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VMware, Inc. Class A (VMW-US)**Software**

- We reiterate our Strong Buy rating as VMW continues to experience broad-based strength across all key product lines.
- Business Performance continues to accelerate driven by strong demand for VMW's NSX and vSan products.
- VMW offers the most robust cloud infrastructure suite of products supporting all aspects of the IT infrastructure including data center, desktop, and mobile access.
- VMW's strong balance sheet, cash flow, and excess liquidity will continue to fund growth and its ability to return cash to shareholders.
- VMW is on our Research Focus List and in our Focused Opportunity Portfolio.

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Company Note
VMware, Inc. Class A (VMW-US)
 Software

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Research Action:

Reiterate rating

Rating: Strong Buy
Prior Rating: Strong Buy
Price 09/26/2018: \$155.84
52 Week High / Low: \$165.00 / \$107.12
Key Data: (TTM as of Jul-18)
Excess Cash per Share: \$31.71
Annual Dividend: \$0.00
Dividend Yield: 0.00%
Avg. Volume (30 Day): 1.6M
Shares Outstanding: 408.7M
Float: 375.8M
Short Interest: 8.6M
SI % / Float 2.29%
Equity MV: \$63,697.1M
Sales TTM: \$8,467.0M
Beta: 1.57
EBITDAR: \$4,645.1M
NOPAT: \$1,482.1M
Total Invested Capital: \$15,357.5M
Return on Capital: 11.63%
Cost of Capital: 8.55%
Economic Profit: \$393.2M
Market Value Added: \$6,801.5M
Current Operations Value: \$17,340.8M
Future Growth Value: \$4,818.2M

- **We reiterate our Strong Buy rating as VMW continues to experience broad-based strength across all key product lines.** VMW is experiencing strong demand for its NSX and vSan products as well as its Software-Defined Data Center (SDDC) and Virtual Desktop Infrastructure (VDI) software. VMW continues to experience broad-based strength across all product lines. VMW reported strong Q2 revenue and earnings results above consensus expectations and raised FY18 guidance. The strong Q2 results followed strong Q1 results. VMW continues to benefit from its dominant position in cloud-based virtual server and desktop product offerings. VMW will continue experiencing strong revenue growth as companies continue to update IT infrastructures and continue to move greater workloads to hosted and hybrid cloud environments. VMW's growth will also come from new product offerings that focus on network and storage virtualization and increased mobile connectivity. VMW's accelerating revenue growth and margin improvements will continue to drive higher Return on Capital, greater Economic Profit, and increasing shareholder value creation. In addition, VMW's payment of a one-time special \$11 billion dividend will have a positive effect on increasing Return on Capital as the invested capital base contracts which could unlock a significant amount of value from that point going forward. We believe further upside exists from current levels and continue to recommend purchase.
- **Business Performance continues to accelerate driven by strong demand for VMW's NSX and vSan products.** For the 12 months ending August 3, 2018, Net Sales Revenue increased 13.71% Y/Y from \$7.45 billion to \$8.47 billion. We forecast a further increase of 8.4% to \$9.17 billion over the NTM as VMW continues to benefit from ongoing growth in server virtualization and cloud migration trends. Economic Operating Cash Flow (EBITDAR) increased 22.78% Y/Y from \$3.78 billion to \$4.65 billion over the LTM. We forecast a further increase of 1% to \$4.7 billion over the NTM. Net Operating Profit After Tax (NOPAT) increased 5.13% Y/Y to \$1.41 billion to \$1.48 billion over the LTM. We forecast a further increase of 13.9% to \$1.69 billion over the NTM. Return on Capital declined from 13.7% to 11.63% over the LTM. We forecast an increase to 12.85% over the NTM. Economic Profit declined 29.35% Y/Y from \$556.5 million to \$393.2 million over the LTM. We forecast an increase to \$434.4 million over the NTM. Return on Capital would increase significantly as NOPAT over enterprise value could increase ROC to as much as 20% after VMW pays out its one-time \$11 billion special dividend. We believe there is an opportunity to generate a significant increase in Economic Profit once VMW decreases its invested capital base.

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- **VMW offers the most robust cloud infrastructure suite of products supporting all aspects of the IT infrastructure including data center, desktop, and mobile access.** VMW continues to diversify and expand its product portfolio through both acquisition and in-house development. New products like vSAN, NSX, vSphere, and VxRail are growing quickly and offsetting declines in computer-related products. VMW recently acquired DeskDone which pioneered Desktops as a Service (DaaS), a desktop virtualization software platform that enables the deployment of Windows desktops, and applications from the cloud to any user, anywhere, on any device. VMW also acquired Airwatch, a provider of enterprise mobility management software and management systems for content, applications, and email. In Q4, license bookings grew 14% with most of the growth coming from NSX, vSAN and End User Computing. Booking for NSX grew 50% in the fourth quarter while annualized bookings for NSX are ramping and are currently around the \$1 billion run rate. vSAN bookings (including both vSAN software and VxRail) grew more than 150% in the quarter.
- **VMW's strong balance sheet, cash flow, and excess liquidity will continue to fund growth and its ability to return cash to shareholders.** VMW currently has close to \$13 billion, \$31.71 a share, in excess cash together with expected generation of close to \$4.7 billion in Economic Operating Cash Flow (EBITDAR) over the NTM, to continue enabling the funding growth initiatives and ongoing return of cash to shareholders along with the payment of a one-time special dividend expected on the completion of the Dell Technologies transaction. VMW announced it would pay a one-time special dividend of \$11 billion of which Dell is an 82% shareholder. After the payment of that dividend, VMW will resume its ongoing share repurchase plans. Since 2010, VMW has repurchased over \$5 billion worth of stock and currently has approximately \$8.76 billion in open share repurchase capacity that expires on August 31, 2019.
- **VMW is on our Research Focus List and in our Focused Opportunity Portfolio.** VMW offers investors the best way to play the growth in cloud migration, and server and desktop virtualization. VMW plays an integral role in our cloud investment theme.

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Investment Thesis

VMW is the leading provider of desktop and server virtualization software enabling companies to use hosted computing power and deploying applications for employees to use remotely. VMW pioneered Virtual Desktop Infrastructure (VDI) is virtualization technology that hosts a desktop operating system on a centralized server in a data center. VMW will continue experiencing strong revenue growth as companies continue to update IT infrastructures and continue to move greater workloads to hosted and hybrid cloud environments. VMW's growth will also come from new product offerings that focus on network and storage virtualization and increased mobile connectivity. We believe VMW is one of the best ways to play the massive growth of hybrid cloud computing environments and ongoing cloud migration trends.

Company Overview

VMware, Inc. (VMW-US) is the world's leading provider of server and desktop virtualization solutions. VMware provides virtual cloud infrastructure processing platforms and empowers business mobility connectivity. Its products include Virtual Server Management, Hybrid Cloud Computing Environments, Software-Defined Data Centers, and Virtual Desktop Management. VMware empowers the modern datacenter, integrated public clouds, and digital workspaces, along with adding increased security. VMware helps drive lower IT service costs and improve operational efficiencies as well as provide business continuity and remote access management, along with software lifecycle management and virtual desktop management.

VMware develops and markets its services offerings within three main product groups: Software-Defined Data Center (SDDC), End-User Computing (EUC), and Hybrid Cloud Computing (HCC). VMware services over 500,000 customers globally supported by an ecosystem of over 75,000 value added partners. VMware has service offering and marketing relationships with all top computer hardware vendors and service providers including Alphabet (GOOGL-US), Amazon AWS (AMZN-US), Cisco Systems (CSCO-US), Hewlett-Packard Enterprises (HPE-US), IBM (IBM-US), and Microsoft (MSFT-US), along with IT service providers and consultants.

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VMware's main product lines include:

VMware Cloud Foundation - an integrated cloud infrastructure platform providing a software- defined computing, storage, networking, and security infrastructure.

vSphere - an industry-leading server virtualization platform.

NSX - a network virtualization platform which allows networking hardware like routers and switches to be reconfigured and managed by via software.

VMware sells its products through its own direct sales force in close to 120 offices globally and through a network of distributors which accounts for approximately 40% of revenue and includes Arrow Electronics Inc. (ARW-US), Ingram Micro (IM-US), and Tech Data Corp. (TECD-US) which in turn sell to end resellers and end-users.

VMware was acquired by EMC in 2004 for \$625 million and then brought public in an IPO in 2007. In September 2016, VMware's parent company EMC was acquired by Dell for \$67 billion. Dell now owns 82% of VMware shares and its equity ownership in VMware trades as a tracking stock Dell Technologies Inc. (DVMT-US). The rest of the stock that Dell does not own trades in the public market.

VMware reports revenue and operations in three business segments:

Software Maintenance - (52% of revenue) includes software as a service subscriptions (SAAS), and software implementation and maintenance.

License - (40% of revenue) provides licensing of software to end users.

Professional Services - (8% of revenue) provides software implementation and training.

VMware reports revenue by two geographic segments: the United States (49% of revenue) and International (51% of revenue).

VMware, Inc. Class A (VMW-US)
Software
Financial Data

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	06/30/2013	06/30/2014	06/30/2015	06/30/2016	08/04/2017	08/03/2018	07/31/2019	Average	Average	Trend
Net Sales Revenue	\$4,861.4	\$5,589.0	\$6,326.0	\$6,822.0	\$7,446.0	\$8,467.0	\$9,173.7	\$6,930.0	\$7,578.3	\$8,820.4
Sales Growth	16.29%	14.97%	13.19%	7.84%	9.15%	13.71%	8.35%	11.77%	10.23%	11.03%
Sales Growth Trend	20.22%	15.50%	13.90%	9.98%	8.62%	11.89%	10.49%	11.98%	10.16%	11.19%
Operating Cash Flow (EBITDAR)	\$2,468.4	\$2,773.4	\$2,918.1	\$3,272.0	\$3,783.1	\$4,645.1	\$4,697.9	\$3,478.3	\$3,900.1	\$4,671.5
EBITDAR Margin	50.78%	49.62%	46.13%	47.96%	50.81%	54.86%	51.21%	49.88%	51.21%	53.04%
EBITDAR Growth	15.08%	12.36%	5.22%	12.13%	15.62%	22.78%	1.14%	13.62%	16.84%	11.96%
Net Operating Profit Before Tax (NOPBT)	\$990.2	\$1,224.4	\$1,237.1	\$1,424.0	\$1,702.1	\$2,212.1	\$2,136.2	\$1,559.9	\$1,779.4	\$2,174.2
NOPBT Margin	20.37%	21.91%	19.56%	20.87%	22.86%	26.13%	23.29%	22.26%	23.29%	24.71%
NOPBT Growth	14.40%	23.66%	1.03%	15.11%	19.53%	29.96%	-3.43%	17.86%	21.53%	13.27%
Cash Operating Income Tax	\$143.5	\$187.5	\$177.7	\$281.6	\$292.4	\$730.0	\$448.6	\$333.8	\$434.6	\$589.3
Economic Tax Effective Rate	14.49%	15.32%	14.37%	19.77%	17.18%	33.00%	21.00%	19.93%	23.32%	27.00%
Net Operating Profit After Tax (NOPAT)	\$846.6	\$1,036.9	\$1,059.3	\$1,142.5	\$1,409.8	\$1,482.1	\$1,687.6	\$1,226.1	\$1,344.8	\$1,584.9
NOPAT Margin	17.42%	18.55%	16.75%	16.75%	18.93%	17.50%	18.40%	17.70%	17.73%	17.95%
NOPAT Growth	6.68%	22.47%	2.16%	7.85%	23.40%	5.13%	13.87%	12.20%	12.13%	9.50%
Cash & Equivalents	\$5,323.0	\$6,637.0	\$7,094.0	\$8,807.0	\$9,053.0	\$13,333.0	\$14,732.0	\$8,984.8	\$10,397.7	\$14,032.5
Total Assets	\$11,146.5	\$14,159.0	\$14,853.0	\$16,484.0	\$17,175.0	\$23,409.0	\$25,865.3	\$17,216.0	\$19,022.7	\$24,637.2
Non - Interest Bearing Liabilities (NIBLs)	\$4,261.4	\$5,570.0	\$6,042.0	\$6,348.0	\$7,076.0	\$8,779.0	\$9,700.2	\$6,763.0	\$7,401.0	\$9,239.6
Net Assets	\$6,885.1	\$8,589.0	\$8,804.0	\$10,136.0	\$10,099.0	\$14,630.0	\$16,165.1	\$10,451.6	\$11,621.7	\$15,397.6
Economic Asset Adjustments	\$206.7	\$303.1	\$326.1	\$319.2	\$24.7	\$727.5	\$803.9	\$340.1	\$357.1	\$765.7
Net Operating Assets	\$7,091.8	\$8,892.1	\$9,130.1	\$10,455.2	\$10,123.7	\$15,357.5	\$16,969.0	\$10,791.7	\$11,978.8	\$16,163.3
Debt & Debt Equivalents	\$1,072.7	\$2,151.1	\$2,258.1	\$2,258.2	\$2,218.7	\$4,972.5	\$5,494.3	\$2,771.7	\$3,149.8	\$5,233.4
Equity & Equivalents	\$6,156.3	\$7,089.0	\$7,304.0	\$8,636.0	\$8,599.0	\$10,392.0	\$11,482.4	\$8,404.0	\$9,209.0	\$10,937.2
Total Capital - Financing Sources	\$7,229.0	\$9,240.1	\$9,562.1	\$10,894.2	\$10,817.7	\$15,364.5	\$16,976.7	\$11,175.7	\$12,358.8	\$16,170.6
Capital Adjustments	(\$416.0)	(\$348.0)	(\$432.0)	(\$439.0)	(\$694.0)	(\$7.0)	(\$7.7)	(\$384.0)	(\$380.0)	(\$7.4)
Net Capital Financing Sources	\$6,813.0	\$8,892.1	\$9,130.1	\$10,455.2	\$10,123.7	\$15,357.5	\$16,969.0	\$10,791.7	\$11,978.8	\$16,163.3
Net Working Capital	(\$1,194.0)	(\$1,835.6)	(\$1,920.7)	(\$2,304.9)	(\$2,652.7)	(\$2,715.7)	(\$3,000.6)	(\$2,285.9)	(\$2,557.8)	(\$2,858.1)
Cost of Net Working Capital	(\$96.9)	(\$132.7)	(\$154.9)	(\$153.9)	(\$205.5)	(\$229.4)	(\$253.5)	(\$175.3)	(\$196.3)	(\$241.5)
% of Revenue	-1.99%	-2.37%	-2.45%	-2.26%	-2.76%	-2.71%	-2.76%	-2.51%	-2.58%	-2.74%
Operational Capital	\$30.7	(\$248.4)	(\$50.6)	(\$473.7)	(\$929.0)	(\$876.1)	(\$968.0)	(\$515.6)	(\$759.6)	(\$922.1)
Cost of Operational Capital	\$8.7	(\$9.5)	(\$12.3)	(\$19.1)	(\$58.2)	(\$77.1)	(\$85.2)	(\$35.3)	(\$51.5)	(\$81.2)
% of Revenue	0.18%	-0.17%	-0.19%	-0.28%	-0.78%	-0.91%	-0.93%	-0.47%	-0.66%	-0.92%
Productive Capital	\$3,624.4	\$4,448.6	\$4,612.4	\$4,134.3	\$3,817.0	\$4,215.9	\$4,658.3	\$4,245.6	\$4,055.7	\$4,437.1
Cost of Productive Capital	\$276.1	\$353.7	\$373.7	\$318.5	\$329.7	\$343.3	\$379.3	\$343.8	\$330.5	\$361.3
% of Revenue	5.68%	6.33%	5.91%	4.67%	4.43%	4.05%	4.13%	5.08%	4.38%	4.09%
Total Operating Capital	\$2,011.9	\$2,534.6	\$2,352.4	\$1,989.3	\$1,443.0	\$2,447.9	\$2,704.7	\$2,153.4	\$1,960.1	\$2,576.3
Cost of Total Operating Capital	\$143.0	\$199.2	\$201.5	\$158.1	\$142.3	\$166.3	\$183.7	\$173.5	\$155.6	\$175.0
% of Revenue	2.94%	3.56%	3.19%	2.32%	1.91%	1.96%	2.00%	2.59%	2.06%	1.98%
Non - Operating Capital	\$5,079.9	\$6,357.6	\$6,777.7	\$8,465.9	\$8,680.7	\$12,909.7	\$14,264.3	\$8,638.3	\$10,018.8	\$13,587.0
Cost of Non - Operating Capital	\$464.2	\$501.0	\$541.7	\$555.1	\$710.9	\$922.7	\$1,019.5	\$646.3	\$729.5	\$971.1
% of Revenue	9.55%	8.96%	8.56%	8.14%	9.55%	10.90%	11.11%	9.22%	9.53%	11.00%
Total Capital	\$7,091.8	\$8,892.1	\$9,130.1	\$10,455.2	\$10,123.7	\$15,357.5	\$16,969.0	\$10,791.7	\$11,978.8	\$16,163.3
Cost of Total Capital	\$607.3	\$700.2	\$743.3	\$713.2	\$853.2	\$1,088.9	\$1,203.2	\$819.8	\$885.1	\$1,146.1
% of Revenue	12.49%	12.53%	11.75%	10.45%	11.46%	12.86%	13.12%	11.81%	11.59%	12.99%
Cost of Capital (WACC)	9.09%	8.76%	8.25%	7.28%	8.29%	8.55%	8.55%	8.23%	8.04%	8.55%
Capital Structure										
Debt & Debt Equivalents	\$1,072.7	\$2,151.1	\$2,258.1	\$2,258.2	\$2,218.7	\$4,972.5	\$5,494.3	\$2,771.7	\$3,149.8	\$5,233.4
Debt & Debt Equivalents % of Market Value	11.11%	14.55%	17.53%	24.10%	18.02%	23.74%	23.74%	19.72%	22.17%	23.74%
Preferred Equity	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Preferred Equity % of Market Value	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Market Value of Common Equity	\$8,586.6	\$12,635.2	\$10,620.0	\$7,110.9	\$10,093.2	\$15,970.5	\$17,646.3	\$11,286.0	\$11,058.2	\$16,808.4
Common Equity % of Market Value	88.89%	85.45%	82.47%	75.90%	81.98%	76.26%	76.26%	80.28%	77.83%	76.26%
Total Economic Market Value (MV)	\$9,659.3	\$14,786.3	\$12,878.1	\$9,369.1	\$12,311.9	\$20,943.1	\$23,140.6	\$14,057.7	\$14,208.0	\$22,041.8
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Excess Cash	\$5,079.9	\$6,357.6	\$6,777.7	\$8,465.9	\$8,680.7	\$12,909.7	\$14,264.3	\$8,638.3	\$10,018.8	\$13,587.0
Economic Enterprise Value	\$4,579.4	\$8,428.7	\$6,100.4	\$903.2	\$3,631.2	\$8,033.4	\$8,876.4	\$5,419.4	\$4,189.3	\$8,454.9
Average Capital	\$6,403.7	\$7,852.6	\$9,011.1	\$9,792.6	\$10,289.4	\$12,740.6	\$16,163.3	\$9,937.3	\$10,940.9	\$14,452.0
Capital Δ	\$818.6	\$2,079.1	\$237.9	\$1,325.1	(\$331.5)	\$5,233.8	\$1,611.5	\$1,708.9	\$2,075.8	\$3,422.7

Source: Company Data, Financial statements and Tigress Research

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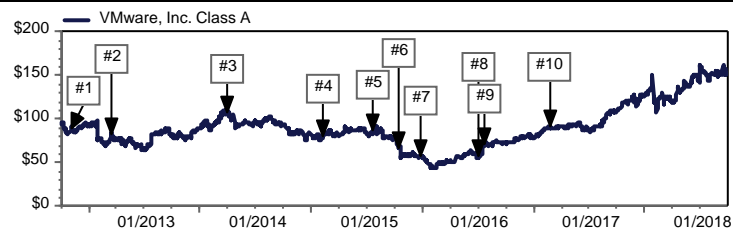
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VMware, Inc. Class A (VMW-US)
Software
Ratings History

VMware, Inc. Class A (VMW-US)				
Item #	Date	Research Action	Rating	Price
#10	02.22.2017	Reiterate Rating	Strong Buy	\$91.76
#9	07/21/2016	Reiterate Rating	Strong Buy	\$70.69
#8	06/30/2016	Reiterate Rating	Strong Buy	\$57.22
#7	10/23/2015	Reiterate Rating	Strong Buy	\$58.18
#6	10/14/2015	Reiterate Rating	Strong Buy	\$67.97
#5	07/24/2015	Reiterate Rating	Strong Buy	\$86.18
#4	02/11/2015	Reiterate Rating	Strong Buy	\$81.65
#3	03/31/2014	Reiterate Rating	Strong Buy	\$108.02
#2	03/15/2013	Reiterate Rating	Strong Buy	\$83.85
#1	11/02/2012	Initiation of Coverage	Strong Buy	\$88.74


Tigress Research Methodology Overview

We employ proprietary quantitative valuation models combined with dynamic fundamental analysis based on the principles of Economic Profit to formulate timely and insightful investment ratings, analysis, strategies, and recommendations.

We make key adjustments to reported financial data eliminating GAAP-based accounting distortions and measuring all companies on a cash operating basis.

Our proprietary research framework is a multi-factor model that scores and ranks companies based on their risk-adjusted ability to create Economic Profit relative to their current market value focusing on three key components:

Business Performance: Measuring economic profitability, growth and operating efficiency.

Risk: Measuring business sustainability, volatility, strength, and consistency.

Valuation: Linking business performance to market value. Measuring value created relative to capital employed and enterprise multiples of economic profit and cash flow.

We score and rank 24 key measurements of performance, risk, and value into relative market and industry investment recommendations.

For more information on our research methodology, please review the *Tigress Investment Research Guide to Company Valuation and Analysis*.

Glossary of Key Terms and Measures

Excess Cash per Share: Excess Cash per Share is the amount of excess cash divided by basic shares outstanding. Excess Cash consists of all cash and short-term securities less operating cash needed to run the business. Operating Cash is 5% of TTM net sales revenue.

EBITDAR: Earnings Before Interest, Taxes, Depreciation, Amortization, and Restructuring and Rent Costs. This is especially important when comparing companies that use a significant amount of leased assets like restaurants and retailers.

NOPAT: Net Operating Profit after Tax represents a company's after-tax cash operating profit excluding financing costs.

Total Invested Capital: Total Invested Capital the total cash investment that shareholders and debt holders have made during the life of the company.

Return on Capital: Return on Capital equals NOPAT divided by Total Invested Capital. It is a key measure of operating efficiency. ROC quantifies how well a company generates cash flow relative to the capital invested in its business.

Cost of Capital: Is the proportionately weighted cost of each category of capital – common equity, preferred equity and debt.

Economic Profit: Economic Profit is the net operating income after tax less the opportunity cost of the total capital invested. It is the most important driver of shareholder value.

Current Operations Value: Current Operations Value is the portion of market value based on the discounted present value of the current earnings stream assuming it remains constant forever.

Future Growth Value: Future Growth Value is the portion of market value based on un-earned Economic Profit

For more information on the key terms and measures, please review the *Tigress Investment Research Guide to Company Valuation and Analysis*.

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Rating:	Meaning:	Rating Distribution (09/26/2018)				
		Companies Under Coverage		Relationship Companies Under Coverage*		
		#	%	#	%	
Strong Buy:	Expect significant price gains in the price of the stock relative to its industry peer group and general market over the next 12 months.	16	14%	1	15%	
Buy:	Expect out-performance for the price of the stock relative to its industry peer group and general market over the next 12 months.	51	43%	5	70%	
Neutral:	Expect little or no outperformance opportunity over the next 12 months.	46	39%	1	15%	
Underperform:	Expect underperformance for the price of the stock relative to its industry peer group and general market over the next 12 months.	5	4%	0	0%	
Sell:	Expect price decline or significant relative market and industry underperformance over the next 12 months.	0	0%	0	0%	
Not Rated	No Current Research Rating	NA	NA	65	NA	
		Total	118	100%	72	100%

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