.75. Using management guidance and bullish assumptions of revenue growth, we are unable to achieve the current stock price and rate Agilent a 'SELL'.