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FISHER COLLEGE OF BUSINESS

MAX M. FISHER COLLEGE OF BUSINESS

Stock Presentation: Information Technology

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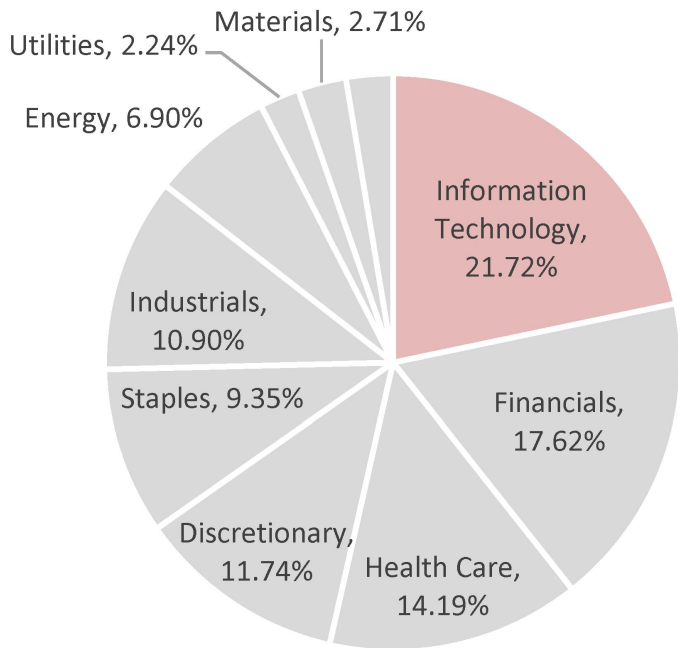
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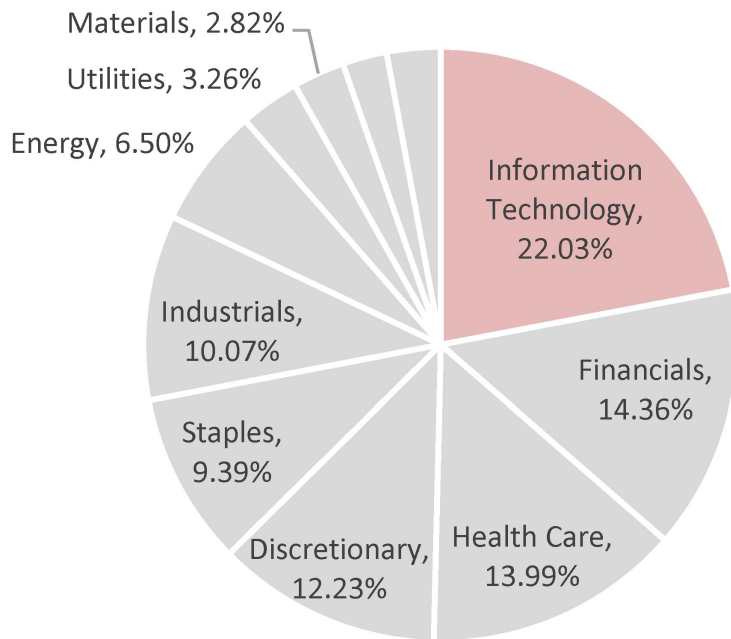
OVERVIEW



SIM Weight: 21.72%



S&P 500 Weight: 22.03%





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IT Stocks Held in SIM Portfolio

Alphabet

4.23% of SIM assets



5.34% of SIM assets



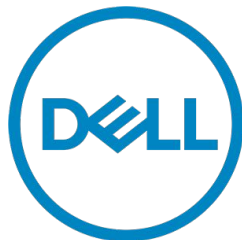
Cognizant

3.78% of SIM assets



Microsoft

1.97% of SIM assets



2.03% of SIM assets

vantiv[®]

4.36% of SIM assets



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Portfolio Breakdown by Industry

TECHNOLOGY & HARDWARE

APPLE

DELL

INTERNET INFORMATION PROVIDERS

ALPHABET

SOFTWARE & SERVICES

APPLE

VANTIV

COGNIZANT

MICROSOFT



Sector Overview: Performance

1. Technology Sector YTD and QTD: 10.30%
2. S&P 500 Index YTD and QTD: 6.23%

Remove slight underweight position relative to S&P 500

HOLD Information Technology Sector Aggregate with the exception of Vantiv

- ◆ Business cycle expansion has been lengthened by the 2016 election and prospects for more business-friendly policies.
- ◆ Vantiv Inc. is a defensive security and performs well during adverse economic conditions relative to industry peers.



Security	Recommendation	Current Weight	Proposed Weight	Change
Alphabet	HOLD	4.23%	4.23%	0bps
Apple	SELL	5.34%	5.00%	-34bps
Cognizant Technology Solutions	HOLD	3.78%	3.78%	0bps
Microsoft Corporation	HOLD	1.97%	1.97%	0bps
Vantiv	BUY	4.36%	5.00%	64bps
Dell	HOLD	2.03%	2.03%	0bps



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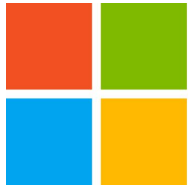
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STOCK DISCUSSION



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Microsoft

Microsoft Corporation (MSFT) is a leading player in the information technology sector. The company operates in 190 countries and is headquartered in Redmond, Washington. Microsoft divides their lines of business into three segments: Productivity and Business Processes (mainly Office 365 and Dynamics business solutions); Intelligent Cloud (server products and cloud services); and More Personal Computing (Windows licensing, devices, gaming, and search advertising).

Stock Overview

Recommendation: HOLD

Current SIM (%): 1.97%

Recommended SIM (%): 1.97%

Current Stock Price: \$65.68

SIM Target Price: \$67.41

Consensus Target Price: \$69.42

Dividend Yield: 2.4%

Potential Upside: 2.63% (excluding dividends)

52 Week Price Range: \$48.04 - \$66.35

Market Capitalization: \$507.4 billion

Diluted Shares Outstanding: 7.8 billion

Forward P/E: 20.08

ROE: 23.11%



MICROSOFT BUSINESS ANALYSIS

GROWTH DRIVERS:

- Intelligent Cloud line of business
- Scale and reputation of the company
- New products / developments
- Consumer confidence
- Desire of enterprises to remain competitive

RISKS TO RECOMMENDATION:

- Hacking of cloud services or other security breaches.
- A competitor developing a very popular product (e.g. the iPhone) could cause Microsoft to lose sales in one of their current lines of business; it could take years to develop a similar product.
- Volatility of exchange rates reducing revenues from abroad.
- Unexpected slow or negative GDP growth domestically or abroad.
- A lack of qualified talent in the US if changes in visa regulations limit international recruiting.
- If mooted reforms to lower the tax rate for repatriation of international cash reserves do not materialize (Microsoft currently holds \$111.1 billion abroad)



MSFT FINANCIAL ANALYSIS

- 2016 Net Income 6% growth from 2015
- 2017 Q2 saw 8% increase in Intelligent Cloud revenue
- Project 13.6% Sales increase in 2017, led by strong Intelligent Cloud growth
- Project steadily growing EPS

Year	FY19E	FY18E	FY17E	FY16	FY15	FY14
Sales & Revenues:						
Productivity and Business Processes	\$ 33,355	\$ 30,322	\$ 28,076	\$ 26,487	\$ 26,430	\$ 26,976
Intelligent Cloud	\$ 35,795	\$ 31,126	\$ 27,545	\$ 25,041	\$ 23,715	\$ 21,735
More Personal Computing	\$ 43,782	\$ 42,507	\$ 41,269	\$ 40,460	\$ 43,160	\$ 38,460
Corporate and Other	\$ -	\$ -	\$ -	\$ -6,669	\$ 275	\$ -338
Total Sales & Revenues	\$ 112,932	\$ 103,956	\$ 96,891	\$ 85,319	\$ 93,580	\$ 86,833
<i>Consensus</i>	<i>\$ 111,211</i>	<i>\$ 103,797</i>	<i>\$ 96,758</i>			
Operating Costs:						
Cost of Revenue	\$ 34,444	\$ 31,706	\$ 30,036	\$ 32,780	\$ 33,038	\$ 27,078
R&D	\$ 20,328	\$ 18,712	\$ 17,440	\$ 11,988	\$ 12,046	\$ 11,381
Sales & Marketing	\$ 19,198.42	\$ 18,712	\$ 17,440	\$ 14,697	\$ 15,713	\$ 15,811
General & Administrative	\$ 4,517	\$ 5,198	\$ 5,813	\$ 4,563	\$ 4,611	\$ 4,677
Impairment, Integration & Restructuring	\$ 2,259	\$ 2,079	\$ 3,876	\$ 1,110	\$ 10,011	\$ 127
Other Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating Income	\$ 32,186	\$ 27,548	\$ 22,285	\$ 20,181	\$ 18,161	\$ 27,759
Other Income (Expense), Net	\$ -	\$ -	\$ -	\$ -431	\$ 346	\$ 61
Noncontinuing Items	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Income Before Income Taxes	\$ 32,186	\$ 27,548	\$ 22,285	\$ 19,750	\$ 18,507	\$ 27,820
Provision for Income Taxes	\$ 4,184	\$ 3,581	\$ 3,120	\$ 2,953	\$ 6,314	\$ 5,746
Net Income before Accounting Change	\$ 28,001	\$ 23,967	\$ 19,165	\$ 16,797	\$ 12,193	\$ 22,074
Cumulative Effect of Accounting Change	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Income	\$ 28,001	\$ 23,967	\$ 19,165	\$ 16,797	\$ 12,193	\$ 22,074
Preferred Stock Dividends	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Income available for Common Shareholders	\$ 28,001	\$ 23,967	\$ 19,165	\$ 16,797	\$ 12,193	\$ 22,074
Basic EPS	\$ 3.60	\$ 3.08	\$ 2.46	\$ 2.12	\$ 1.49	\$ 2.66
Diluted EPS	\$ 3.56	\$ 3.04	\$ 2.43	\$ 2.10	\$ 1.48	\$ 2.63
<i>Consensus Diluted EPS</i>	<i>\$ 3.59</i>	<i>\$ 3.04</i>	<i>\$ 2.43</i>			



MSFT HISTORICAL RATIO COMPARISON AGAINST COMPETITORS

Ticker	Fiscal Year 2016					Fiscal Year 2015					Fiscal Year 2014				
	Gross Margin %	Operating Margin %	Return on Assets %	Return on Equity %	Total Revenue \$ millions	Gross Margin %	Operating Margin %	Return on Assets %	Return on Equity %	Total Revenue \$ millions	Gross Margin %	Operating Margin %	Return on Assets %	Return on Equity %	Total Revenue \$ millions
MSFT	61.6	23.1	9.08	22.09	85,320	64.7	19.4	7	14.36	93,580	68.8	32	14.02	26.17	86,833
ORCL	79.8	34	7.98	18.55	37,047	80.3	36.3	9.88	20.8	38,226	81.1	38.6	12.73	23.94	38,275
IBM	47.9	16.4	10.42	73.04	79,919	49.8	19.2	11.57	100.96	81,741	50	20	9.86	69.37	92,793
GOOG	61.1	26.3	12.37	15.02	90,272	62.4	25.8	11.36	14.08	74,989	61.1	25	11.93	15.06	66,001
AAPL	39.1	27.8	14.93	36.9	215,639	40.1	30.5	20.45	46.25	233,715	38.6	28.7	18.01	33.61	182,795
VMW	85.2	20.3	7.32	14.81	7,093	84.5	18.2	6.44	12.86	6,571	84.8	17	6.43	12.31	6,035
CHKP	88.4	51.5	13.69	19.13	1,630	88.2	53.6	13.41	18.22	1,496	88.3	54.6	13.83	18.79	1,394
Low	39.1	16.4	7.32	14.81	1630	40.1	18.2	6.44	12.86	1496	38.6	17	6.43	12.31	1394
High	88.4	51.5	14.93	73.04	215639	88.2	53.6	20.45	100.96	233715	88.3	54.6	18.01	69.37	182795
Median	61.6	26.3	10.42	19.13	79919	64.7	25.8	11.36	18.22	74989	68.8	28.7	12.73	23.94	66001
Mean	66.2	28.5	10.8	28.5	73845.7	67.1	29.0	11.4	32.5	75759.7	67.5	30.8	12.4	28.5	67732.3

- Gross margin has been gradually decreasing, but as Intelligent Cloud segment grows, this will increase
- Microsoft is close to average for almost all metrics



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Cognizant

Cognizant Technology Solutions (CTSH) is a leading player in the information technology business services sector. The company has been a fortune 500 company since 2011 and is headquartered in Teaneck, New Jersey. Cognizant does not divide their lines of business into separate business units however they are a major player in the financial services and healthcare business services segments. Cognizant's primary services provided include application development, systems integration, and offshoring services.

Stock Overview

Recommendation: HOLD

Current SIM (%): 3.78%

Recommended SIM (%): 3.78%

Current Stock Price: \$58.85

SIM Target Price: \$70.31

Consensus Target Price: \$67.00

Dividend Yield: 0.0%

Potential Upside: 19.5%

52 Week Price Range: \$45.44 - \$63.23

Market Capitalization: \$35.97 billion

Diluted Shares Outstanding: 608.6 million

Forward P/E: 15.33

ROE: 15.53%



COGNIZANT BUSINESS ANALYSIS

GROWTH DRIVERS:

- Overall growth in the IT services business sector. Industry is shifting away from low margin commodity services towards high margin services that Cognizant is well positioned to capitalize on.
- Management commitment to return \$3.5 Billion in capital to shareholders over the next 2 years, with long-term commitment to return 75% of US free cash flow on an annual basis.
- Management commitment to expand non-GAAP margins from 19.7% to 23% by 2018.

RISKS TO RECOMMENDATION:

- Potential uncertainty in the overall economic and political climate (Trump, Brexit, France, etc), causes companies to be more cautious about investing in large IT projects
- H1-B visa program uncertainty. If the program is changed or eliminated it could force the company to bear significant additional headcount related costs
- Concentration of revenues in 2 key industries (Financial Services & Health Care) exposes company to industry specific downturn risk.



CTSH FINANCIAL ANALYSIS

- 2016 Net Income decreased 4.3% from 2015 on 8% revenue growth
- Project strong 2017 with return to double digit top line growth & improved margins
- Project double digit top line growth through 2019 with steady margin improvement each year

CTSH Income Statement									
(millions)	FY19E	FY18E	FY17E	FY16	FY15	FY14	FY13	FY12	FY11
Net Sales	18,779	16,767	14,971	13,487	12,416	10,263	8,843	7,347	6,121
COGS	<u>11,080</u>	<u>9,934</u>	<u>8,922</u>	<u>8,108</u>	<u>7,440</u>	<u>6,141</u>	<u>5,266</u>	<u>4,278</u>	<u>3,539</u>
Gross Profit	7,699	6,833	6,048	5,379	4,976	4,122	3,578	3,069	2,583
SG&A	3,521	3,270	2,957	2,731	2,509	2,037	1,728	1,558	1,329
Depreciation & A	507	453	404	359	325	200	172	149	117
Total Op Expenses	<u>4,028</u>	<u>3,722</u>	<u>3,361</u>	<u>3,090</u>	<u>2,834</u>	<u>2,237</u>	<u>1,900</u>	<u>1,707</u>	<u>1,446</u>
Operating Income	3,671	3,110	2,687	2,289	2,142	1,885	1,678	1,362	1,136
other				3	(2)	(0)	2	(18)	(7)
Foreign Currency Gain/(Loss)				(30)	(43)	(20)	(41)	-	-
Interest & Invest Inc				115	84	62	49	45	39
Interest Exp	<u>(23)</u>	<u>(23)</u>	<u>(22)</u>	<u>(19)</u>	<u>(18)</u>	<u>(3)</u>	-	-	-
Interest, Net	105	94	84	96	66	60	49	45	39
Total Other Income (Expense)	38	34	30	69	22	39	10	26	33
Earnings before Inc Taxes	3,709	3,144	2,717	2,358	2,164	1,924	1,688	1,388	1,169
Income Taxes	<u>964</u>	<u>817</u>	<u>734</u>	<u>805</u>	<u>540</u>	<u>485</u>	<u>459</u>	<u>336</u>	<u>286</u>
Net Earnings	2,745	2,326	1,984	1,553	1,624	1,439	1,229	1,052	884
Earnings from dicont ops	-	-	-	-	-	-	-	-	-
Net Earnings	<u>2,745</u>	<u>2,326</u>	<u>1,984</u>	<u>1,553</u>	<u>1,624</u>	<u>1,439</u>	<u>1,229</u>	<u>1,052</u>	<u>884</u>
Basic EPS	4.68	3.96	3.34	2.56	2.67	2.37	2.03	3.49	2.91
Wtd Avg Comm Shs Outst	587	587	594	607	609	608	604	301	303
Guidance									
Consensus Diluted EPS	4.59	3.90	3.29						
Consensus Revenue	17,875	16,200	14,759						
EPS									
Diluted EPS	4.65	3.94	3.32	2.55	2.65	2.35	2.02	3.44	2.85
Premium over Consensus	0.06	0.04	0.03						
Wtd Avg Diluted Shs Outst	590	590	597	610	613	613	610	306	310.4



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Apple Inc. is a technology company headquartered in Cupertino, California that was founded in 1976. Apple designs and markets media devices, computers, smartphones, portable digital music players, networking solutions, applications and product services to both businesses and consumers. Apple is renowned for their innovation, technological development, and loyal customer base. These strengths have helped Apple maintain their leadership position in an increasingly saturated and maturing market.

Stock Overview

Recommendation: SELL

Current SIM (%): 5.33%

Recommended SIM (%): 5.00%

Current Stock Price: \$143.34

SIM Target Price: \$143.51

Consensus Target Price: \$147.61

Dividend Yield: 1.68%

Potential Upside: .12%

52 Week Price Range: \$89.47 - \$145.46

Market Capitalization: \$750.99 billion

Diluted Shares Outstanding: 5.5 billion

Forward P/E: 13.98

ROE: 34.69%



APPLE BUSINESS ANALYSIS

GROWTH DRIVERS:

- Customer conversion rates & customer satisfaction
- Technological integration (ecosystem)
- Sales in China
- Continued service revenue growth

RISKS TO RECOMMENDATION:

- Increased competition within the smartphone market
- Product lines reaching maturity (slowing growth of smartphone market)
- Inability to develop new products & faulty product releases
- Foreign exchange rate headwinds
- European Union tax lawsuit



AAPL FINANCIAL ANALYSIS

- 2016 Revenue: 7.7% decline from 2015
- 2016 Net Income: 14.4% decline from 2015
- Release of main revenue driver (new iPhone) in 2017
- Growth in service revenues
- Large scale share repurchase program
- Project steadily growing EPS

AAPL

Millions

	2019	2018	2017	2016	2015	2014
Sales Revenue						
Net Sales	257,468	248,761	241,516	215,639	233,715	182,795
Cost of Sales	157,055	154,232	149,740	131,376	140,089	112,258
Gross Margin	100,412	94,529	91,776	84,263	93,626	70,537
Operating Expenses						
R&D	10,299	7,463	7,245	10,045	8,067	6,041
SG&A	18,023	17,413	16,906	14,194	14,329	11,993
Total Operating Expenses	28,321	24,876	24,152	24,239	22,396	18,034
Operating Income	72,091	69,653	67,624	60,024	71,230	52,503
Total Other Income/ (expense), net	1,622	1,567	1,522	1,348	1,285	980
Income Before Provision for Income Taxes	73,713	71,220	69,146	61,372	72,515	53,483
Provision for Income Taxes	17,691	17,805	17,286	15,685	19,121	13,973
Net Income	56,022	53,415	51,859	45,687	53,394	39,510
Shares Outstanding						
Basic	5,200,000	5,200,000	5,200,000	5,470,820	5,753,421	6,085,572
Wtd Avg Diluted Common Shares Outstanding	5,200,000	5,200,000	5,200,000	5,500,281	5,793,069	6,122,663
Diluted EPS	\$ 10.77	\$ 10.27	\$ 9.97	\$ 8.31	\$ 9.22	\$ 6.45
Consensus Revenue (Billions)	245	244	228			
Consensus EPS	10.10	10.10	9.26			



AAPL RATIO PEER ANALYSIS

Peer Analysis	2016					2017					2018				
	EV/ EBITDA	Gross Margin	Revenue Growth	Price to Book	EPS (GAAP) Growth	EV/ EBITDA	Gross Margin	Revenue Growth	Price to Book	EPS (GAAP) Growth	EV/ EBITDA	Gross Margin	Revenue Growth	Price to Book	EPS (GAAP) Growth
Apple	8.16	39.08%	-7.73%	5.59	-9.87%	7.67	38.52%	5.85%	5.35	7.77%	7.18	38.71%	7.82%	4.47	12.53%
Blackberry LTD	-	46.47%	-34.24%	1.70	31.03%	2.11	62.20%	-37.74%	1.73	-490.62%	2.93	71.15%	-28.05%	1.83	81.27%
IBM	12.86	48.90%	-2.23%	9.35	-8.90%	10.57	48.43%	-1.41%	8.54	7.19%	10.53	48.97%	-0.05%	7.82	2.74%
HTC Corp	-	-	-35.77%	1.21	31.83%	-	15.15%	24.50%	1.33	41.43%	-	17.66%	23.84%	1.44	59.66%
Samsung	4.18	40.40%	0.60%	1.32	26.15%	3.24	43.79%	9.35%	1.44	32.29%	3.11	43.29%	5.46%	1.27	6.35%
Microsoft	16.77	64.36%	-1.73%	7.22	41.89%	12.78	63.80%	5.29%	6.92	15.77%	11.42	64.07%	7.50%	5.74	25.09%
Cisco Systems Int.	9.36	64.17%	0.17%	2.68	20.57%	7.80	64.37%	-1.83%	2.59	-9.06%	7.73	64.36%	2.19%	2.44	8.92%

Low	4.18	39%	-36%	1.21	-10%	2.11	15%	-38%	1.33	-491%	2.93	18%	-28%	1.27	3%
High	16.77	64%	1%	9.35	42%	12.78	64%	25%	8.54	41%	11.42	71%	24%	7.82	81%
Mean	10.27	51%	-12%	4.15	19%	7.36	48%	1%	3.99	-56%	7.15	50%	3%	3.57	28%
Median	9.36	48%	-2%	2.68	26%	7.74	48%	5%	2.59	8%	7.46	49%	5%	2.44	13%

- Apple underperformed many of the key ratios in 2016
- Apple had negative revenue and EPS growth in 2016
- High P/B value when compared to competitors



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Alphabet

Alphabet, Inc. was formed in 2015 as a conglomerate comprised of several companies formerly under the auspices of Google. Google founders Larry Page and Sergey Brin created the new holding company to allow Google to focus on its core competencies while creating separate business entities for ventures that previously lacked their own solidified internal hierarchy. The company consists of the traditional Google business--AdSense, AdWords, Android, YouTube, and Chrome--along with "Other Bets" which includes businesses such as Google X, Nest, Waymo, and others.

Stock Overview

Recommendation: HOLD

Current SIM (%): 4.23%

Recommended SIM (%): 4.23%

Current Stock Price: \$842

SIM Target Price: \$1,052

Consensus Target Price: \$

Dividend Yield: N/A

Potential Upside: 25%

52 Week Price Range: \$672-874

Market Capitalization: \$574B

Diluted Shares Outstanding: 297M

Forward P/E: 20.66

ROE: 15.62%



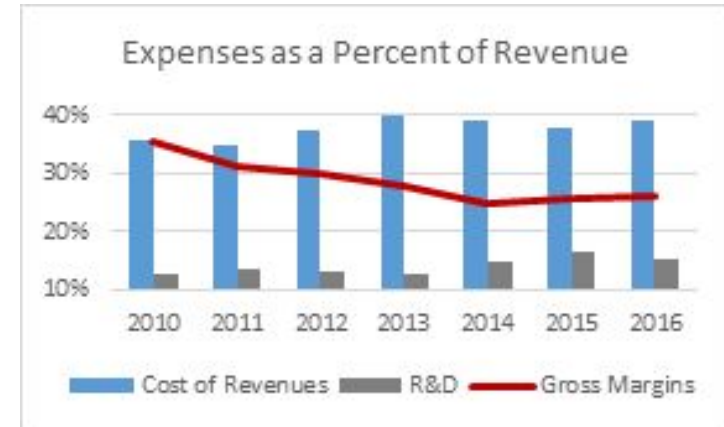
Alphabet Business Analysis

GROWTH DRIVERS:

- Revenue growth from core business
- Growth of mobile Android users
- Financial flexibility indicated by a 6.4 current ratio
- Possibility of “Other Bets” breakthrough

RISKS TO RECOMMENDATION:

- Rising Traffic Acquisition (TAC) costs
- Declining gross margin
- Growth of vertical searches
- Underperformance of “Other Bets”





Metric (in millions)	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E
Net Sales	29,321	37,905	46,039	55,519	66,001	74,989	90,272	106,521	122,499	138,424
Costs and Expenses	18,940	26,163	32,205	40,116	49,505	55,629	66,556	78,293	90,037	101,742
Cost of Revenues	10,417	13,188	17,176	21,993	25,691	28,164	35,138	41,543	47,775	53,985
Research and Development	3,762	5,162	6,083	7,137	9,832	12,282	13,948	17,043	19,600	22,148
Sales and Marketing	2,799	4,589	5,465	6,554	8,131	9,047	10,485	11,717	13,475	15,227
General and Administrative	1,962	3,224	3,481	4,432	5,851	6,136	6,985	7,989	9,187	10,382
Income from Operations	10,381	11,742	13,834	15,403	16,496	19,360	23,716	28,228	32,462	36,682
Interest and Other Income	415	584	635	496	763	291	434	291	291	291
Net Interest Expense	(5)	(58)	(84)	(81)	(101)	(104)	(124)	(107)	(122)	(138)
Income from Continuing Operations	10,796	12,326	14,469	15,899	17,259	19,651	24,150	28,519	32,753	36,973
Loss from Discontinued Operations	0	0	(816)	(427)	516	0	0	0	0	0
Provision for Income Tax	2,291	2,589	2,916	2,552	3,331	3,303	4,672	5,363	6,168	6,970
Net Income	8,505	9,737	10,737	12,920	14,444	16,348	19,478	23,156	26,585	30,004

Type of Share Class	Weighted Average of Shares Outstanding (in thousands)									
	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E
Class A (GOOGL)	246,168	253,862	262,078	273,518	282,877	289,640	294,217	294,217	294,217	294,217
Class B (Insiders)	72,534	68,916	65,135	59,238	54,928	51,745	48,859	48,859	48,859	48,859
Class C (GOOG)	0	0	327,213	332,846	338,130	343,241	344,702	344,702	344,702	344,702
Total	318,702	322,778	654,426	665,602	675,935	684,626	687,778	687,778	687,778	687,778

Type of Share Class	Basic Earnings per Share									
	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E
All Classes (A, B, C)	\$26.7	\$30.2	\$16.4	\$19.4	\$21.4	\$23.9	\$28.3	\$33.7	\$38.7	\$43.6
Consensus								\$27.8	\$33.3	\$39.0

Alphabet Financial Analysis

- Revenues spiked by 20% YoY in 2016
- Gross margin inched up 0.5%
- Bottom-line growth of 19% in 2016.
- Projected EPS growth from \$28.3 in 2016 to \$43 by 2019.



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vantiv®

Vantiv Inc. is an industry leading payment processing and financial solutions provider based out of Cincinnati, Ohio. Founded in 1971 as a division of Fifth Third Bank, the company has been involved in numerous acquisitions that have strengthened its North American position. Its primary lines-of-business are Merchant Services and Financial Institution Services. In 2012, Vantiv engaged in a spinoff IPO of Fifth Third Bank while keeping favorable businesses relations. According to the Nilson Report (leader in global card and mobile payment analysis), Vantiv was the second largest acquirer of payment card transactions and had the largest PIN Debit transactions in 2015.

Stock Overview

Recommendation: BUY

Current SIM: 4.36%

Recommended SIM: 5.00%

Current Stock Price: \$62.18

SIM Target Price: \$74.00

Consensus Target Price: \$68.58

Dividend Yield: N/A

Potential Upside: 19.0%

52 Week Price Range: \$50.52-66.24

Market Capitalization: \$12.251B

Diluted Shares Outstanding: 162M

Forward P/E: 52.84

ROE: 18.8%



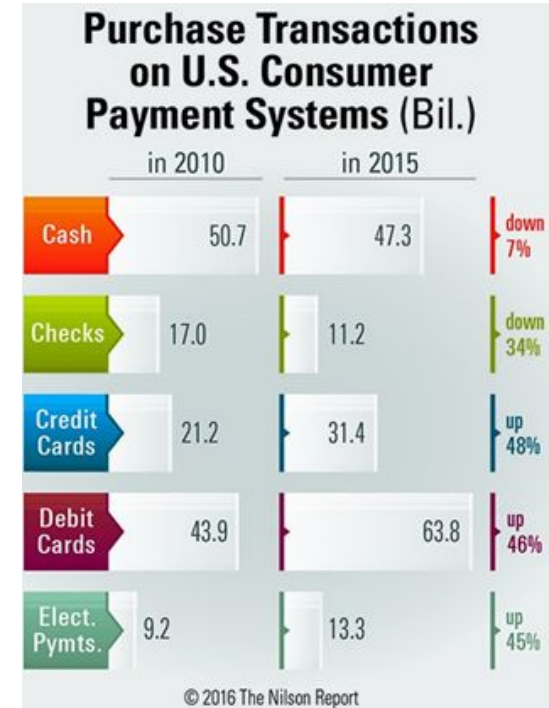
VANTIV INC. BUSINESS ANALYSIS

GROWTH DRIVERS:

- Increase in consumer preference for cash and check payment alternatives
- Largest acquirer of merchant transactions in 2015 according to the Nilson Report
- “Payment Processing Value Chain”
 - Merchant Acquirer
 - Payment Network
 - Issuer Processor

RISKS TO RECOMMENDATION:

- Maturing market/slow growth
- Failure to realize proposed corporate tax cuts
- Discord from the Moneris USA acquisition





VANTIV INC. FINANCIAL ANALYSIS

- 2016 Net Income 34% growth from 2015
- Projecting 36% Net Income growth for 2017
- EPS has greatly increased since 2014

Year	FY19E	FY18E	FY17E	FY16	FY15	FY14
Revenue by Segment						
Revenues of Merchant Services	\$ 4,375	\$ 3,959	\$ 3,559	\$ 3,083	\$ 2,657	\$ 2,100
Revenues of Financial Institutions Services	585	556	534	496	503	477
Total Revenue	4,960	4,515	4,094	3,579	3,160	2,577
Costs of Revenue						
Network fees and other costs				1,674	1,478	1,175
Sales and marketing				582	504	396
Other operating costs				294	284	242
General and administrative				190	182	174
Depreciation and amortization				270	277	275
Total Costs of Revenue	\$ 4,108	\$ 3,738	\$ 3,366	\$ 3,010	\$ 2,726	\$ 2,263
Income From Operations	852	777	728	569	434	315
Interest expense-net	(112)	(108)	(102)	(110)	(106)	(80)
Non-operating income (expense)	(36)	(50)	(87)	(36)	(31)	0
Income before applicable income taxes	704	619	539	423	297	235
Income tax expense	106	124	156	142	88	66
Net Income	598	495	383	281	209	169
	0.21	0.29	0.36	0.34	0.24	(0.19)
Less: Net income attributable to non-controlling interests	(44)	(112)	(81)	(68)	(61)	(44)
Net income attributable to Vantiv, Inc.	\$ 554	\$ 383	\$ 302	\$ 213	\$ 148	\$ 125
<i>Consensus, GAAP</i>	<i>\$ 584</i>	<i>\$ 380</i>	<i>\$ 274</i>	<i>\$ 233</i>		
Net income per share attributable to Vantiv, Inc. Class A common stock:						
Basic	\$ 3.36	\$ 2.32	\$ 1.79	\$ 1.37	\$ 1.02	\$ 0.88
Diluted	\$ 3.30	\$ 2.20	\$ 1.85	\$ 1.32	\$ 0.95	\$ 0.75
<i>Consensus Diluted</i>		<i>\$ 2.14</i>	<i>\$ 1.61</i>	<i>\$ 1.47</i>		



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vmware®

Dell Technologies Inc. Class V is a tracking stock of VMware Inc. The shares were issued to help finance Dell's acquisition of EMC, which held a stake in VMware.

DVMT trades at about a 30% discount to VMware Inc.

As of today, minimal integration has occurred, but Michael Dell has signaled a large investment is eminent

DVMT is less volatile than VMW, lower average volume

Stock Overview

Recommendation: HOLD

Current SIM (%): 2.03%

Recommended SIM (%): 2.03%

Current Stock Price: \$65.01

SIM Target Price: \$69.57

Consensus Target Price: \$67.50

Dividend Yield: N/A

Potential Upside: 7.07%

52 Week Price Range: \$42.02 - \$65.78

Market Capitalization: \$13.5bn

Diluted Shares Outstanding: 208mm

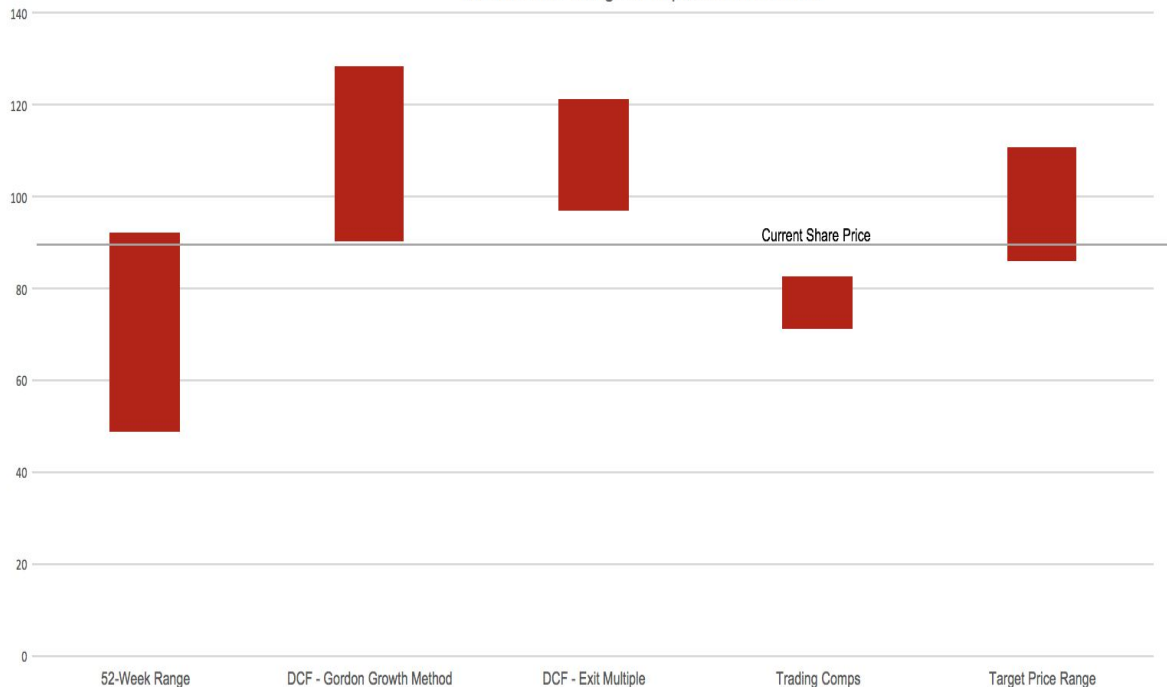
Forward P/E: 29.57

ROE: -22%



VMW: Valuation Summary

VMware Inc. Range of Implied Share Prices



Implied Share Prices

Current Share Price	89.32	
52-Week Range	48.51	92.35
DCF - Gordon Growth Method	90.31	128.15
DCF - Exit Multiple	96.77	121.37
Trading Comps	71.23	82.49
Target Price Range	86.10	110.67
Average Target Price	98.39	
DVMT Discount	29.29%	
DVMT Target Price	69.57	
<i>Implied Premium</i>	9.66%	



GROWTH DRIVERS:

- Reacceleration in revenue and earnings growth
- The discount to VMware is unjustified
 - Prices should converge overtime
- Dell's oversight will bring opportunities
- VMware has successfully reinvented itself through new product and service lines
- Unique position in virtualization space

RISKS TO RECOMMENDATION:

- Concentrated market
- Highly cyclical business
- Lower-cost alternatives emerging





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RECOMMENDATION



Security	Recommendation	Current Weight	Proposed Weight	Change
Alphabet	HOLD	4.23%	4.23%	0bps
Apple	SELL	5.34%	5.00%	-34bps
Cognizant Technology Solutions	HOLD	3.78%	3.78%	0bps
Microsoft Corporation	HOLD	1.97%	1.97%	0bps
Vantiv	BUY	4.36%	5.00%	64bps
Dell	HOLD	2.03%	2.03%	0bps



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QUESTIONS?



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APPENDIX



MSFT: DCF VALUATION

		Terminal Discount Rate = 10.5%									
		Terminal FCF Growth = 4.5%									
All figures in USD millions except for per share data											
Year	FY2017E	FY2018E	FY2019E	FY2020E	FY2021E	FY2022E	FY2023E	FY2024E	FY2025E	FY2026E	FY2027E
Revenue	96,891	103,956	112,932	122,683	133,111	143,760	154,542	165,360	174,455	183,178	191,421
% Growth		7.3%	8.6%	8.6%	8.5%	8.0%	7.5%	7.0%	5.5%	5.0%	4.5%
Operating Income	22,285	27,548	32,186	34,965	38,602	41,690	44,817	49,608	52,337	54,953	57,426
Operating Margin	23.0%	26.5%	28.5%	28.5%	29.0%	29.0%	29.0%	30.0%	30.0%	30.0%	30.0%
Taxes	3,120	3,581	4,184	4,371	4,825	5,211	5,602	6,201	6,542	6,869	7,178
Tax Rate	14.0%	13.0%	13.0%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Net Income	19,165	23,967	28,001	30,594	33,777	36,479	39,215	43,407	45,794	48,084	50,248
% Growth		25.1%	16.8%	9.3%	10.4%	8.0%	7.5%	10.7%	5.5%	5.0%	4.5%
Add Depreciation/Amort	6,782	6,237	5,647	6,134	6,656	7,188	7,727	8,268	8,723	9,159	9,571
% of Sales	7.0%	6.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Plus/(minus) Changes WC	-281	-497	-641	0	0	0	0	0	0	0	0
% of Sales	-0.3%	-0.5%	-0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtract Cap Ex	7,751	7,277	6,776	7,361	7,321	7,907	8,500	9,095	8,723	9,159	9,571
Capex % of sales	8.0%	7.0%	6.0%	6.0%	5.5%	5.5%	5.5%	5.5%	5.0%	5.0%	5.0%
Free Cash Flow	17,915	22,431	26,231	29,367	33,111	35,760	38,442	42,580	45,794	48,084	50,248
% Growth		25.2%	16.9%	12.0%	12.7%	8.0%	7.5%	10.8%	7.5%	5.0%	4.5%
NPV of Cash Flows	208,441	39%									
NPV of terminal value	322,449	61%								Terminal Value	875,152
Projected Equity Value	530,890	100%									
Free Cash Flow Yield	3.46%									Free Cash Yield	5.74%
Current P/E	27.0	21.6	18.5							Terminal P/E	17.4
<i>Projected P/E</i>	27.7	22.2	19.0								
Current EV/EBITDA	16.5	14.2	12.7							Terminal EV/EBITDA	12.5
<i>Projected EV/EBITDA</i>	16.9	14.6	13.0								
Shares Outstanding	7,876										
Current Price	\$ 65.68										
Implied equity value/share	\$ 67.41										
Upside/(Downside) to DCF	2.6%										
Debt	84,371										
Cash	122,781										
Cash/share	15.59										

		Discount Rate						
		9.75%	10.0%	10.25%	10.5%	10.75%	11.0%	11.25%
Terminal Growth Rate	3.75%	70.97	67.96	65.17	62.60	60.21	70.75	64.96
	4.0%	72.98	69.76	66.80	64.08	61.55	74.93	68.35
	4.25%	75.16	71.72	68.57	65.67	63.00	79.95	72.36
	4.5%	77.55	73.86	70.49	67.41	64.57	86.08	77.17
	4.75%	80.18	76.20	72.59	69.29	66.27	93.74	83.06
	5.0%	83.06	78.35	74.86	71.59	68.46	101.51	89.06
	5.25%	86.19	80.66	77.34	74.19	71.15	109.44	93.41



Alphabet, Inc. DCF Model

Terminal Growth Rate	Discount Rate				
	9.5%	10.0%	10.5%	11.0%	11.5%
1.5%	\$1,161	\$1,072	\$993	\$924	\$862
2.0%	\$1,217	\$1,120	\$1,034	\$959	\$893
2.5%	\$1,282	\$1,174	\$1,081	\$999	\$926
3.0%	\$1,357	\$1,237	\$1,133	\$1,043	\$964

	Fiscal Year									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Revenue	106,521	122,499	138,424	155,035	172,089	189,298	208,227	229,050	251,955	277,151
Pct. Growth	18.0%	15.0%	13.0%	12.0%	11.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Operating Income	28,228	32,462	36,682	44,019	52,823	63,387	74,797	88,260	104,147	122,894
Operating Margin	26.5%	26.5%	26.5%	20.0%	20.0%	20.0%	18.0%	18.0%	18.0%	18.0%
Net Interest	(107)	(122)	(138)	(155)	(172)	(189)	(208)	(229)	(252)	(277)
Net Interest/Sales	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Taxes	5,363	6,168	6,970	8,334	10,004	12,008	14,172	16,726	19,740	23,297
Tax Rate	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%
Net Income	23,156	26,585	30,004	35,530	42,647	51,190	60,417	71,305	84,155	99,319
Pct. Growth	18.9%	14.8%	12.9%	18.4%	20.0%	20.0%	18.0%	18.0%	18.0%	18.0%
Dep. & Amort.	6,391	7,350	8,305	12,403	15,488	18,930	22,905	25,196	27,715	30,487
Pct. Of Sales	6.0%	6.0%	6.0%	8.0%	9.0%	10.0%	11.0%	11.0%	11.0%	11.0%
Δ in Working Capital	4,061	3,036	3,026	3,849	4,273	4,700	5,170	5,687	6,255	6,881
Pct. Of Sales	3.8%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
CAPEX	11,717	13,475	15,227	17,054	18,930	20,823	22,905	25,196	27,715	30,487
Pct. Of Sales	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
Free Cash Flow	21,891	23,496	26,108	34,728	43,478	53,997	65,587	76,992	90,410	106,200
Pct. Growth		7.3%	11.1%	33.0%	25.2%	24.2%	21.5%	17.4%	17.4%	17.5%

NPV of Cash Flows	241,801
Discount Rate	10.50%

Terminal Value	1,360,691
Terminal Growth Rate	2.50%
NPV of Terminal Value	501,345
Proj. Equity Value	743,146

Current P/E	24.6	21.4	19.0
Projected P/E	32.1	28.0	24.8



Apple (AAPL)

AAPL: DCF VALUATION

Terminal Discount Rate =	10.50%
Terminal FCF Growth =	3.00%

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Revenue	156,508	170,910	182,795	233,715	215,639	241,516	248,761	257,468	266,479	274,474	282,708	291,189	299,925	308,922	318,190
% Growth		9.2%	7.8%	27.9%	-7.7%	12.0%	3.0%	3.5%	3.5%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Operating Income	55,241	48,999	52,503	71,230	60,024	67,624	69,653	70,804	73,282	75,680	77,745	80,077	82,479	84,954	87,502
Operating Margin	35.3%	28.7%	28.7%	30.5%	27.8%	28.0%	28.0%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%
Interest	522	1,156	980	1,285	1,348	1,522	1,567	1,622	1,679	1,729	1,781	1,834	1,890	1,946	2,005
Interest % of Sales	0.3%	0.7%	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Taxes	14,030	13,118	13,973	19,121	15,685	17,286	17,805	14,485	14,992	15,442	15,905	16,382	16,874	17,380	17,901
Tax Rate	35.2%	35.2%	35.1%	35.4%	25.4%	25.0%	25.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
Net Income	41,733	37,037	39,510	53,394	45,687	51,859	53,415	57,941	59,968	61,768	63,621	65,520	67,495	69,520	71,605
% Growth		-11.7%	6.7%	35.1%	-14.4%	13.5%	3.0%	8.5%	3.7%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Add Depreciation/Amort	3,277	6,757	7,946	11,257	10,505	9,661	9,950	10,814	11,725	12,626	13,570	14,559	14,996	16,064	16,546
% of Sales	2.1%	4.0%	4.3%	4.8%	4.9%	4.0%	4.0%	4.3%	4.3%	4.6%	4.8%	5.0%	5.0%	5.2%	5.2%
Plan/(minus) Changes WC	967	(1,953)	3,124	5,667	3,116	3,623	2,736	2,060	2,665	2,745	2,827	2,912	2,989	3,089	3,182
% of Sales	0.6%	-1.1%	1.7%	2.4%	1.4%	1.5%	1.1%	0.8%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Subtract Cap Ex	8,295	8,165	9,571	11,247	12,734	12,549	13,388	13,857	14,273	14,701	15,142	15,596	16,064	16,546	16,994
Capex % of Sales	5.3%	4.8%	5.2%	4.8%	5.9%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Free Cash Flow	37,682	33,676	41,009	59,071	46,574	52,584	53,166	57,426	60,501	62,865	65,317	67,859	69,894	72,609	74,787
% Growth		-10.6%	21.4%	44.0%	-21.2%	12.9%	1.1%	8.0%	5.1%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%

NPV of Cash Flows	370,607	49%
NPV of terminal value	378,427	51%
Projected Equity Value	749,033	100%
Free Cash Flow Yield (2016)	6.38%	

	2012	2013	2014	2015	2016
Current P/E	17.5	19.7	18.5	13.7	16.0
Projected P/E	17.9	20.2	19.0	14.0	16.4
Current EV/EBITDA	13.5	14.1	13.0	9.6	11.2
Projected EV/EBITDA	13.8	14.5	13.4	9.8	11.4

Shares Outstanding 5,220

Current Price	\$ 139.78
Implied equity value/share	\$ 143.51
Upside/(Downside) to DCF	2.7%

Debt	78,927
Cash	20,484
Cash/share	3.92

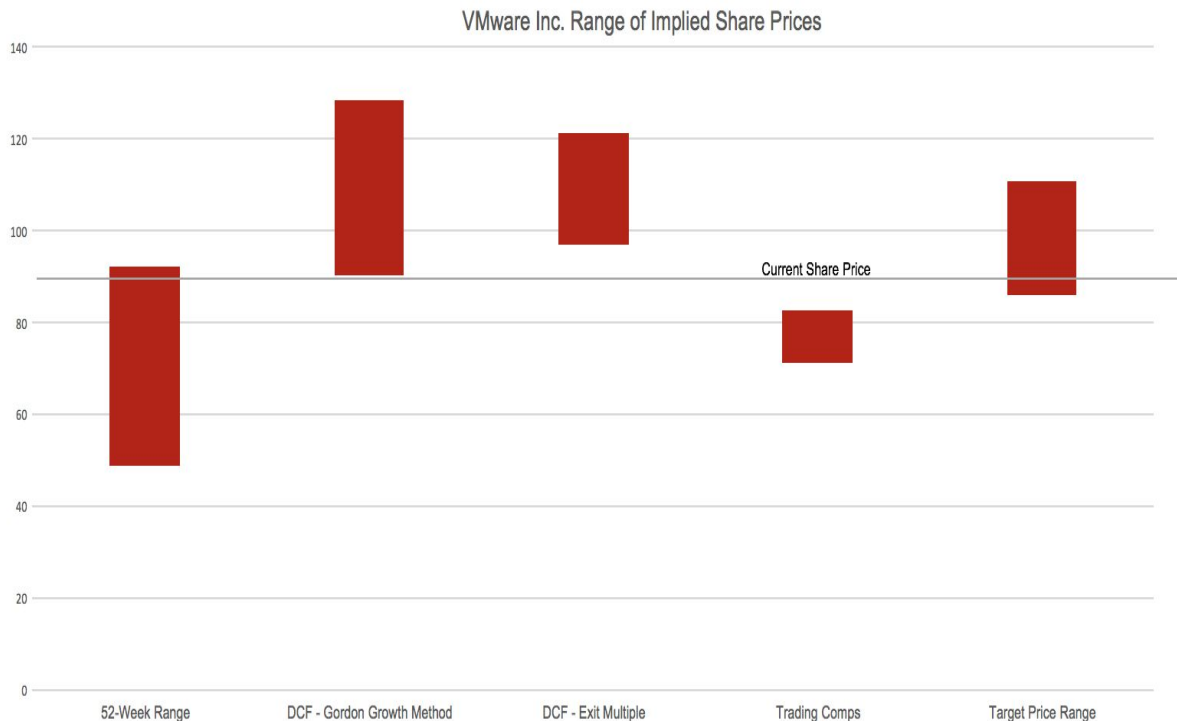
Trm Value	1,027,080
Fr Cash Yld	7.28%
Trm P/E	14.3
Trm EV/EBITDA	10.4

Discount Rate/ Growth Rate to Implied Equity Value Sensitivity Analysis

		Discount Rate						
		7%	8%	9%	10%	11%	13%	
Growth	2.0%	\$ 232.39	\$ 192.64	\$ 164.30	\$ 143.08	\$ 126.61	\$ 113.46	\$ 102.73
	2.5%	\$ 249.71	\$ 203.50	\$ 171.55	\$ 148.14	\$ 130.27	\$ 116.18	\$ 104.70
	3.0%	\$ 271.36	\$ 216.53	\$ 180.00	\$ 153.93	\$ 134.39	\$ 119.20	\$ 107.07
	3.5%	\$ 299.20	\$ 232.46	\$ 190.00	\$ 160.61	\$ 139.06	\$ 122.58	\$ 109.58
	4.0%	\$ 336.31	\$ 252.37	\$ 201.99	\$ 168.40	\$ 144.39	\$ 126.38	\$ 112.37
	4.5%	\$ 388.27	\$ 277.97	\$ 216.65	\$ 177.61	\$ 150.55	\$ 130.69	\$ 115.48
	5.0%	\$ 466.20	\$ 312.10	\$ 234.98	\$ 188.65	\$ 157.73	\$ 135.61	\$ 118.99
	5.5%	\$ 596.10	\$ 359.89	\$ 258.54	\$ 202.16	\$ 166.22	\$ 141.28	\$ 122.97
	6.0%	\$ 855.89	\$ 431.57	\$ 289.96	\$ 219.04	\$ 176.40	\$ 147.91	\$ 127.51
	6.5%	\$ 1,635.26	\$ 551.03	\$ 333.94	\$ 240.74	\$ 188.85	\$ 155.74	\$ 132.75



VMW: Valuation Summary



Implied Share Prices

Current Share Price	89.32	
52-Week Range	48.51	92.35
DCF - Gordon Growth Method	90.31	128.15
DCF - Exit Multiple	96.77	121.37
Trading Comps	71.23	82.49
Target Price Range	86.10	110.67
Average Target Price	98.39	
DVMT Discount	29.29%	
DVMT Target Price	69.57	
<i>Implied Premium</i>	9.66%	



VMW: DCF Analysis

Discounted Cash Flow Analysis

	Historical Period					Projection Period							
	2014A	2015A	2016A	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
Revenue	6,035.0	6,571.0	7,093.0	7,634.5	7,994.3	8,394.0	8,729.8	9,079.0	9,442.1	9,725.4	10,017.2	10,217.5	8,904.4
% growth		9%	8%	8%	5%	5%	4%	4%	4%	3%	3%	2%	2%
Cost of revenue (incl. D&A)	917.0	1,018.0	1,053.0	1,158.7	1,212.9	1,264.6	1,321.5	1,373.2	1,426.6	1,470.9	1,514.5	1,544.6	1,346.4
% sales	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Gross Profit	5,118.0	5,553.0	6,040.0	6,475.8	6,781.4	7,129.5	7,408.3	7,705.8	8,015.5	8,254.5	8,502.6	8,672.8	7,558.0
% margin	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
SG&A (incl. D&A)	2,836.0	3,033.0	3,046.0	3,463.4	3,626.6	3,807.9	3,960.2	4,118.6	4,283.4	4,411.9	4,544.2	4,635.1	4,039.4
% sales	47%	46%	43%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%
R&D	695.0	766.0	689.0	836.9	876.4	920.2	957.0	995.3	1,035.1	1,066.1	1,098.1	1,120.1	976.1
% sales	12%	12%	10%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%
Other operating expense (income)	16.0	23.0	52.0	34.3	35.9	37.7	39.2	40.8	42.4	43.7	45.0	45.9	40.0
% sales	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
EBIT	1,571.0	1,731.0	2,253.0	2,141.2	2,242.5	2,363.6	2,451.8	2,551.1	2,654.6	2,732.8	2,815.2	2,871.7	2,502.4
% margin	26%	26%	32%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
Less: Taxes	306.0	337.2	438.9	417.1	436.8	460.4	477.6	496.9	517.1	532.3	548.4	559.4	487.5
EBIAT	1,265.0	1,393.8	1,814.1	1,724.1	1,805.7	1,903.2	1,974.2	2,054.1	2,137.5	2,200.4	2,266.8	2,312.3	2,014.9
Plus: D&A	345.0	335.0	345.0	399.0	417.8	335.8	349.2	363.2	377.7	389.0	400.7	408.7	356.2
% sales	6%	5%	5%	5%	5%	4%	4%	4%	4%	4%	4%	4%	4%
Less: CapEx				305.4	319.8	335.8	349.2	363.2	377.7	389.0	400.7	408.7	356.2
Less: Inc./(Dec.) in NWC				76.3	79.9	83.9	87.3	90.8	94.4	97.3	100.2	102.2	89.0
Unlevered Free Cash Flow				1,741.3	1,823.8	1,819.3	1,886.9	1,963.3	2,043.0	2,103.2	2,166.7	2,210.1	1,925.9
WACC	7.54%												
Discount period				0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	4.5
Discount factor				0.96	0.90	0.83	0.78	0.72	0.67	0.62	0.58	0.54	0.72
Present Value of Free Cash Flow				1,679.2	1,635.3	1,516.8	1,462.8	1,415.3	1,369.4	1,310.8	1,255.6	1,191.0	1,388.3



VMW: DCF Analysis

Valuation		Exit Multiple Method	
Gordon Growth Method		Cumulative PV of FCF	
Cumulative PV of FCF	14,224.4	Cumulative PV of FCF	14,224.4
Perpetual growth rate	2.0%	Terminal year EBITDA	2,502.4
2026E Unlevered FCF	1,925.9	Exit multiple	14
Terminal Value	35,428.0	Terminal Value	35,033.7
PV of Terminal Value	25,538.4	PV of Terminal Value	25,254.2
Enterprise Value	39,762.8	Enterprise Value	39,478.7
Less: Total debt	1,500.0	Less: Total debt	1,500.0
Less: Noncontrolling interest	0.0	Less: Noncontrolling interest	0.0
Plus: Cash and cash equivalents	7,985.0	Plus: Cash and cash equivalents	7,985.0
Implied Equity Value	46,247.8	Implied Equity Value	45,963.7
Diluted shares outstanding	416.5	Diluted shares outstanding	416.5
Implied Share Price	\$ 111.04	Implied Share Price	\$ 110.36
Current Share Price	89.32	Current Share Price	89.32
Implied Premium	24.32%	Implied Premium	23.55%

Sensitivity Analysis						
WACC v Perpetual Growth Rate						
	6.0%	7.0%	8.0%	9.0%	10.0%	
1.0%	123.77	107.88	96.31	87.46	80.44	
1.5%	132.15	113.41	100.19	90.31	82.61	
2.0%	142.63	120.04	104.72	93.56	85.04	
2.5%	156.09	128.15	110.07	97.32	87.80	
3.0%	174.05	138.28	116.49	101.71	90.96	
WACC v Exit Multiple						
	6.0%	7.0%	8.0%	9.0%	10.0%	
10	98.13	94.78	91.61	88.61	85.77	
12	107.38	103.64	100.11	96.77	93.60	
14	116.62	112.51	108.61	104.92	101.43	
16	125.87	121.37	117.11	113.07	109.25	
18	135.11	130.23	125.61	121.23	117.08	



VMW: DCF Analysis

Capital Expenditure Projections

	2014A	2015A	2016A	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
CapEx	352.0	333.0	153.0	305.4	319.8	335.8	349.2	363.2	377.7	389.0	400.7	408.7	356.2
% sales	6%	5%	2%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%

Net Working Capital Projections

	2014A	2015A	2016A	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
Net working capital	(1,941.0)	(2,278.0)	(2,204.0)	(2,127.7)	(2,047.7)	(1,963.8)	(1,876.5)	(1,785.7)	(1,691.3)	(1,594.0)	(1,493.8)	(1,391.7)	(1,302.6)
Inc./(Dec.) in NWC		(337.0)	74.0	76.3	79.9	83.9	87.3	90.8	94.4	97.3	100.2	102.2	89.0
% sales		-5%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%

WACC

Current Capital Structure	Value	Weight	Tax Rate
Total debt	1,500.0	4%	19.48%
Total market value of equity	32,149.5	96%	
Total Capital	33,649.5		

Cost of Debt 2.70%

CAPM

Risk-free rate	2.39%
Historical market return	9.3%
Market risk premium	6.9%
Beta	0.78
Cost of equity	7.8%

WACC 7.54%



VMW: Comparable Companies Analysis

Comparable Companies Analysis

Company	Ticker	Current Share Price	Equity Value	Enterprise Value	Enterprise Value /		Price /	
					LTM	2017E	LTM	2017E
					EBITDA	EBITDA	EPS	EPS
CITRIX SYSTEMS	CTXS	80.02	12,511.3	11,274.8	10.09x	10.49x	20.56x	17.05x
CA INC	CA	32.04	13,391.9	12,513.9	8.21x	8.59x	17.01x	13.32x
MICROSOFT CORP	MSFT	64.43	497,923.4	460,073.7	16.81x	12.81x	31.07x	21.81x
ORACLE CORP	ORCL	42.64	174,903.8	171,407.8	11.46x	10.31x	19.75x	16.62x
-----					16.81x	12.81x	31.07x	21.81x
High					16.81x	12.81x	31.07x	21.81x
Mean					11.64x	10.55x	22.10x	17.20x
Median					10.78x	10.40x	20.16x	16.83x
Low					8.21x	8.59x	17.01x	13.32x
-----					14.39x	16.82x	29.42x	18.07x
VMWARE INC	VMW	89.25	36,471.2	29,986.2	14.39x	16.82x	29.42x	18.07x

Valuation

EXPE Metric	1,783.0	2,229.5	3.00	4.90
x Median Multiple	10.78x	10.40x	20.16x	16.83x
Implied Enterprise Value	19,214.5	23,181.3		
Less: Total debt	1,500.0	1,500.0		
Less: Noncontrolling interest	0.0	0.0		
Plus: Cash and cash equivalents	7,985.0	7,985.0		
Implied Equity Value	25,699.5	29,666.3		
Diluted shares outstanding	416.5	416.5		
Implied Share Price	\$ 61.70	\$ 71.23	\$ 60.47	\$ 82.49