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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 broad-based strength across all products.
- VMW continues to expand its product portfolio with key strategic acquisitions.
- VMW offers the most robust cloud infrastructure suite of products supporting all aspects of IT infrastructure including data center, desktop, and mobile access.
- VMW's strong balance sheet and cash flow will continue to fund growth through ongoing R&D investments and strategic acquisitions along with ongoing share repurchases.
- 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 04/26/2019: \$199.71
52 Week High / \$203.35
Low: \$129.33
Key Data: (TTM as of Jan-19)
Excess Cash per Share: \$6.01
Annual Dividend: \$0.00
Dividend Yield: 0.00%
Avg. Volume (30 Day): 1.0M
Shares Outstanding: 410.4M
Float: 378.2M
Short Interest: 4.7M
SI % / Float 1.25%
Equity MV: \$81,969.2M
Sales TTM: \$8,973.0M
Beta: 1.17
EBITDAR: \$4,997.8M
NOPAT: \$1,888.4M
Total Invested Capital: \$6,102.6M
Return on Capital: 21.41%
Cost of Capital: 6.87%
Economic Profit: \$1,282.4M
Market Value Added: \$20,930.2M
Current Operations Value: \$27,491.7M
Future Growth Value: (\$458.9)M

- **We reiterate our Strong Buy rating as VMW continues to experience broad-based strength across all key product lines.** VMW continues to experience strong demand especially 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. Integration with Amazon's AWS and Microsoft are both further upside catalysts. VMware reported strong Q4 FY19 results driven by ongoing strength in its core virtualization business. It continues to experience broad-based strength across all key product lines. VMware is seeing increasing acceleration for adoption of its NSX and vSan products as well as its Software-Defined Data Center (SDDC) and Virtual Desktop Infrastructure (VDI) software. VMware continues to benefit from its dominant position in cloud-based virtual server and desktop product offerings. VMware 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. VMware's growth will also come from new product offerings that focus on network and storage virtualization and increased mobile connectivity, as well as significant growth opportunities in the rollout of high-speed 5G connectivity. I believe further upside exists from current levels and continue to recommend purchase.
- **Business Performance continues to accelerate driven by broad-based strength across all products.** For the 12 months ending February 1, 2018, Net Sales Revenue increased 13.28% Y/Y from \$7.92 billion to \$8.97 billion. We forecast a further increase of 12% to \$10.05 billion over the NTM. Economic Operating Cash Flow (EBITDAR) increased 21.02% Y/Y from \$4.13 billion to \$5 billion over the LTM. We forecast a further increase of 5.9% to \$5.29 billion over the NTM. Net Operating Profit After Tax (NOPAT) increased 46.52% Y/Y from \$1.29 billion to \$1.89 billion over the LTM. We forecast a further increase of 4.2% to \$1.97 billion over the NTM. Return on Capital (ROC) increased from 11.66% to 21.41% over the LTM. We forecast a further increase to 24.1% over the NTM. Economic Profit increased 141.35% Y/Y from \$531.4 million to \$1.28 billion over the LTM. We forecast a further increase of 12.5% to \$1.44 billion over the NTM. VMW's strong ability to create an increasing Return on Capital and greater Economic Profit will continue to drive increased shareholder value creation.

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- **VMW continues to expand its product portfolio with key strategic acquisitions.** VMW recently acquired Heptio, adding to its expertise in deploying a Kubernetes containerized application management platform. Heptio will open new channels for VMW to further engage the open source development community, providing upstream Kubernetes as well as supporting the cloud-based native needs of some of the world's largest enterprises. VMW also recently acquired remote support solution provider AetherPal that provides its customers with a single platform approach for digital workspace management.
- **VMW offers the most robust cloud infrastructure suite of products supporting all aspects of 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 also recently acquired DeskTone 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.
- **VMW's strong balance sheet and cash flow will continue to fund growth through ongoing R&D investments and strategic acquisitions along with ongoing share repurchases.** On December 31, 2018, VMW paid a special dividend of \$26.81 as part of the conclusion of the conversion of its tracking stock into Dell Technologies Inc. (DELL-US, Non-Rated). After paying the special dividend, VMW currently has \$2.46 billion, \$6.01 per share, in excess cash along with our expected generation of \$5.28 billion in Economic Operating Cash Flow (EBITDAR) over the NTM, enabling it to continue funding growth initiatives including ongoing investments in R&D, and strategic acquisitions along with ongoing share repurchases. Since 2010, VMW has announced \$7.9 billion in open market share repurchases and has repurchased just over \$5 billion worth of stock including \$1.45 billion in 2018. VMW repurchased \$42 million worth of stock in its most recent quarter and currently has \$834 million in repurchase authorization remaining.
- **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's virtualization platforms play 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 to deploy applications for employees to use remotely. VMW pioneered Virtual Desktop Infrastructure (VDI) 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.

VMware operates and reports revenue in three Business Segments:

Software Maintenance - (50% of revenue) includes Software as a Service (SaaS) subscriptions, and software implementation and maintenance.

License - (42% of revenue) provides licensing of software to end users.

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

VMware reports revenue in two Geographic Segments: the United States (47% of revenue) and International (53% 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	12/31/2013	12/31/2014	12/31/2015	12/31/2016	02/02/2018	02/01/2019	01/31/2020	Average	Average	Trend
Net Sales Revenue	\$5,206.6	\$6,035.0	\$6,648.0	\$7,092.0	\$7,921.0	\$8,973.0	\$10,050.0	\$7,333.8	\$7,995.3	\$9,511.5
Sales Growth	13.06%	15.91%	10.16%	6.68%	11.69%	13.28%	12.00%	11.54%	10.55%	12.64%
Sales Growth Trend	16.73%	14.77%	12.46%	8.07%	9.69%	12.64%	12.51%	11.53%	10.13%	12.58%
Economic Operating Cash Flow (EBITDAR)	\$2,698.7	\$2,877.5	\$3,110.2	\$3,553.0	\$4,129.7	\$4,997.8	\$5,290.8	\$3,733.6	\$4,226.8	\$5,144.3
EBITDAR Margin	51.83%	47.68%	46.78%	50.10%	52.14%	55.70%	52.64%	50.48%	52.64%	54.17%
EBITDAR Growth	15.59%	6.62%	8.09%	14.24%	16.23%	21.02%	5.86%	13.24%	17.16%	13.44%
Net Operating Profit Before Tax (NOPBT)	\$1,215.0	\$1,208.5	\$1,369.2	\$1,593.0	\$1,923.7	\$2,247.8	\$2,405.3	\$1,668.4	\$1,921.5	\$2,326.6
NOPBT Margin	23.34%	20.02%	20.60%	22.46%	24.29%	25.05%	23.93%	22.48%	23.93%	24.49%
NOPBT Growth	32.21%	-0.54%	13.30%	16.35%	20.76%	16.85%	7.00%	13.34%	17.99%	11.93%
Cash Operating Income Tax	\$140.7	\$187.8	\$243.8	\$310.4	\$634.8	\$359.4	\$437.8	\$347.2	\$434.9	\$398.6
Economic Tax Effective Rate	11.58%	15.54%	17.81%	19.48%	33.00%	15.99%	18.20%	20.36%	22.82%	17.10%
Net Operating Profit After Tax (NOPAT)	\$1,074.4	\$1,020.7	\$1,125.4	\$1,282.6	\$1,288.9	\$1,888.4	\$1,967.5	\$1,321.2	\$1,486.6	\$1,928.0
NOPAT Margin	20.64%	16.91%	16.93%	18.09%	16.27%	21.05%	19.58%	17.85%	18.47%	20.31%
NOPAT Growth	40.01%	-5.00%	10.26%	13.97%	0.49%	46.52%	4.19%	13.25%	20.33%	25.35%
Cash & Equivalents	\$6,175.0	\$7,185.0	\$7,612.0	\$8,124.0	\$11,799.0	\$2,913.0	\$3,277.5	\$7,526.6	\$7,612.0	\$3,095.3
Total Assets	\$12,327.0	\$15,216.0	\$15,865.0	\$16,643.0	\$20,693.0	\$14,662.0	\$16,496.8	\$16,615.8	\$17,332.7	\$15,579.4
Non - Interest Bearing Liabilities (NIBLs)	\$4,758.0	\$5,756.0	\$6,054.0	\$6,543.0	\$8,049.0	\$9,137.0	\$10,280.4	\$7,107.8	\$7,909.7	\$9,708.7
Net Assets	\$7,569.0	\$9,455.0	\$9,807.0	\$10,100.0	\$12,644.0	\$5,525.0	\$6,216.4	\$9,506.2	\$9,423.0	\$5,870.7
Economic Asset Adjustments	\$273.6	\$331.9	\$263.7	\$229.3	\$263.7	\$577.6	\$649.9	\$333.2	\$356.9	\$613.7
Net Operating Assets	\$7,842.6	\$9,786.9	\$10,070.7	\$10,329.3	\$12,907.7	\$6,102.6	\$6,866.3	\$9,839.4	\$9,779.9	\$6,484.4
Debt & Debt Equivalents	\$1,091.6	\$2,266.9	\$2,246.7	\$2,219.3	\$4,970.7	\$4,976.6	\$5,599.4	\$3,336.0	\$4,055.5	\$5,288.0
Equity & Equivalents	\$6,816.0	\$7,581.0	\$7,919.0	\$8,097.0	\$7,776.0	\$551.0	\$620.0	\$6,384.8	\$5,474.7	\$585.5
Total Capital - Financing Sources	\$7,907.6	\$9,847.9	\$10,165.7	\$10,316.3	\$12,746.7	\$5,527.6	\$6,219.3	\$9,720.8	\$9,530.2	\$5,873.5
Capital Adjustments	(\$368.0)	(\$435.0)	(\$483.0)	(\$490.0)	(\$473.0)	(\$157.0)	(\$176.6)	(\$407.6)	(\$373.3)	(\$166.8)
Net Capital Financing Sources	\$7,539.6	\$9,412.9	\$9,682.7	\$9,826.3	\$12,273.7	\$5,370.6	\$6,042.7	\$9,313.2	\$9,156.9	\$5,706.6
Net Working Capital	(\$1,221.7)	(\$1,263.3)	(\$1,555.6)	(\$1,344.4)	(\$1,920.0)	(\$1,746.4)	(\$1,964.9)	(\$1,565.9)	(\$1,670.2)	(\$1,855.6)
Cost of Net Working Capital	(\$82.5)	(\$80.5)	(\$87.2)	(\$97.5)	(\$111.9)	(\$125.9)	(\$141.7)	(\$100.6)	(\$111.8)	(\$133.8)
% of Revenue	-1.59%	-1.33%	-1.31%	-1.37%	-1.41%	-1.40%	-1.41%	-1.37%	-1.40%	-1.41%
Operational Capital	\$144.9	\$513.7	\$289.1	\$393.9	(\$238.2)	\$66.2	\$74.5	\$204.9	\$74.0	\$70.4
Cost of Operational Capital	\$15.9	\$21.3	\$24.8	\$23.0	\$5.3	(\$5.9)	(\$6.6)	\$13.7	\$7.5	(\$6.3)
% of Revenue	0.31%	0.35%	0.37%	0.32%	0.07%	-0.07%	-0.07%	0.21%	0.11%	-0.07%
Productive Capital	\$3,778.9	\$5,225.7	\$4,898.1	\$4,942.9	\$4,906.8	\$5,988.2	\$6,737.6	\$5,192.3	\$5,279.3	\$6,362.9
Cost of Productive Capital	\$292.2	\$291.7	\$313.0	\$330.8	\$337.6	\$374.2	\$421.0	\$329.5	\$347.5	\$397.6
% of Revenue	5.61%	4.83%	4.71%	4.66%	4.26%	4.17%	4.19%	4.53%	4.37%	4.18%
Total Operating Capital	\$1,927.9	\$2,903.7	\$2,791.1	\$2,559.9	\$1,504.8	\$3,638.2	\$4,093.5	\$2,679.5	\$2,567.6	\$3,865.9
Cost of Total Operating Capital	\$163.3	\$156.5	\$176.1	\$179.9	\$139.3	\$176.6	\$198.7	\$165.7	\$165.3	\$187.7
% of Revenue	3.14%	2.59%	2.65%	2.54%	1.76%	1.97%	2.30%	2.30%	2.09%	1.97%
Non - Operating Capital	\$5,914.7	\$6,883.3	\$7,279.6	\$7,769.4	\$11,403.0	\$2,464.4	\$2,772.7	\$7,159.9	\$7,212.2	\$2,618.5
Cost of Non - Operating Capital	\$393.1	\$414.6	\$437.9	\$505.8	\$657.2	\$476.3	\$535.9	\$498.4	\$546.4	\$506.1
% of Revenue	7.55%	6.87%	6.59%	7.13%	8.30%	5.31%	5.33%	6.84%	6.91%	5.32%
Total Capital	\$7,842.6	\$9,786.9	\$10,070.7	\$10,329.3	\$12,907.7	\$6,102.6	\$6,866.3	\$9,839.4	\$9,779.9	\$6,484.4
Cost of Total Capital	\$556.4	\$571.1	\$614.0	\$685.7	\$796.5	\$652.9	\$734.6	\$664.0	\$711.7	\$693.8
% of Revenue	10.69%	9.46%	9.24%	9.67%	10.06%	7.28%	7.31%	9.14%	9.00%	7.29%
Cost of Capital (WACC)	7.62%	6.48%	6.18%	6.72%	6.86%	6.87%	6.87%	6.62%	6.82%	6.87%
Capital Structure										
Debt & Debt Equivalents	\$1,091.6	\$2,266.9	\$2,246.7	\$2,219.3	\$4,970.7	\$4,976.6	\$5,599.4	\$3,336.0	\$4,055.5	\$5,288.0
Debt & Debt Equivalents % of Market Value	8.54%	17.39%	24.71%	20.17%	28.20%	23.13%	23.13%	23.08%	24.26%	23.13%
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	\$11,695.1	\$10,767.6	\$6,846.1	\$8,783.6	\$12,657.1	\$16,539.7	\$18,609.5	\$11,118.8	\$12,660.1	\$17,574.6
Common Equity % of Market Value	91.46%	82.61%	75.29%	79.83%	71.80%	76.87%	76.87%	76.92%	75.74%	76.87%
Total Economic Market Value (MV)	\$12,786.7	\$13,034.6	\$9,092.8	\$11,002.8	\$17,627.8	\$21,516.3	\$24,208.8	\$14,454.9	\$16,715.7	\$22,862.6
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Excess Cash	\$5,914.7	\$6,883.3	\$7,279.6	\$7,769.4	\$11,403.0	\$2,464.4	\$2,772.7	\$7,159.9	\$7,212.2	\$2,618.5
Economic Enterprise Value	\$6,872.0	\$6,151.3	\$1,813.2	\$3,233.4	\$6,224.9	\$19,051.9	\$21,436.1	\$7,294.9	\$9,503.4	\$20,244.0
Average Capital	\$7,001.9	\$8,476.3	\$9,547.8	\$9,754.5	\$11,050.0	\$8,822.2	\$5,706.6	\$9,530.1	\$9,875.5	\$7,264.4
Capital Δ	\$1,075.4	\$1,873.3	\$269.7	\$143.6	\$2,447.5	(\$6,903.2)	\$672.1	(\$433.8)	(\$1,437.4)	(\$3,115.5)

Source: Company Data, Financial statements and Tigress Research

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Company Report – Research Update

VMware, Inc. Class A (VMW-US)

Software

Financial Analysis

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	12/31/2013	12/31/2014	12/31/2015	12/31/2016	02/02/2018	02/01/2019	01/31/2020	Average	Average	Trend
Return on Market Value (NOPAT / MV)	8.40%	7.83%	12.38%	11.66%	7.31%	8.78%	9.87%	9.59%	9.25%	9.33%
Return on Enterprise Value (NOPAT / EV)	15.63%	16.59%	62.07%	39.67%	20.71%	9.91%	11.15%	29.79%	23.43%	10.53%
Return on Capital (NOPAT / Average Capital)	15.34%	12.04%	11.79%	13.15%	11.66%	21.41%	24.08%	14.01%	15.41%	22.74%
Cost of Capital (WACC)	7.62%	6.48%	6.18%	6.72%	6.86%	6.87%	6.87%	6.62%	6.82%	6.87%
Economic Return Spread	7.72%	5.56%	5.60%	6.43%	4.81%	14.54%	16.36%	7.39%	8.59%	15.45%
Capital Charge	\$533.7	\$549.2	\$590.5	\$655.7	\$757.5	\$606.0	\$681.8	\$631.8	\$673.1	\$643.9
Economic Profit (EP)	\$540.7	\$471.5	\$534.9	\$626.9	\$531.4	\$1,282.4	\$1,442.9	\$689.4	\$813.6	\$1,362.6
Economic Profit Improvement (EPI)	\$171.2	(\$95.2)	\$63.4	\$92.0	(\$95.6)	\$751.1	\$160.5	\$148.3	\$249.2	\$455.8
EP Growth	46.34%	-12.79%	13.45%	17.20%	-15.24%	141.35%	12.51%	28.79%	47.77%	76.93%
Economic Profit Margin on Sales	10.38%	7.81%	8.05%	8.84%	6.71%	14.29%	14.36%	9.14%	9.95%	14.32%
Economic Profit Per Share	\$1.26	\$1.10	\$1.26	\$1.49	\$1.31	\$3.14	\$3.54	\$1.66	\$1.98	\$3.34
GAAP Earnings Per Share	\$2.37	\$2.06	\$2.36	\$2.83	\$1.39	\$5.95	\$6.52	\$2.92	\$3.39	\$6.23
Excess Cash Per Share	\$13.75	\$16.00	\$17.26	\$18.85	\$28.27	\$6.01	\$6.76	\$17.28	\$17.71	\$6.38
Performance Drivers										
Sales Growth	13.06%	15.91%	10.16%	6.68%	11.69%	13.28%	12.00%	11.54%	10.55%	12.64%
Sales Growth Trend (ROC Sales Growth)	16.73%	14.77%	12.46%	8.07%	9.69%	12.64%	12.51%	11.53%	10.13%	12.58%
EBITDAR Margin	51.83%	47.68%	46.78%	50.10%	52.14%	55.70%	52.64%	50.48%	52.64%	54.17%
EBITDAR Growth	15.59%	6.62%	8.09%	14.24%	16.23%	21.02%	5.86%	13.24%	17.16%	13.44%
NOPBT Margin	23.34%	20.02%	20.60%	22.46%	24.29%	25.05%	23.93%	22.48%	23.93%	24.49%
NOPBT Growth	32.21%	-0.54%	13.30%	16.35%	20.76%	16.85%	7.00%	13.34%	17.99%	11.93%
NOPAT Margin	20.64%	16.91%	16.93%	18.09%	16.27%	21.05%	19.58%	17.85%	18.47%	20.31%
NOPAT Growth	40.01%	-5.00%	10.26%	13.97%	0.49%	46.52%	4.19%	13.25%	20.33%	25.35%
Economic Profit Margin on Sales (EP / Sales)	10.38%	7.81%	8.05%	8.84%	6.71%	14.29%	14.36%	9.14%	9.95%	14.32%
Economic Profit Growth	46.34%	-12.79%	13.45%	17.20%	-15.24%	141.35%	12.51%	28.79%	47.77%	76.93%
Economic Return Spread (ROC-WACC)	7.72%	5.56%	5.60%	6.43%	4.81%	14.54%	17.21%	7.39%	8.59%	15.88%
Economic Return Ratio (ROC / WACC)	201.31%	185.86%	190.59%	195.60%	170.14%	311.62%	350.62%	210.76%	225.79%	331.12%
Economic Profit Momentum (ΔEP/Capital)	2.27%	-0.73%	0.65%	0.94%	-0.78%	13.98%	2.66%	2.81%	4.71%	8.32%
Economic Profit Momentum Margin (ΔEP/Sales)	3.29%	-1.15%	0.95%	1.30%	-1.21%	8.37%	1.60%	1.65%	2.82%	4.98%
Capital Growth	16.64%	24.85%	2.87%	1.48%	24.91%	-56.24%	12.51%	-0.43%	-9.95%	-21.86%
Capital Turns	0.69X	0.64X	0.89X	0.72X	0.65X	1.67X	1.66X	0.87X	1.01X	1.67X
EVC Acceleration Margin	3.72%	-1.33%	1.05%	1.38%	-1.35%	9.48%	1.79%	1.48%	3.40%	5.70%
EVC Acceleration Spread	2.87%	-0.99%	0.75%	0.96%	-0.98%	6.80%	1.82%	2.60%	2.61%	4.62%
Risk Factors										
Free Cash Flow (NOPAT - Δ Capital)	(\$1.0)	(\$852.7)	\$855.6	\$1,139.1	(\$1,158.6)	\$8,791.6	\$1,295.4	\$1,755.0	\$2,924.0	\$5,043.5
Free Cash Flow Rate (FCF / Capital)	-0.01%	-9.06%	8.84%	11.59%	-9.44%	163.70%	21.44%	33.13%	55.28%	92.57%
Free Cash Flow Yield (FCF / MV)	-0.01%	-6.54%	9.41%	10.35%	-6.57%	40.86%	5.35%	9.50%	14.88%	23.11%
Total Debt / Total Capital	14.48%	24.08%	23.20%	22.58%	40.50%	92.66%	92.66%	40.61%	51.92%	92.66%
Total Debt / EBITDAR	40.45%	78.78%	72.24%	62.46%	120.37%	99.57%	105.83%	86.68%	94.13%	102.70%
Excess Cash	\$5,914.7	\$6,883.3	\$7,279.6	\$7,769.4	\$11,403.0	\$2,464.4	\$0.0	\$7,159.9	\$7,212.2	\$1,232.2
Financial Leverage ((Total Debt - Excess Cash) / Pension Leverage (Net Pension Liability / MV))	-37.72%	-35.42%	-55.35%	-50.44%	-36.49%	11.68%	23.13%	-33.20%	-25.09%	17.40%
Equity Risk Index (S&P 500 = 1.00)	1.17	1.16	1.16	1.16	1.16	1.17	1.17	1.16	1.17	1.17
Stock Price Volatility	4.75	3.83	4.04	3.91	4.08	4.73	4.73	4.12	4.24	4.73
Sales Index (NL Sales)	8.56	8.71	8.80	8.87	8.98	9.10	9.22	8.89	8.98	9.16
Market Value Index (NL Market Value)	9.46	9.48	9.12	9.31	9.78	9.98	10.09	9.53	9.69	10.04
Size Index (NL Sales: MV)	9.01	9.09	8.96	9.09	9.38	9.54	9.65	9.21	9.33	9.60
Beta	1.25	1.24	1.24	1.24	1.24	1.26	1.26	1.24	1.25	1.26
TFP Adjusted Beta	1.17	1.16	1.16	1.16	1.16	1.17	1.17	1.16	1.17	1.17
Stock Price Volatility	4.75	3.83	4.04	3.91	4.08	4.73	4.73	4.12	4.24	4.73
Valuation Measures										
Total Economic Market Value (MV)	\$12,786.7	\$13,034.6	\$9,092.8	\$11,002.8	\$17,627.8	\$21,516.3	\$24,208.8	\$14,454.9	\$16,715.7	\$22,862.6
Economic Enterprise Value	\$6,872.0	\$6,151.3	\$1,813.2	\$3,233.4	\$6,224.9	\$19,051.9	\$21,436.1	\$7,294.9	\$9,503.4	\$20,244.0
Equity Market Value	\$11,695.1	\$10,767.6	\$6,846.1	\$8,783.6	\$12,657.1	\$16,539.7	\$18,609.5	\$11,118.8	\$12,660.1	\$17,574.6
Total Capital	\$7,842.6	\$9,786.9	\$10,070.7	\$10,329.3	\$12,907.7	\$6,102.6	\$6,866.3	\$9,839.4	\$9,779.9	\$6,484.4
Market Value Created MVC (MV - Capital)	\$4,944.1	\$3,247.6	(\$977.9)	\$673.6	\$4,720.1	\$15,413.7	\$17,342.6	\$4,615.4	\$6,935.8	\$16,378.1
MVC Margin (MVC / Sales)	94.96%	53.81%	-14.71%	9.50%	59.59%	171.78%	172.56%	62.93%	86.75%	172.19%
MVC Spread (MVC / Capital)	63.04%	33.18%	-9.71%	6.52%	36.57%	252.58%	252.58%	46.91%	70.92%	252.58%
Current EVA Value (EP / WACC)	\$7,093.4	\$7,277.5	\$8,649.3	\$9,325.7	\$7,750.9	\$18,669.5	\$21,005.8	\$10,411.0	\$11,936.7	\$19,837.7
Current Operations Value COV	\$14,095.3	\$15,753.8	\$18,197.1	\$19,080.2	\$18,800.9	\$27,491.7	\$26,712.4	\$19,941.1	\$21,812.3	\$27,102.0
Current Operations Value Per Share	\$32.85	\$36.61	\$42.92	\$45.37	\$46.22	\$67.42	\$63.92	\$47.72	\$52.98	\$65.65
Future Growth Value (MVC - EVA Value)	(\$1,308.6)	(\$2,719.2)	(\$9,104.4)	(\$8,077.4)	(\$1,173.0)	(\$5,975.4)	(\$2,503.6)	(\$5,486.3)	(\$5,096.6)	(\$4,239.5)
Future Growth Value Reliance (FGV / MV)	-10.23%	-20.86%	-100.13%	-73.41%	-6.65%	-27.77%	-10.34%	-37.95%	-30.49%	-18.54%
Share Price	\$89.71	\$82.52	\$56.57	\$78.73	\$122.72	\$150.51	\$150.51	\$98.21	\$117.32	\$150.51
Dividend Yield	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Shareholder Return (TTM)	-4.71%	-8.01%	-31.45%	39.17%	55.87%	22.65%	0.00%	-34.75%	19.46%	28.29%
MV to IC Ratio	1.63X	1.33X	0.90X	1.07X	1.37X	3.53X	3.53X	1.47X	1.71X	3.53X
EV / EBITDAR Multiple	2.55X	2.14X	0.58X	0.91X	1.51X	3.81X	4.05X	1.95X	2.25X	3.94X
EV / NOPBT Multiple	5.66X	5.09X	1.32X	2.03X	3.24X	8.48X	8.91X	4.37X	4.95X	8.70X
EV / NOPAT Multiple	6.40X	6.03X	1.61X	2.52X	4.83X	10.09X	10.90X	5.52X	6.39X	10.50X
EV / EP Multiple	12.71X	13.05X	3.39X	5.16X	11.72X	14.86X	14.86X	10.58X	11.68X	14.86X
Future Growth Value (% of MV)	-10.23%	-20.86%	-100.13%	-73.41%	-6.65%	-27.77%	-10.34%	-37.95%	-30.49%	-18.54%
Current Operations Value (% of MV)	110.23%	120.86%	200.13%	173.41%	106.65%	127.77%	110.34%	137.95%	130.49%	118.54%
Market Value (COV + FGV %)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Basic Shares Outstanding	429.1	430.4	424.0	420.5	406.7	407.8	417.9	417.9	411.7	412.8

Source: Company Data, Financial statements and Tigress Research

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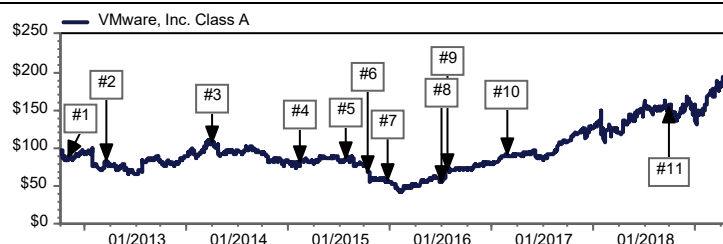
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VMware, Inc. Class A (VMW-US)
Software
Ratings History

VMware, Inc. Class A (VMW-US)				
Item #	Date	Research Action	Rating	Price
#11	09/27/2018	Reiterate Rating	Strong Buy	\$155.83
#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.

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:
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.
Buy:	Expect out-performance for the price of the stock relative to its industry peer group and general market over the next 12 months.
Neutral:	Expect little or no outperformance opportunity over the next 12 months.
Underperform:	Expect underperformance for the price of the stock relative to its industry peer group and general market over the next 12 months.
Sell:	Expect price decline or significant relative market and industry underperformance over the next 12 months.
Not Rated	No Current Research Rating

Rating Distribution (04/26/2019)

	Companies Under Coverage		Relationship Companies Under Coverage*	
	#	%	#	%
Strong Buy:	16	14%	1	15%
Buy:	53	45%	5	70%
Neutral:	44	37%	1	15%
Underperform:	5	4%	0	0%
Sell:	0	0%	0	0%
Not Rated	NA	NA	65	NA
Total	118	100%	72	100%

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Company:	Disclosure:
VMware, Inc. Class A (VMW-US)	14

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