

# TEAM INDEX



# CDW RECOMMENDATION

**Valuation Date:** January 4, 2018

**Current Price:** \$72.93

**Ticker:** CDW

**Recommendation:** Hold

**Target Price:** \$75.33

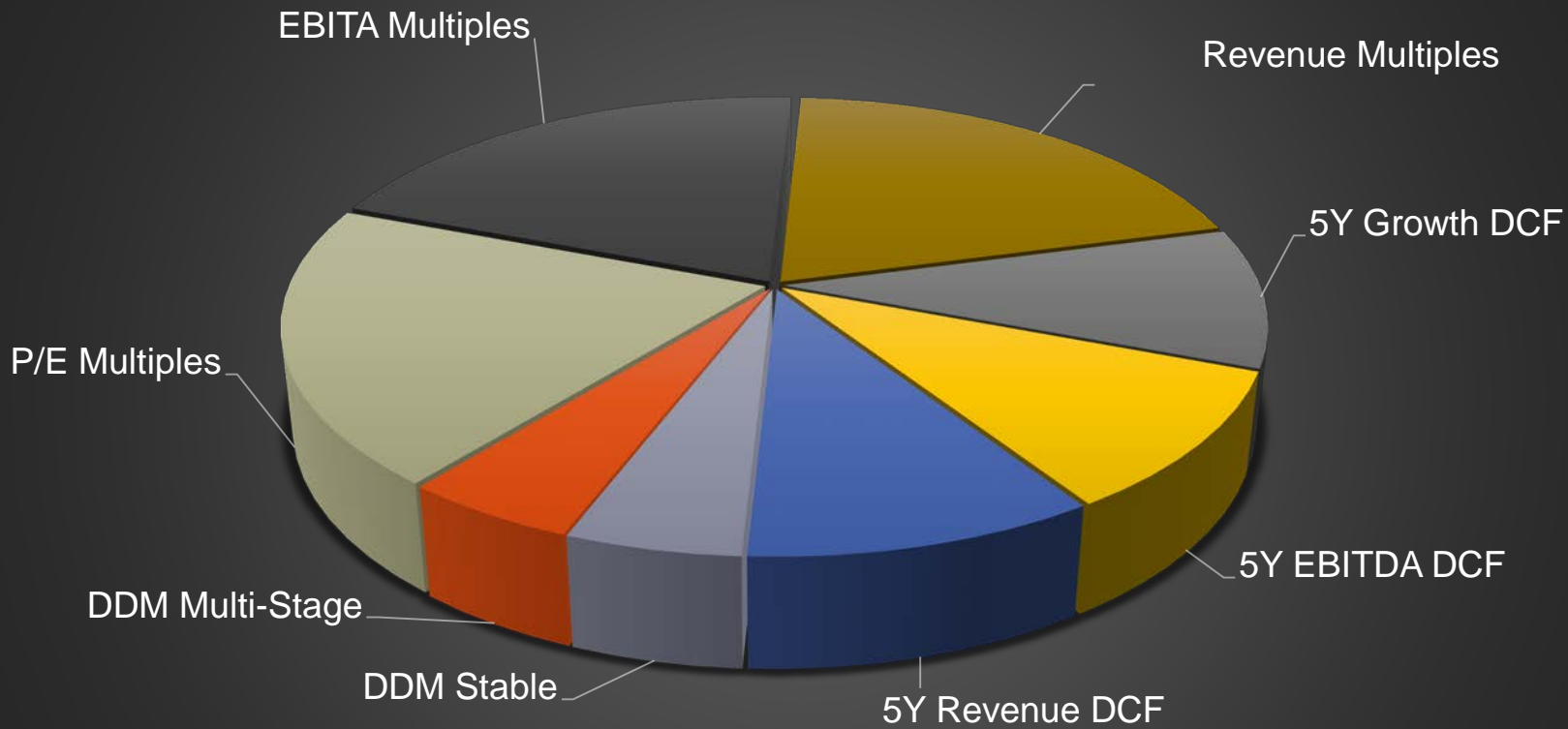
**Upside:** +3.19%

**This recommendation due to the following reasons:**

- Large Debt Position
- Specialized Target Customers
- Multi-Model Valuation



# VALUATION



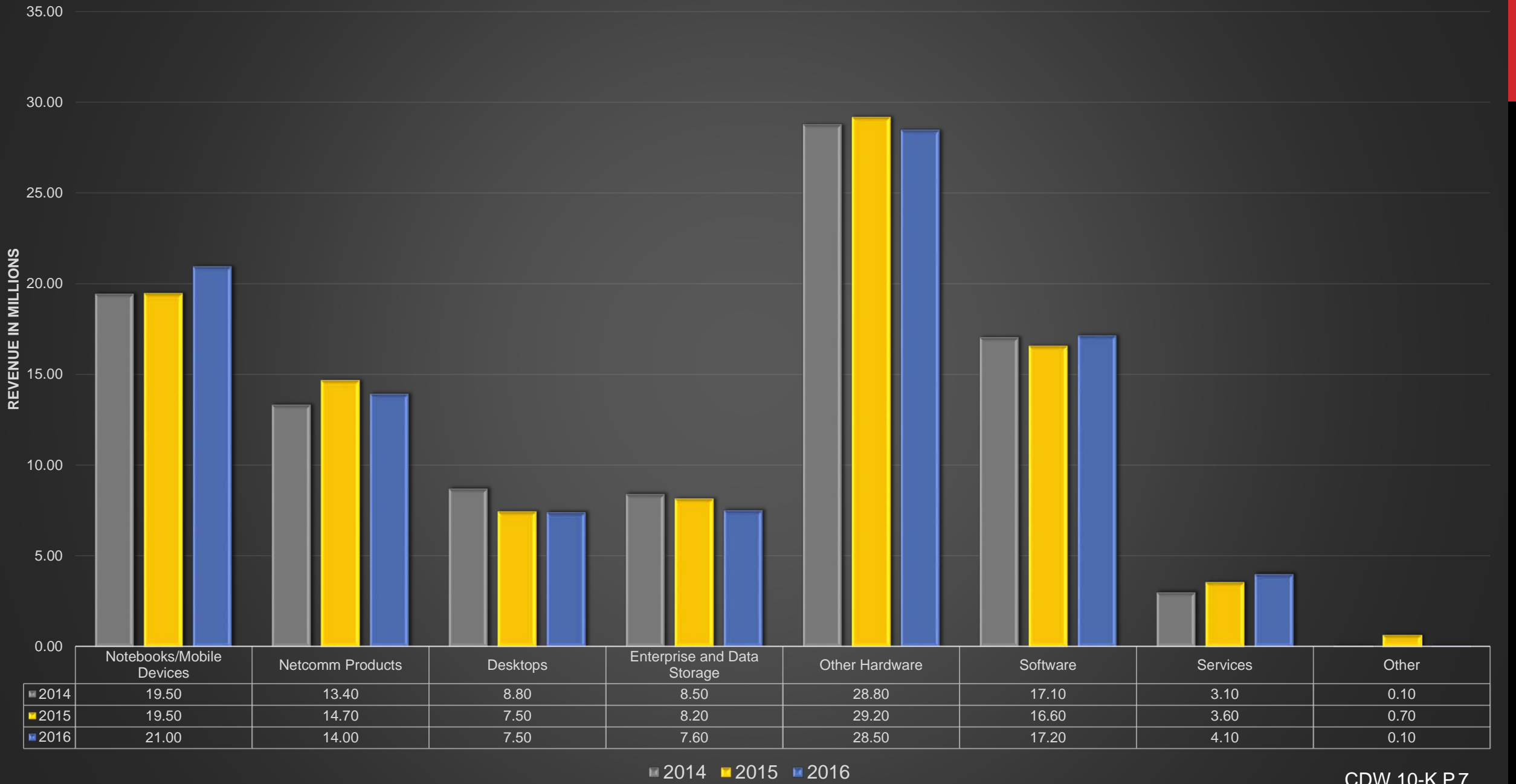
5Y Growth DCF	\$ 87.61
5Y EBITDA DCF	\$ 72.53
5Y Revenue DCF	\$ 70.08
DDM Stable	\$ 42.51
DDM Multi-Stage	\$ 52.06
P/E Multiples	\$ 67.49
EBITDA Multiples	\$ 69.54
Revenue Multiples	\$ 100.87

# BACKGROUND

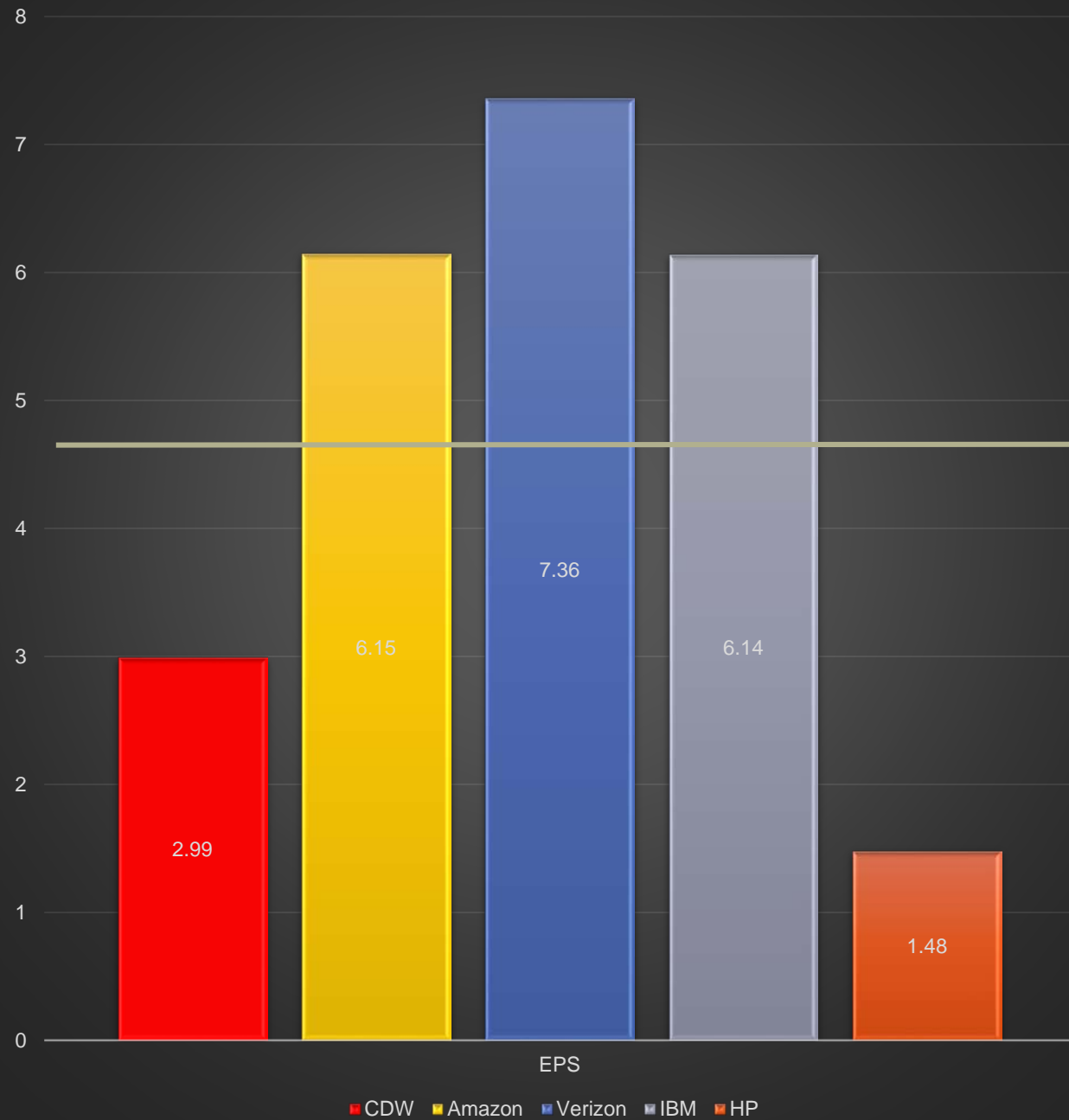
- MPK Computing – 1984
- Lincolnshire, IL
- Technology Sector
- IT Services Industry
- June 27, 2013
- Kelway
- IT Market – 890 billion
- Addressable market – 32.5%



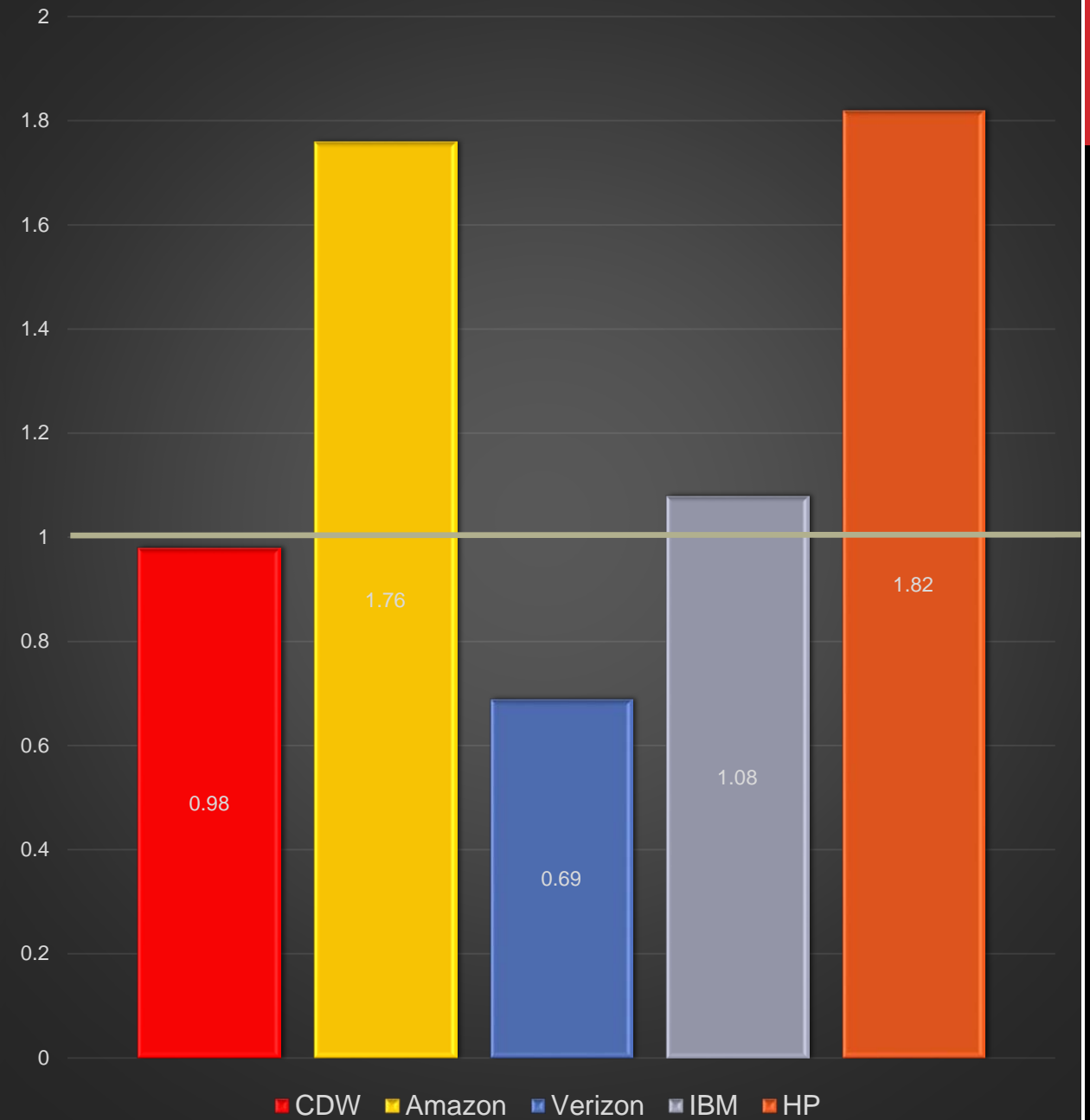
# CDW Revenue Product Breakdown



# EPS 2017



# Beta



# SWOT ANALYSIS

## Strengths

- Brand Name
- Adaptable Sales Force
- Business Markets

## Weaknesses

- High Sales Team Turnover
- Debt
- Suppliers are Competitors

## Opportunities

- International Expansion
- New Technology
- Emerging Markets

## Threats

- Brexit
- High Competition
- Tax Bill



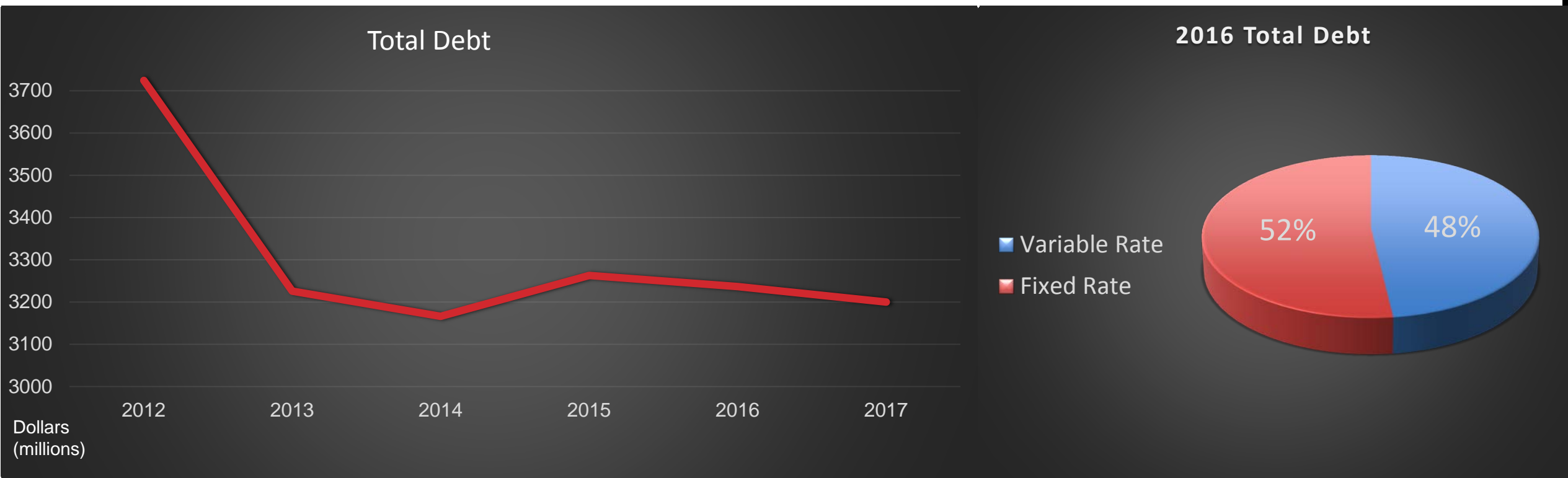
# FINANCIAL ANALYSIS

Year	Revenue	Net Income	EPS	Gross Profit Margin	Operating Profit Margin	Net Profit Margin
2012	10,128.20	119.00	0.82	16.48%	5.04%	1.17%
2013	10,768.60	132.80	0.85	16.35%	4.70%	1.23%
2014	12,074.50	244.90	1.44	15.91%	5.57%	2.03%
2015	12,988.70	403.10	2.37	16.29%	5.71%	3.10%
2016	13,981.90	424.40	2.59	16.64%	5.86%	3.04%
2017	15,155.65	583.22	2.99	16.68%	6.08%	3.85%
2018	16,427.94	801.47	3.45	16.72%	6.32%	4.88%
2019	17,807.04	1,101.40	3.97	16.76%	6.56%	6.19%
2020	19,301.90	1,513.57	4.58	16.81%	6.81%	7.84%
RATE	8.39%	37.42%	15.34%	0.24%	3.80%	26.78%

Margin calculations shown in [Appendix A](#)



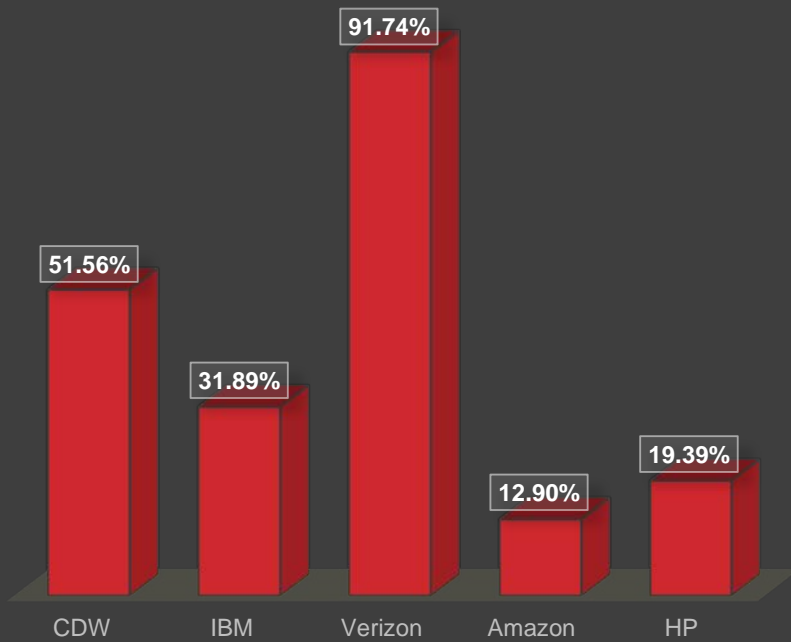
# POOR DEBT POSITION



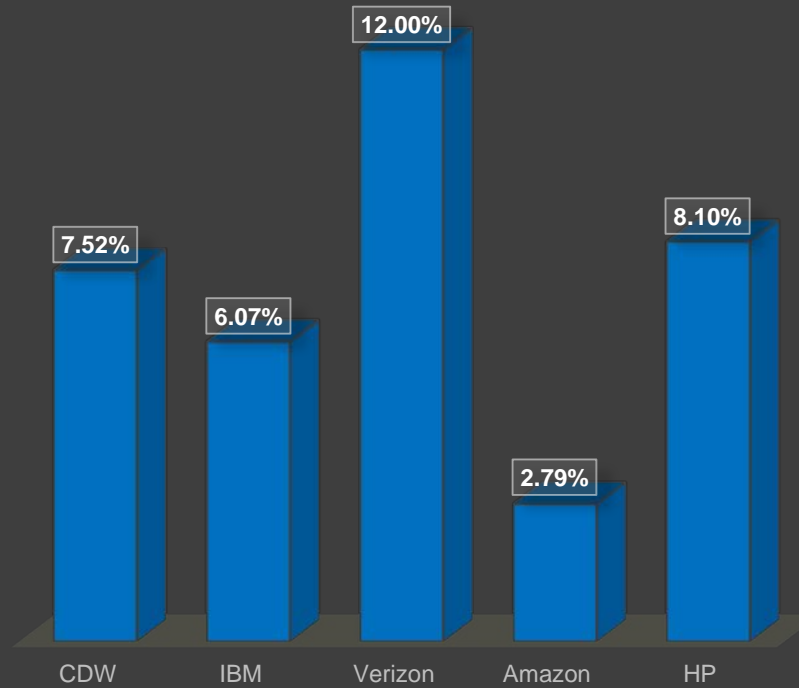
Debt Calculations given in [Appendix C](#)

# COMPETITIVE ANALYSIS

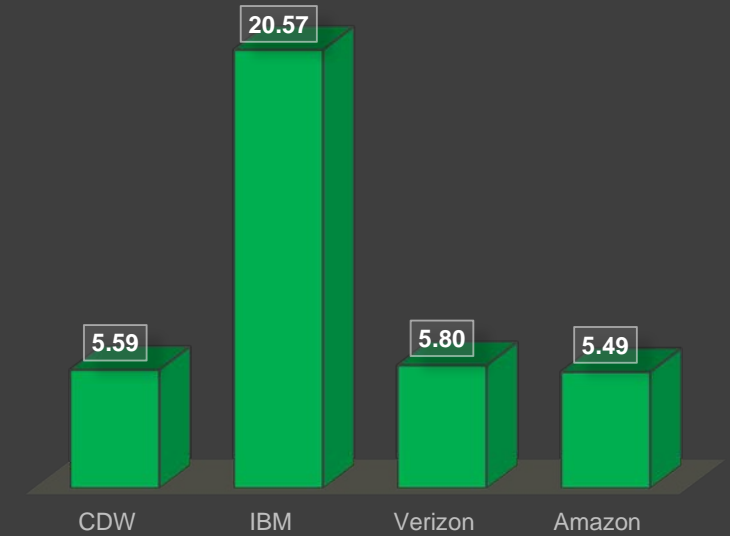
## RETURN ON EQUITY



## RETURN ON ASSETS



## TIMES INTEREST EARNED



Calculations shown in [Appendix C](#)

# INVESTMENT SHORTCOMINGS

## Competition

- IBM, HP, Amazon, Verizon

## Debt

- \$3.2 billion long-term debt
- \$580 million short-term obligations



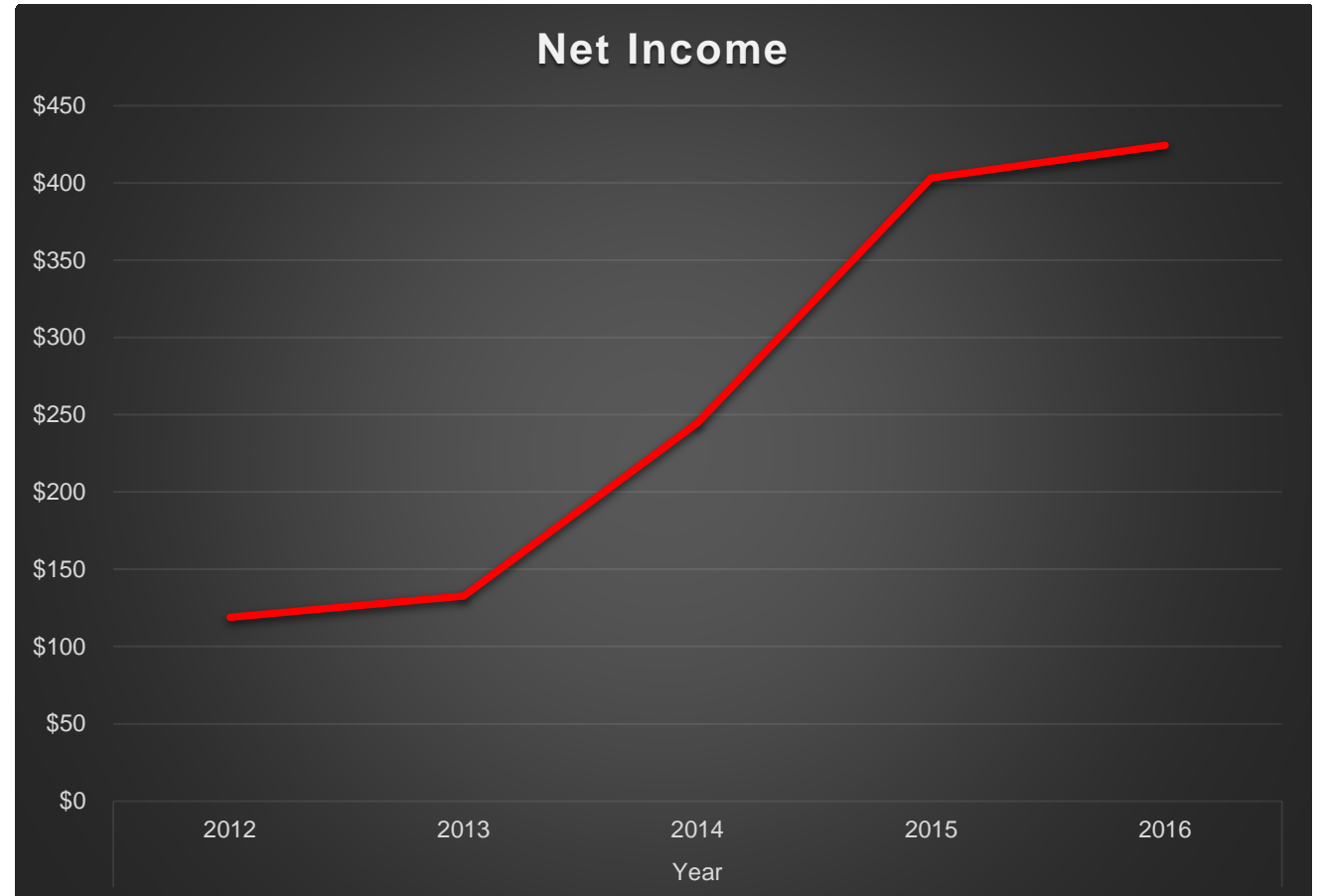
# INVESTMENT DRIVERS

## Target Customers

- Small/Mid Size Business
- Room to gain market share

## Increasing Yearly Income

- Top of business cycle



# INVESTMENT RISKS

## Foreign Currency Risk

- Canadian Dollar
- British Pound

## Business Risks

- Loss of vendor contracts
- Inability to cover large debt position



# TEAM INDEX



# APPENDIX A

Year	Revenue	Net Income	COGS	Gross Profit Margin	Gross Profit	Inc from Operations	Operating Profit Margin	Net Profit Margin
2012	10,128.20	119.00	8,459.00	16.4807%	1669.6	510.6	5.0414%	1.17%
2013	10,768.60	132.80	9,008.00	16.3494%	1760.3	506.6	4.7044%	1.23%
2014	12,074.50	244.90	10,153.00	15.9137%	1921.3	673	5.5737%	2.03%
2015	12,988.70	403.10	10,873.00	16.2888%	2115.8	742	5.7127%	3.10%
2016	13,981.90	424.40	11,655.00	16.6422%	2327.2	819.2	5.8590%	3.04%
2017	15155.65	583.22		16.6829%			6.0833%	3.85%
2018	16427.94	801.47		16.7236%			6.3163%	4.88%
2019	17807.04	1101.40		16.7644%			6.5581%	6.19%
2020	19301.90	1513.57		16.8053%			6.8092%	7.84%
RATE	1.0839	1.3742		1.0024			1.0383	1.27

# APPENDIX B

Ann E. Ziegler, senior vice president & chief financial officer, CDW. "Annual dividend increases are an important component of our capital allocation strategy, along with share repurchases and strategic acquisitions, to deliver value to our shareholders just as we've delivered value to our customers and partners for more than 30 years."

November 1, 2017



# APPENDIX C

	CDW	IBM	Verizon	Amazon	HP
Return on Equity	51.56%	31.89%	91.74%	12.90%	19.39%
Return on Assets	7.52%	6.07%	12.00%	2.79%	8.10%
Times Interest Earned	5.59	20.57	5.80	5.49	
Earnings before Int. and Tax	818,900	12,960,000	25,362,000	4,654,000	
Interest expense	146,500	630,000	4,376,000	848,000	

Total Debt		
Variable Rate	1552	0.48109113
Fixed Rate	1674	0.51890887

Data from CDW 10-K and

[https://seekingalpha.com/symbol/CDW/analysis-and-news?analysis\\_tab=focus&news\\_tab=latest-news](https://seekingalpha.com/symbol/CDW/analysis-and-news?analysis_tab=focus&news_tab=latest-news)

# APPENDIX D

## Growth 5-Year DCF Model

CDW Corporation

5-Year DCF Model: Gordon Growth Exit

Model Summary

Range

Conclusion

Low

High

Cost of Capital

Perpetuity Growth Rate

Fair Value

Upside

5-Yr Period

Revenue 5Y CAGR

EBITDA 5Y CAGR

Unlevered FCF 5Y CAGR

5Y Average EBITDA Margin

5Y Average Unlevered FCF Margin

Select Revenue and EBITDA Forecast

Fiscal Years Ending

Dec-16

Dec-17

Dec-18

Input Projections

Dec-19

Dec-20

Dec-21

Revenue

13,982

15,065

16,231

17,489

18,843

20,302

% Growth

7.6%

7.7%

7.7%

7.7%

7.7%

7.7%

EBITDA

15,751

1,169

1,259

1,387

1,683

2,016

% of Revenue

12.7%

7.8%

7.8%

7.9%

8.9%

9.9%

Select Capital Expenditures Forecast

Fiscal Years Ending

Dec-16

Dec-17

Dec-18

Input Projections

Dec-19

Dec-20

Dec-21

Terminal

Capital Expenditures

64

74

81

106

114

123

123

% of Revenue

0.5%

0.5%

0.5%

0.6%

0.6%

0.6%

0.6%

Historical Spending

Fiscal Years Ending

Dec-12

Dec-13

Dec-14

Dec-15

Dec-16

YTD

Sep-17

Capital Expenditures

41

47

55

90

64

59

% of Revenue

0.4%

0.4%

0.5%

0.2%

0.5%

5-Year Average

0.5%

Select Net Working Capital Forecast

Fiscal Years Ending

Dec-16

Dec-17

Dec-18

Input Projections

Dec-19

Dec-20

Dec-21

Terminal

Net Working Capital

712

767

827

891

960

1,034

1,076

% of Revenue

5.1%

5.1%

5.1%

5.1%

5.1%

5.1%

5.1%

NWC Investment

(55)

(59)

(64)

(69)

(74)

(41)

Historical Spending

Fiscal Years Ending

Dec-12

Dec-13

Dec-14

Dec-15

Dec-16

Latest

Sep-17

Total Current Assets

1,835

2,214

2,403

2,791

3,238

3,493

(-) Cash and Equivalents

(38)

(188)

(345)

(38)

(264)

(98)

(-) Short Term Investments

0

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# APPENDIX E

## 5 year EBITDA DCF

### CDW Corporation

5-Year DCF Model: EBITDA Exit

#### Model Summary

Fair Value			
\$72.53			
Sensitivity Analysis			
5-Yr Period			
Low	High	Conclusion	
9.0%	8.0%	8.5%	
12.1x	14.1x	13.1x	
60.73	84.72	72.53	
-16.7%	16.2%	-0.5%	
Revenue 5Y CAGR	7.7%		
EBITDA 5Y CAGR	-33.7%		
Unlevered FCF 5Y CAGR	-34.8%		
5Y Average EBITDA Margin	8.5%		
5Y Average Unlevered FCF Margin	5.6%		

#### Select Revenue and EBITDA Forecast

Fiscal Years Ending	Dec-16	Dec-17	Dec-18	Input Projections	Dec-19	Dec-20	Dec-21
Revenue	13,982	15,085	16,231	17,489	18,843	20,302	
% Growth	7.6%	7.7%	7.7%	7.7%	7.7%	7.7%	
EBITDA	15,751	1,169	1,259	1,387	1,683	2,016	
% of Revenue	112.7%	7.8%	7.8%	7.9%	8.9%	9.9%	

#### Select Capital Expenditures Forecast

Fiscal Years Ending	Dec-16	Dec-17	Dec-18	Input Projections	Dec-19	Dec-20	Dec-21
Capital Expenditures	64	74	81	106	114	123	
% of Revenue	0.5%	0.5%	0.5%	0.6%	0.6%	0.6%	

#### Historical Spending

Fiscal Years Ending	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	YTD Sep-17
Capital Expenditures	41	47	55	90	64	59
% of Revenue	0.4%	0.4%	0.3%	0.7%	0.3%	
5-Year Average	0.5%					

#### Select Net Working Capital Forecast

Fiscal Years Ending	Dec-16	Dec-17	Dec-18	Input Projections	Dec-19	Dec-20	Dec-21
Net Working Capital	712	767	827	891	940	1,034	
% of Revenue	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	
NWC Investment	(55)	(59)	(64)	(69)	(74)		

\$72.88

1/16/18

#### Historical Spending

1/16/18

Fair Value

\$72.53

Supporting Calculations

Calculation of Free Cash Flow

Projected Unlevered Cash Flow

Equity Waterfall

Enterprise Value

(+) Cash & Equivalents

(-) Investments & Other

(-) Debt

(-) Minority Interest & Other

(-) Preferred Stock

(-) Other

Value of Common Equity

(+) Shares Outstanding

Implied Stock Price

Upside / (Downside)

Historical Financials

Revenue

Growth

Cost of Revenue

Gross Profit

R&D Expense

SG&A Expense

Other Expenses / (Income)

Total Operating Expenses

EBIT

(+) DSA

(+) Asset Write-down

(+) Restructuring

(+) Merger / Acq Cap

(+) Goodwill Impairment

(-) Litigation

(-) Other Non-recurring

Adjusted EBITDA

% Margin

Adjusted EBIT

% Margin

Calculation of Enterprise Value

FCF

Low

Mid

High

Market Price

Dec-17

Dec-18

Dec-19

Dec-20

Dec-21

Terminal

Discount Rate

Implied Fair Value

Implied Upside / (Downside)

Selected Discount Rate

Implied Fair Value

Implied Upside / (Downside)

Selected Discount Rate

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Implied Fair Value

## 5-Year Revenue DCF

Format and Algorithms provided by FinBox.io

APPENDIX G

DDM Stable Growth

CDW Corporation				\$72.88	Selected Growth Rate			3.2%	3.7%	4.2%	Upside Difference			0		
Dividend Discount Model: Stable Growth				1/16/18												
Model Summary																
				Fair Value												
							Low	Mid	High							
				Range	Conclusion											
				Low	High											
Adjusted Dividend				\$2.44	\$2.79	\$2.65										
Adjusted Dividend Yield				3.3%	3.8%	3.6%										
Perpetuity Growth Rate				3.2%	4.2%	3.7%										
Cost of Capital				11.2%	9.2%	10.2%										
Fair Value				31.60	58.58	42.51										
Upside				-56.6%	-19.6%	-41.7%										
Current Dividend per Share				\$0.84												
Current Dividend Yield				1.2%												
4yr Avg. Div. Growth				155.5%												
YTD Div. Growth				40.7%												
Calculate Adjusted Dividend																
</																



# APPENDIX H

## DDM Multi-Stage

CDW Corporation  
Dividend Discount Model: Multi Stage

\$72.88  
1/16/18

Supporting Calculations

Historical Performance

Dec-19	93	80	81	82
Dec-20	97	75	77	79
Dec-21	102	71	73	75

Model Summary

	Range		Conclusion
	Low	High	
Perpetuity Growth Rate	3.0%	4.0%	3.5%
Cost of Capital	11.2%	9.2%	10.2%
Fair Value	41.26	69.18	52.06
Upside	-43.4%	-5.1%	-28.6%
Current Dividend per Share	50.84		
Current Dividend Yield	1.2%		
4yr Avg. Div. Growth	155.5%		
YTD Div. Growth	40.7%		

Fair Value  
\$52.06

	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	YTD Sep-16	YTD Sep-17
Cash Dividends Paid	0	7	34	53	79	53	75
% Growth		NM	360%	57%	49%		41%
Adj. Net Income to Common	119	133	245	403	424	321	328
% Growth		12%	84%	65%	5%		2%
Payout Ratio	0%	5%	14%	13%	19%	17%	23%
Retention Ratio	100%	95%	86%	87%	81%	83%	77%
Adjusted EBITDA	11,511	12,237	13,937	14,596	15,751	12,743	13,751
% Growth		6%	11%	8%	8%	-19%	8%
Total Debt	3,771	3,251	3,166	3,260	3,234	3,241	3,430
Shareholder's Equity	137	712	937	1,096	1,046	991	807
Debt / EBITDA	0.3	0.3	0.2	0.2	0.2		0.2
Debt / Equity	2763%	457%	338%	297%	309%	327%	425%

4-Yr Avg. Dividend Growth 155.5%

Discounting Periods

	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21
Beginning Date	Sep-17	Dec-17	Dec-18	Dec-19	Dec-20
End Date	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21
Mid-Year Convention	Nov-17	Jul-18	Jul-19	Jul-20	Jul-21
Discount Periods					
Terminal	0.17	0.46	1.46	2.46	3.46
Valuation Date	1/16/18				3.96

Discounting Factors

	Discount	Low	Mid	High
Cost of Capital		11.2%	10.2%	9.2%
Dec-17	0.17	98.2%	98.4%	98.5%
Dec-18	0.46	95.2%	95.6%	96.0%
Dec-19	1.46	85.7%	86.8%	87.9%
Dec-20	2.46	77.0%	78.7%	80.5%
Dec-21	3.46	69.3%	71.5%	73.7%
Terminal	3.96	65.7%	68.1%	70.6%

PV of Discrete Dividends

	Dividends	Low	Mid	High
Dec-17	4	4	4	4
Dec-18	85	81	82	82

PV of Discrete Dividends 311 316 322

PV of Terminal Dividends

	Low	Mid	High
Terminal Dividend	728	728	728
Perpetuity Growth Rate	3.0%	3.5%	4.0%
Cost of Capital	11.2%	10.2%	9.2%
Projected Terminal Value	9,142	11,241	14,550
(x) Terminal Discount Factor	65.7%	68.1%	70.6%

Present Value of Terminal Value 6,004 7,652 10,268

Sanity Checks

	Value	Falling?
Terminal Cash Flow > 0	728	0
Perpetuity Growth >= 0	3.5%	0
Upside Difference		0

Checks Passed? TRUE

Analyst Upside Difference < 50%	31%	0
FinBox.io Upside Difference < 50%	29%	0

Final Values

Analyst Price Target	74.83
Analyst Upside	3%

Project Adjusted Dividends

	Dec-16	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Terminal
Adj. Net Income to Common	424	606	656	714	750	787	787
% Growth	5.3%	42.7%	8.4%	8.8%	5.0%	5.0%	
Payout Ratio	18.5%	13.0%	13.0%	13.0%	13.0%	13.0%	92.5%
Projected Dividends	79	79	85	93	97	102	728
% Growth		0.1%	8.4%	8.8%	5.0%	5.0%	

Estimate Perpetuity Growth Rate

	LTM	Historical 5Y CAGR	7Y CAGR	FY + 1	Projected 5Y CAGR	10Y CAGR
Revenue	6.7%	7.8%	NA	8.7%	5.0%	3.5%
Adj EBITDA	4.3%	9.3%	NA	9.2%	5.5%	3.7%
Adj Net Income	5.0%	90.1%	NA	42.7%	13.2%	9.0%
Average	5.4%	35.7%	NA	20.2%	7.9%	5.4%
Median	5.0%	9.3%	NA	9.2%	5.5%	3.7%

	Low	Mid	High
Selected Growth Rate	3.0%	3.5%	4.0%

Calculate Fair Value

	Low	Mid	High
Cost of Equity	11.2%	10.2%	9.2%
PV of Discrete Dividends	311	316	322
PV of Terminal Value	6,004	7,652	10,268
Total Equity Value	6,315	7,968	10,589
(/) Shares Outstanding	153	153	153

Implied Stock Price (Fair Value) 41.26 52.06 69.18  
Upside / (Downside) -43.4% -28.6% -5.1%

Market Price  
\$72.88

Format and Algorithms provided by FinBox.io

# APPENDIX I

## EBITDA MULTIPLES

CDW Corporation				\$72.88	Projected EBITDA Growth				SNX	ARW	AVT	HPE	Sector	CDW	Stock Price	137.97	83.67	41.75	15.81	72.88	
Multiples Valuation: EBITDA				1/16/18	Next Fiscal Year				26.3%	11.8%	24.0%	47.1%	30.4%	9.2%	* Represents sector median for Information Technology						
					Fiscal Year after Next				4.3%	7.8%	8.3%	5.1%	13.7%	5.4%							
					5 Year Forward CAGR				7.2%	3.8%	6.9%	11.3%	13.3%	5.3%							
					10 Year Forward CAGR				4.6%	1.9%	3.4%	6.6%	7.6%	3.7%							
Model Summary					Projected EBITDA Profit Margin				Financials												
					Next Fiscal Year				3.9%	4.4%	4.2%	18.6%	12.2%	7.8%							
					Fiscal Year after Next				3.9%	4.3%	4.4%	19.3%	13.8%	7.8%							
					5 Year Forward Average				3.9%	4.3%	4.3%	19.7%	15.0%	7.9%							
					10 Year Forward Average				3.9%	4.6%	4.5%	20.0%	17.1%	7.9%							
					Current Trading Multiples																
					EV / Fwd Revenue				0.4x	0.4x	0.3x	0.5x	2.3x	1.0x	Latest Fiscal Year						
					EV / Fwd EBITDA				10.0x	8.4x	7.9x	2.7x	14.0x	12.3x	LTM Period						
					EV / Fwd EBIT				12.5x	10.4x	9.4x	7.1x	19.5x	16.1x							
Benchmarks				Ticker																	
Synnex Corporation				SNX																	
Arrow Electronics, Inc.				ARW																	
Avnet, Inc.				AVT																	
Hewlett Packard Enterprise Company				HPE																	
CDW Corporation				CDW																	
Sector				Information Technology																	
Select LTM EBITDA Multiple																					
					Benchmark Companies																
Historical EBITDA Growth				SNX	ARW	AVT	HPE	Sector	CDW												
5Y CAGR				11.9%	0.1%	-8.9%	-13.4%	6.8%	9.3%												
3Y CAGR				23.2%	7.1%	-12.7%	-17.2%	8.6%	14.2%												
Latest Twelve Months				35.1%	4.0%	-2.5%	-32.1%	3.5%	4.3%												
Historical EBITDA Profit Margin																					
Prior Fiscal Year				3.4%	4.4%	3.9%	25.4%	8.5%	7.5%												
Latest Fiscal Year				3.6%	4.4%	3.5%	12.7%	8.2%	7.7%												
Latest Twelve Months				4.0%	4.3%	3.3%	12.7%	8.7%	7.5%												
Current Trading Multiples																					
EV / LTM Revenue				0.4x	0.4x	0.3x	0.5x	2.4x	1.0x												
EV / LTM EBITDA				10.1x	9.0x	10.0x	3.9x	16.3x	13.1x												
EV / LTM EBIT				13.2x	10.8x	14.9x	23.2x	22.8x	17.2x												
				Low	Mid	High															
Benchmark EV / LTM EBITDA				3.9x	9.5x	10.1x															
Sector EV / LTM EBITDA				1.9x	16.3x	919.2x															
Selected EV / LTM EBITDA				11.0x	13.0x	15.0x															
(x) LTM EBITDA				1,107	1,107	1,107															
(÷) Implied Enterprise Value				12,176	14,390	16,603															
(÷) Non-shareholder Claims *				(3,332)	(3,332)	(3,332)															
(÷) Equity Value				8,844	11,058	13,271															
(÷) Shares Outstanding				153	153	153															
Implied Fair Value Range				57.78	72.24	86.71															
Upside / (Downside)				-20.7%	-0.9%	19.0%															
Supporting Calculations																					
Equity Waterfall																					
(in millions)																					
				SNX	ARW	AVT	HPE	Sector*	CDW												
Enterprise Value				6,316	9,897	6,002	14,517	1,051	14,487												
(÷) Cash & Equivalents				247	584	540	9,579		98												
(÷) Investments & Other				5	87	198	15,135		0												
(÷) Debt				(1,054)	(3,183)	(1,691)	(14,032)	20	(3,490)												
(÷) Other Liabilities				0	0	0	0		0												
(÷) Preferred Stock				0	0	0	0		0												
(÷) Other				0	0	0	0		0												
Value of Common Equity				5,514	7,385	5,049	25,199	1,092	11,155												
Shares Outstanding				40	88	121	1,594		153												
Selection Validation																					
				LTM Multiples				Fwd Multiples													
				Current	Valid?			Current	Valid?												
Benchmark Median				9.5x	9.5x			8.1x	8.1x												
Sector Median				16.3x	16.3x			14.0x	14.0x												
Arrow Electronics, Inc.				13.1x	13.1x			12.3x	12.3x												
Sanity Checks																					
				Value	Failing?																
LTM EBITDA > 0				1,106.90	0																
Fwd EBITDA > 0				1,179.46	0																
LTM Multiple > 0				13.0x	0																
Fwd Multiple > 0				11.5x	0																
Upside Difference					0																
Checks Passed?				TRUE																	
Analyst Upside Difference < 50%				7%	0																
Finbox.io Upside Difference < 50%				5%	0																
Final Values																					
Analyst Price Target				\$74.83																	
Analyst Upside				3%																	

# APPENDIX J

## P/E Multiples

### CDW Corporation

Multiples Valuation: Price / EPS

**\$72.88**  
1/16/18

Fiscal Year after Next  
5 Year Forward CAGR  
10 Year Forward CAGR

8.2%  
17.6%  
11.1%

10.7%  
8.8%  
6.9%

10.0%  
-0.4%  
2.3%

5.2%  
44.4%  
23.1%

7.5%  
17.2%  
11.0%

8.4%  
13.2%  
9.0%

Net Income  
Latest Fiscal Year  
Latest Twelve Months  
Next Fiscal Year  
Fiscal Year After Next

235  
295  
422  
457

523  
513  
661  
732

525  
515  
419  
461

344  
344  
1,887  
1,986

3  
4  
25  
32

424  
431  
606  
656

### Model Summary

	Range		Conclusion
	Low	High	
Selected LTM P/E Multiple	21.9x	25.9x	23.9x
Selected Fwd P/E Multiple	15.4x	18.8x	17.1x
Fair Value	\$61.29	\$73.69	\$67.49
Upside	-15.9%	1.1%	-7.4%

**\$67.49**

### Projected Net Income Profit Margin

Next Fiscal Year  
Fiscal Year after Next  
5 Year Forward Average  
10 Year Forward Average

2.6%  
2.7%  
2.8%  
3.0%

2.5%  
2.6%  
2.7%  
3.0%

2.3%  
2.5%  
2.5%  
2.9%

6.5%  
6.8%  
6.8%  
7.2%

7.5%  
8.0%  
9.5%  
11.8%

### Current Trading Multiples

EV / Fwd EBITDA  
Market Cap / Fwd Revenue  
Fwd P/E

10.0x  
0.3x  
13.1x

8.4x  
0.3x  
11.2x

7.9x  
0.3x  
12.0x

2.7x  
0.9x  
13.4x

14.0x  
2.4x  
20.4x

12.3x  
0.7x  
18.4x

### Benchmarks

Synnex Corporation  
Arrow Electronics, Inc.  
Avnet, Inc.  
Hewlett Packard Enterprise Company  
CDW Corporation

### Ticker

SNX  
ARW  
AVT  
HPE  
CDW

Sector Information Technology

### Select Price / LTM EPS Multiple

	SNX	ARW	AVT	HPE	Sector	CDW
5Y CAGR	9.3%	-2.7%	-1.5%	NA	6.2%	90.1%
3Y CAGR	16.2%	9.4%	-1.3%	-40.7%	7.3%	47.3%
Latest Twelve Months	39.1%	-0.8%	15.6%	-89.1%	-3.3%	5.0%

### Historical Net Income Growth

	SNX	ARW	AVT	HPE	Sector	CDW
Prior Fiscal Year	1.6%	2.1%	3.0%	10.4%	1.3%	3.1%
Latest Fiscal Year	1.7%	2.2%	3.0%	1.2%	1.5%	3.0%
Latest Twelve Months	1.9%	2.0%	2.9%	1.2%	2.0%	2.9%

### Current Trading Multiples

	SNX	ARW	AVT	HPE	Sector	CDW
EV / LTM EBITDA	10.1x	9.0x	10.0x	3.9x	16.3x	13.1x
Market Cap / LTM Revenue	0.4x	0.3x	0.3x	0.9x	2.5x	0.8x
LTM P/E	18.7x	14.4x	9.8x	73.3x	29.3x	25.9x

	Low	Mid	High
Benchmark LTM P/E Multiple	9.8x	16.5x	73.3x
Sector LTM P/E Multiple	0.0x	29.3x	944.3x

	SNX	ARW	AVT	HPE	Sector	CDW
Selected P/E Multiple	21.9x	23.9x	25.9x			
(x) LTM Net Income	431	431	431			
(=) Equity Value	9,439	10,301	11,163			
(/) Shares Outstanding	153	153	153			

	SNX	ARW	AVT	HPE	Sector	CDW
Implied Fair Value Range	61.67	67.30	72.93			
Upside / (Downside)	-15.4%	-7.7%	0.1%			

### Select Price / Fwd EPS Multiple

	SNX	ARW	AVT	HPE	Sector	CDW
Projected Net Income Growth	79.7%	26.4%	-20.2%	448.6%	12.1%	42.7%
Next Fiscal Year						

	Low	Mid	High
Benchmark Fwd P/E	11.2x	12.6x	13.4x
Sector Fwd P/E	1.1x	20.4x	858.9x

	SNX	ARW	AVT	HPE	Sector	CDW
Selected Fwd P/E	15.4x	17.1x	18.8x			
(x) Fwd Net Income	606	606	606			
(=) Equity Value	9,323	10,359	11,395			
(/) Shares Outstanding	153	153	153			

	SNX	ARW	AVT	HPE	Sector	CDW
Implied Fair Value Range	60.91	67.68	74.44			
Upside / (Downside)	-16.4%	-7.1%	2.1%			

### Conclude on a Fair Value Range

	Low	Mid	High
LTM P/E Method	61.67	67.30	72.93
Fwd P/E Method	60.91	67.68	74.44
Concluded Fair Value Range	61.29	67.49	73.69
Upside / (Downside)	-15.9%	-7.4%	1.1%

### Supporting Calculations

### Equity Value

(in millions)

	SNX	ARW	AVT	HPE	Sector*	CDW
Market Value of Common Equity	5,514	7,385	5,049	25,199	1,092	11,155
(/) Shares Outstanding	40	88	121	1,594		153
Stock Price	137.97	83.67	41.75	15.81		72.88

\* Represents sector median for

Information Technology

### Financials

(in millions)

	SNX	ARW	AVT	HPE	Sector*	CDW
Latest Fiscal Year	Nov-16	Dec-16	Jun-17	Oct-17	NM	Dec-16
LTM Period	Aug-17	Sep-17	Sep-17	Oct-17	NM	Sep-17

Market Price  
\$72.88

Market Price  
\$72.88

### Checks Passed?

TRUE

Analyst Upside Difference < 50%	10%	0
Finbox.io Upside Difference < 50%	7%	0

### Final Values

Analyst Price Target	\$74.83
Analyst Upside	3%

Format and Algorithms provided by FinBox.io



# APPENDIX K

## Revenue Multiples

**CDW Corporation**  
Multiples Valuation: Revenue

**\$72.88**  
1/16/18

Projected Revenue Growth	SNX	ARW	AVT	HPE	Sector	CDW
Next Fiscal Year	14.1%	11.7%	5.2%	0.8%	7.6%	8.7%
Fiscal Year after Next	4.9%	5.8%	2.0%	0.0%	7.4%	5.4%
5 Year Forward CAGR	5.2%	3.1%	1.5%	1.5%	5.9%	5.0%
10 Year Forward CAGR	3.6%	1.6%	0.7%	1.8%	3.9%	3.5%

Stock Price	137.97	83.67	41.75	15.81	72.88
* Represents sector median for	Information Technology				
Financials					

### Model Summary

	Range		Conclusion	Fair Value
	Low	High		
Selected LTM Revenue Multiple	0.8x	1.8x	1.3x	<b>\$100.87</b>
Selected Fwd Revenue Multiple	0.7x	1.7x	1.2x	
Fair Value	\$51.79	\$149.96	\$100.87	
Upside	-28.9%	105.8%	38.4%	

Benchmarks	Ticker
Synnex Corporation	SNX
Arrow Electronics, Inc.	ARW
Avnet, Inc.	AVT
Hewlett Packard Enterprise Company	HPE
CDW Corporation	CDW

Sector Information Technology

### Select LTM Revenue Multiple

Historical Revenue Growth	SNX	ARW	AVT	HPE	Sector	CDW
5Y CAGR	6.2%	2.2%	-7.5%	-13.9%	6.2%	7.8%
3Y CAGR	9.0%	3.7%	-14.1%	-19.4%	7.4%	9.1%
Latest Twelve Months	13.8%	6.2%	10.6%	-4.7%	8.2%	6.7%

Historical EBITDA Profit Margin	SNX	ARW	AVT	HPE	Sector	CDW
Prior Fiscal Year	3.4%	4.4%	3.9%	25.4%	8.5%	7.5%
Latest Fiscal Year	3.6%	4.4%	3.5%	12.7%	8.2%	7.7%
Latest Twelve Months	4.0%	4.3%	3.3%	12.7%	8.7%	7.5%

Current Trading Multiples	SNX	ARW	AVT	HPE	Sector	CDW
EV / LTM Revenue	0.4x	0.4x	0.3x	0.5x	2.4x	1.0x
EV / LTM EBITDA	10.1x	9.0x	10.0x	3.9x	16.3x	13.1x
Market Cap / LTM Revenue	0.4x	0.3x	0.3x	0.9x	2.5x	0.8x

	Low	Mid	High
Benchmark EV / LTM Revenue	0.3x	0.4x	0.5x
Sector EV / LTM Revenue	0.1x	2.4x	154.6x

Selected EV / LTM Revenue	0.8x	1.3x	1.8x
(x) LTM Revenue	14,845	14,845	14,845
(=) Implied Enterprise Value	11,876	19,299	26,722
(-) Non-shareholder Claims *	(3,332)	(3,332)	(3,332)
(=) Equity Value	8,544	15,967	23,390
(/) Shares Outstanding	153	153	153
Implied Fair Value Range	55.82	104.32	152.81
Upside / (Downside)	-23.4%	43.1%	109.7%

### Select Projected Revenue Multiple

Benchmark Companies
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Projected EBITDA Profit Margin	SNX	ARW	AVT	HPE	Sector	CDW
Next Fiscal Year	3.9%	4.4%	4.2%	18.6%	12.2%	7.8%
Fiscal Year after Next	3.9%	4.5%	4.4%	19.5%	13.8%	7.8%
5 Year Forward Average	3.9%	4.5%	4.5%	19.7%	15.0%	7.9%
10 Year Forward Average	3.9%	4.6%	4.5%	20.0%	17.1%	7.9%

Current Trading Multiples	SNX	ARW	AVT	HPE	Sector	CDW
EV / Fwd Revenue	0.4x	0.4x	0.3x	0.5x	228.0%	1.0x
EV / Fwd EBITDA	10.0x	8.4x	7.9x	2.7x	1398.0%	12.3x
Market Cap / Fwd Revenue	0.3x	0.3x	0.3x	0.9x	242.2%	0.7x

	Low	Mid	High
Benchmark EV / Fwd Revenue	0.3x	0.4x	0.5x
Sector EV / Fwd Revenue	0.1x	2.3x	209.9x

Selected EV / Fwd Revenue	0.7x	1.2x	1.7x
(x) Fwd Revenue	15,204	15,204	15,204
(=) Implied Enterprise Value	10,643	18,245	25,847
(-) Non-shareholder Claims *	(3,332)	(3,332)	(3,332)
(=) Equity Value	7,311	14,913	22,515
(/) Shares Outstanding	153	153	153
Implied Fair Value Range	47.77	97.43	147.10
Upside / (Downside)	-34.5%	33.7%	101.8%

### Conclude on a Fair Value Range

	Low	Mid	High
LTM Revenue Multiple Method	55.82	104.32	152.81
Projected Revenue Multiple Method	47.77	97.43	147.10

Concluded Fair Value Range	51.79	100.87	149.96
Upside / (Downside)	-28.9%	38.4%	105.8%

### Supporting Calculations

### Equity Waterfall

(In millions)	SNX	ARW	AVT	HPE	Sector*	CDW
Enterprise Value	6,316	9,897	6,002	14,517	1,051	14,487
(+) Cash & Equivalents	247	584	540	9,579		98
(+) Investments & Other	5	87	198	15,135		0
(-) Debt	(1,054)	(3,183)	(1,691)	(14,032)	20	(3,430)
(-) Other Liabilities	0	0	0	0		0
(-) Preferred Stock	0	0	0	0		0
(-) Other	0	0	0	0		0
Value of Common Equity	5,514	7,385	5,049	25,199	1,092	11,155
Shares Outstanding	40	88	121	1,594		153

	SNX	ARW	AVT	HPE	Sector*	CDW
(In millions)						
Latest Fiscal Year	Nov-16	Dec-16	Jun-17	Oct-17	NM	Dec-16
LTM Period	Aug-17	Sep-17	Sep-17	Oct-17	NM	Sep-17
Revenues						
LTM Prior Revenue	13,725	24,134	18,588	30,280		13,908
LTM Revenue	15,621	25,622	17,983	28,871	399	14,845
FY Revenue	14,062	23,825	17,440	28,871	359	13,982
FY+1 Revenue	16,039	26,617	18,352	29,112	400	15,204
FY+2 Revenue	16,829	28,147	18,713	29,103	438	16,030
* Represents sector median for	Information Technology					

### Selection Validation

	LTM Multiples		Fwd Multiples
Current	Valid?	Current	Valid?
Benchmark Median	0.4x	0.4x	0.4x
Sector Median	2.4x	2.4x	2.3x
CDW Corporation	1.0x	1.0x	1.0x

### Sanity Checks

	Value	Falling?
LTM Revenue > 0	14,845	0
Fwd Revenue > 0	15,204	0
LTM Multiple > 0	1.3x	0
Fwd Multiple > 0	1.2x	0
Upside Difference		0

### Checks Passed?

Analyst Upside Difference < 50%	36%	0
Finbox.io Upside Difference < 50%	38%	0

Final Values	
Analyst Price Target	\$74.83
Analyst Upside	3%

Format and Algorithms provided by FinBox.io