

June 22, 2020 Page 1 of 13

Company Note	2
Investment Thesis	4
Company Overview	5
Financial Data	7
Financial Analysis	8
Ratings History	9
Tigress Research Investment Rating Meanings and Distribution	9
Contacts	10
Analyst Certification	10
Research Disclosures	10
Tigress Research Methodology Overview	11
Glossary of Key Terms and Measures	11
Specific Disclosures for the companies that are the subject of this Report	12
Research Report Disclaimer	13
About Tigress Financial Partners LLC	13

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

- We reiterate our Strong Buy rating as VMW's new product successes will drive accelerating post-COVID-19 growth.
- Business Performance will accelerate driven by the launch of its new product portfolio enhanced by the recent integration of last year's Carbon Black and Pivotal Software acquisitions.
- VMW's new Tanzu product portfolio will transform enterprise IT infrastructures.
- VMW's strong balance sheet and cash flow will continue to fund growth through ongoing new product development 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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June 22, 2020 Page 2 of 13

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 06/19/2020: \$150.69 52 Week High / \$183.50 \$86.00

Key Data: (TTM as of Apr-20) **Excess Cash per Share:** 13.23 Annual Dividend: \$0.00 **Dividend Yield:** 0.00% Avg. Volume (30 Day): 1.7M **Shares Outstanding:** 419.0M Float: 77.5M Short Interest: 7.4M SI % / Float 9.58% **Equity MV:** \$63,146.6M Sales TTM: \$10,702.0M Beta: 1.34 **EBITDAR:** \$5,092.9M NOPAT-\$6,766.9M **Total Invested Capital:** \$11,462.4M 13.83% Return on Capital: **Cost of Capital:** 4.15% **Economic Profit:** \$6,403.1M Market Value Added: \$13,465.1M **Current Operations Value:** \$29,260.1M **Future Growth Value:**

(\$4,332.6)M

We reiterate our Strong Buy rating as VMW's new product successes will drive accelerating post-COVID-19 growth. VMW reported recently strong Q1 FY 21 results driven by its large installed base of legacy IT infrastructure clients increasingly adopting its next generation of products. Security services acquired through its recent Carbon Black acquisition is set to drive the increasing demand. VMW is one of the few companies with a differentiated hybrid cloud strategy and also incorporates security and ease of data transfer and onboarding. VMW's cloud growth is dependent on workflow growth, and workloads are expected to grow up to 15% annually for at least the next two years as companies implement VMW's application development for hybrid cloud infrastructures into more applications. VMW's NSX softwaredefined network virtualization and security platform is in its early stages of growth and continues to experience accelerating adoption. VMW continues to benefit from its dominant position in cloud-based virtual server and desktop technology and product offerings. Ongoing cloudbased VMW's increasing revenue growth driven by the ongoing cloudbased digital transformation and a recent boost from the current COVID-19 pandemic lockdown, which has created increasing virtual server and desktop demand from a distributed workforce. VMW's cloud partnership with Amazon's (AMZN-US, Buy Rated) saw triple-digit Y/Y revenue growth. Strategic partnerships with all major cloud and IT service providers are driving the continued growth in VMW's customer base. The integration of its recent acquisitions of Carbon Black and Pivotal Software, together with its newly launched Tanzu product portfolio, will drive further growth acceleration. VMW is benefiting from the increasing demand for its industry-leading products NSX, VeloCloud, and vSAN that will continue to drive an increasing Return on Capital, further Economic Profit growth, and greater shareholder value creation. We believe further upside exists from current levels and continue to recommend purchase.



June 22, 2020 Page 3 of 13

VMware, Inc. Class A (VMW-US)

Software

- Business Performance will accelerate driven by the launch of its new product portfolio enhanced by the recent integration of last year's Carbon Black and Pivotal Software acquisitions. For the 12 months ending April 2020, Net Sales Revenue increased 15.94% Y/Y from \$9.23 billion to \$10.70 billion. We forecast a further increase of 10.19% to \$11.79 billion over the NTM. Economic Operating Cash Flow (EBITDAR) declined 3.82% Y/Y from \$5.30 billion to \$5.09 billion over the LTM. We forecast an increase of 22% to \$6.21 billion over the NTM. Net Operating Profit After Tax (NOPAT) declined 38.74% Y/Y from \$1.98 billion to \$1.21 billion over the LTM. We forecast an increase of 68.87% to \$2.05 billion over the NTM. Return on Capital (ROC) declined from 19.18% to 13.84% over the LTM. We forecast an increase to 16.84% over the NTM. Economic Profit declined 165.81% Y/Y from \$746.0 million to \$-480.90 million over the LTM. We forecast an increase of 12.5% to 106.2 million over the NTM. VMW's key metrics all declined with the increase in capital investment for the acquisitions that it made in 2019. As revenue generation ramps up, we will see a resumption in Business Performance acceleration that will continue to drive an increasing Return on Capital, positive growth in Economic Profit, and further gains in shareholder value creation.
- VMW's new Tanzu product portfolio will transform enterprise IT infrastructures. The integration of its recent acquisitions, including Heptio and Pivotal Software, is being combined with its cloud-native product offerings to launch VMW's Tanzu, a portfolio of products and services designed to transform the way enterprises create, operate, and manage application software. Tanzu creates the ability to use Kubernetes in a multi-cloud environment, enabling developers and operators to create a more efficient, cost-effective, and faster-time-to-innovation enterprise IT infrastructure with increased security, stability, and governance. VMW's recent Nyansa acquisition enables it to deliver an end-to-end network visibility monitoring and remediation solution within VMware SD-WAN as well. The addition of Nyansa's AI (Artificial Intelligence) and ML (Machine Learning) capabilities as part of VMW's current network and security portfolio will further enhance its ability to enable self-healing networks. The launch of Tanzu will drive accelerating revenue growth throughout FY 2021 and beyond.



June 22, 2020 Page 4 of 13

VMware, Inc. Class A (VMW-US)

Software

- VMW's strong balance sheet and cash flow will continue to fund growth through ongoing new product development and strategic acquisitions along with ongoing share repurchases. As of April 2020, VMW had \$5.54 billion, or 13.23 cents a share, in excess cash. The cash, along with an expected \$6.21 billion in Economic Operating Cash Flow (EBITDAR), will enable it to continue to fund new growth initiatives, including product innovation, strategic acquisitions, and ongoing return of cash to shareholders through share repurchases. In 2020, VMW continues to make several strategic acquisitions focused on security following an extensive series of acquisitions in 2019. Earlier this month, VMW announced the acquisition of network security provider Lastline. In May, VMW acquired server virtualization software security provider Octarine. In January, VMW acquired Nyansa, which further expands its data analytics and machine learning capabilities. In 2019, VMW made two major acquisitions, including Carbon Black, which provides enhanced endpoint security solutions, and Pivotal Software, which enhances its cloud-native application portfolio, for a total of \$4.8 billion, further differentiating its SDDC and virtualization capabilities. VMW continues to enhance shareholder returns with ongoing share repurchases and repurchased just under \$400 million worth of stock in FY 2019 but significantly increased its repurchases buying \$1.87 billion in FY 2020. In the most recent quarter, VMW repurchased \$296 million worth of shares.
- VMW is on our Research Focus List and in our Focused Opportunity Portfolio. VMW offers investors one of the best ways 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.

Investment Thesis

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 is one of the best ways to play the massive growth of hybrid cloud computing environments and ongoing cloud migration trends. VMW's industry-leading SDDC (Software-Defined Data Center) will further drive its growth acceleration. VMW benefits from the increasing demand for its industry-leading products NSX, VeloCloud, and vSAN that will continue to drive an increasing Return on Capital, further Economic Profit growth, and greater shareholder value creation.



June 22, 2020 Page 5 of 13

VMware, Inc. Class A (VMW-US)

Software

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's SDDC architecture platform consists of four main product categories:

Compute: vSphere, its flagship data center platform.

Cloud Management: Includes vRealize Automation, vRealize Operations, Wavefront, and CloudHealth.

Networking: NSX, VeloCloud, Network Insight, VMware NSX Advanced Load Balancer by Avi Networks.

Storage & Availability: Including vSAN and VxRail.

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 has partnership and marketing relationships with every top computer hardware vendor and cloud service provider, including Amazon (AMZN-US) Web Services, Google (GOOGL-US) Cloud, IBM (IBM-US) Cloud, and Microsoft (MSFT-US) Azure. VMware sells its products through its own direct sales force in close to 120 offices globally and through a network of distributors, 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 Technologies (DELL-US) for \$67 billion.

In 2019, VMware made several acquisitions, further enhancing and expanding its product line, including acquired Dell subsidiary Pivotal Software enhancing its cloud-native application portfolio, and Carbon Black, providing enhanced endpoint security solutions. Software-Defined Data Center (SDDC) developer Avi Networks. Security solution provider Intrinsic/US. Infrastructure software developer Bitfusion.io. Cloud application developer Bitrock and computer services and consulting company Aetherpal.



June 22, 2020 Page 6 of 13

VMware, Inc. Class A (VMW-US)

Software

VMware operates and reports revenue in four Business Segments:

Software Maintenance: (44% of revenue) includes Software as a Service (SaaS) subscriptions, and Software implementation and maintenance.

License: (29% of revenue) provides licensing of Software to end-users.

Subscriptions & Software as a Service: (17% of revenue) annual subscription services revenue.

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

VMware reports revenue in two Geographic Segments: the United States (50% of revenue) and International (50% of revenue).



June 22, 2020 Page 7 of 13

VMware, Inc. Class A (VMW-US)

Software

Financial Data

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Report Bass Reported Period Ending	03/31/2015	03/31/2016	05/05/2017	05/04/2018	05/03/2019	05/01/2020	04/30/2021	Average	Average	Trend
Net Sales Revenue	\$6,186.0	\$6,726.0	\$7,239.0	\$8,193.0	\$9,231.0	\$10,702.0	\$11,792,7	\$8,418.2	\$9,375.3	\$11,247.4
Sales Growth	15.09%	8.73%	7.63%	13.18%	12.67%	15.94%	10.19%	11.63%	13.93%	13.06%
Sales Growth Trend	14.40%	11.27%	8.07%	10.96%	12.87%	14.63%	12.49%	11.56%	12.82%	13.56%
Economic Operating Cash Flow (EBITDAR)	\$2,868.4	\$3,180.3	\$3,665.9	\$4,352.5	\$5,295.1	\$5,092.9	\$6,213.8	\$4,317.3	\$4,913.5	\$5,653.4
EBITDAR Margin	46.37%	47.28%	50.64%	53.12%	57.36%	47.59%	52.69%	51.20%	52.69%	50.14%
EBITDAR Growth	4.20%	10.87%	15.27%	18.73%	21.66%	-3.82%	22.01%	12.54%	12.19%	9.10%
Net Operating Profit Before Tax (NOPBT)	\$1,194.4	\$1,376.3	\$1,643.9	\$2,043.5	\$2,244.1	\$1,792.9	\$2,594.6	\$1,820.1	\$2,026.8	\$2,193.8
NOPBT Margin	19.31%	20.46%	22.71%	24.94%	24.31%	16.75%	22.00%	21.84%	22.00%	19.38%
NOPBT Growth	-4.82%	15.23%	19.45%	24.31%	9.81%	-20.10%	44.71%	9.74%	4.67%	12.31%
Cash Operating Income Tax	\$166.5	\$264.6	\$294.2	\$674.4	\$262.5	\$579.1	\$544.9	\$415.0	\$505.3	\$562.0
Economic Tax Effective Rate	13.94%	19.23%	17.90%	33.00%	11.70%	32.30%	21.00%	22.82%	25.67%	26.65%
Net Operating Profit After Tax (NOPAT)	\$1,027.9	\$1,111.6	\$1,349.7	\$1,369.2	\$1,981.5	\$1,213.8	\$2,049.7	\$1,405.2	\$1,521.5	\$1,631.8
NOPAT Margin NOPAT Growth	16.62% -3.25%	16.53% 8.15%	18.64% 21.41%	16.71% 1.44%	21.47% 44.73%	63.23% -38.74%	17.38% 68.87%	27.32% 7.40%	33.80% 2.48%	40.31% 15.06%
Cash & Equivalents	\$7,320.0	\$8,363.0	\$8,754.0	\$12,663.0	\$3,376.0	\$6,071.0	\$6,829.2	\$7,845.4	\$7,370.0	\$6,450.1
Total Assets	\$14,807.0	\$15,836.0	\$16,241.0	\$22,088.0	\$14,973.0	\$28,442.0	\$31,994.2	\$19,516.0	\$21,834.3	\$30,218.1
Non - Interest Bearing Liabilities (NIBLs)	\$5,823.0	\$6,065.0	\$6,673.0	\$8,192.0	\$9,559.0	\$12,340.0	\$13,881.2	\$8,565.8	\$10,030.3	\$13,110.6
Net Assets	\$8,980.0	\$9,769.0	\$9,568.0	\$13,896.0	\$5,414.0	\$16,102.0	\$18,113.0	\$10,949.8	\$11,804.0	\$17,107.5
Economic Asset Adjustments	\$333.9	\$293.9	(\$10.0)	\$691.6	\$665.5	(\$4,639.6)	(\$5,219.1)	(\$599.7)	(\$1,094.2)	(\$4,929.4)
Net Operating Assets	\$9,313.9	\$10,062.9	\$9,558.0	\$14,587.6	\$6,079.5	\$11,462.4	\$12,893.9	\$10,350.1	\$10,709.8	\$12,178.1
Debt & Debt Equivalents	\$2,250.9	\$2,256,9	\$2,220.0	\$4,973.6	\$5,591.5	\$9,686.4	\$10,896.1	\$4.945.7	\$6.750.5	\$10,291.2
Equity & Equivalents	\$7,480.0	\$8,269.0	\$8,068.0	\$9,660.0	\$5,591.0	\$7,428.0	\$8,355.7	\$6,797.2	\$5,883.0	\$7,891.8
Total Capital - Financing Sources	\$9,730.9	\$10,525.9	\$10,288.0	\$14,633.6	\$6,152.5	\$17,114.4	\$19,251.8	\$11,742.9	\$12,633.5	\$18,183.1
Capital Adjustments	(\$417.0)	(\$463.0)	(\$730.0)	(\$46.0)	(\$73.0)	(\$5,652.0)	(\$6,357.9)	(\$1,392.8)	(\$1,923.7)	(\$6,004.9)
Net Capital Financing Sources	\$9,313.9	\$10,062.9	\$9,558.0	\$14,587.6	\$6,079.5	\$11,462.4	\$12,893.9	\$10,350.1	\$10,709.8	\$12,178.1
Net Working Capital	(\$1,983.7)	(\$2,322.7)	(\$2,800.1)	(\$2,778.4)	(\$2,957.5)	(\$3,987.9)	(\$4,486.0)	(\$2,969.3)	(\$3,241.2)	(\$4,236.9)
Cost of Net Working Capital	(\$120.1)	(\$115.3)	(\$158.5)	(\$178.9)	(\$177.8)	(\$144.1)	(\$162.1)	(\$154.9)	(\$166.9)	(\$153.1)
% of Revenue	-1.94%	-1.71%	-2.19%	-2.18%	-1.93%	-1.35%	-1.37%	-1.87%	-1.82%	-1.36%
Operational Capital	(\$173.8)	(\$457.8)	(\$1,087.1)	(\$942.7)	(\$427.9)	(\$763.5)	(\$858.9)	(\$735.8)	(\$711.4)	(\$811.2)
Cost of Operational Capital	(\$15.0)	(\$16.9)	(\$47.8)	(\$65.1)	(\$42.5)	(\$24.7)	(\$27.8)	(\$39.4)	(\$44.1)	(\$26.3)
% of Revenue	-0.24%	-0.25%	-0.66%	-0.79%	-0.46%	-0.23%	-0.24%	-0.48%	-0.50%	-0.23%
Productive Capital	\$4,526.2	\$4,117.2	\$3,418.9	\$4,188.3	\$5,378.1	\$9,695.5	\$10,906.3	\$5,359.6	\$6,420.6	\$10,300.9
Cost of Productive Capital	\$281.9	\$231.5	\$233.1	\$243.9	\$296.5	\$312.7	\$351.7	\$263.5	\$284.4	\$332.2
% of Revenue	4.56%	3.44%	3.22%	2.98%	3.21%	2.92%	2.98%	3.15%	3.04%	2.95%
Total Operating Capital	\$2,303.2 \$153.7	\$2,036.2 \$116.2	\$1,165.9 \$99.1	\$2,334.3 \$112.2	\$3,165.1 \$170.5	\$5,926.5 \$188.6	\$6,666.6 \$212.1	\$2,925.6 \$137.3	\$3,808.6 \$157.1	\$6,296.5 \$200.4
Cost of Total Operating Capital % of Revenue	2.48%	1.73%	1.37%	1.37%	1.85%	1.76%	1.80%	1.61%	1.66%	1.78%
Non - Operating Capital	\$7,010.7	\$8,026.7	\$8,392.1	\$12,253.4	\$2,914.5	\$5,535.9	\$6,227.3	\$7,424.5	\$6,901.2	\$5,881.6
Cost of Non - Operating Capital	\$420.2	\$402.7	\$508.0	\$662.0	\$470.2	\$175.3	\$197.2	\$443.6	\$435.8	\$186.2
% of Revenue	6.79%	5.99%	7.02%	8.08%	5.09%	1.64%	1.67%	5.56%	4.94%	1.65%
Total Capital	\$9,313.9	\$10,062.9	\$9,558.0	\$14,587.6	\$6,079.5	\$11,462.4	\$12,893.9	\$10,350.1	\$10,709.8	\$12,178.1
Cost of Total Capital	\$573.9	\$518.9	\$607.0	\$774.3	\$640.6	\$363.9	\$409.3	\$580.9	\$592.9	\$386.6
% of Revenue	9.28%	7.71%	8.39%	9.45%	6.94%	3.40%	3.47%	7.18%	6.60%	3.44%
Cost of Capital (WACC)	6.29%	5.36%	6.19%	6.41%	6.20%	4.15%	4.15%	5.66%	5.59%	4.15%
Capital Structure										
Debt & Debt Equivalents	\$2,250.9	\$2,256.9	\$2,220.0	\$4,973.6	\$5,591.5	\$9,686.4	\$10,896.1	\$4,945.7	\$6,750.5	\$10,291.2
Debt & Debt Equivalents % of Market Value	17.70%	25.88%	17.89%	26.01%	19.94%	41.09%	41.09%	26.92%	28.63%	41.09%
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	\$10,465.9	\$6,465.1	\$10,187.2	\$14,145.8	\$22,450.4	\$13,886.1	\$15,620.4	\$13,426.9	\$16,827.5	\$14,753.2
Common Equity % of Market Value	82.30%	74.12%	82.11%	73.99%	80.06%	58.91%	58.91%	73.08%	71.37%	58.91%
Total Economic Market Value (MV)	\$12,716.8	\$8,722.0	\$12,407.1	\$19,119.5	\$28,042.0	\$23,572.5	\$26,516.5	\$18,372.6	\$23,578.0	\$25,044.5
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00% \$7.424.5	100.00%	100.00%
Excess Cash Economic Enterprise Value	\$7,010.7 \$5,706.1	\$8,026.7 \$695.3	\$8,392.1 \$4,015.1	\$12,253.4 \$6,866.1	\$2,914.5 \$25,127.5	\$5,535.9 \$18,036.6	\$6,227.3 \$20,289.2	\$7,424.5 \$10,948.1	\$6,901.2 \$16,676.7	\$5,881.6 \$19,162.9
Average Capital	\$9,121.8	\$9,688.4	\$9,810.4	\$12,072.8	\$10,333.6	\$8,771.0	\$12,178.1	\$10,135.2	\$10,392.4	\$10,474.5
Capital A	\$384.1	\$749.0	(\$505.0)	\$5,029.7	(\$8,508.1)	\$5,382.8	\$1,431.6	\$429.7	\$634.8	\$3,407.2
Source: Company Data, Financial statements and Tigress I		ψυ.υ	(\$000.0)	Ψ0,020.7	(40,000.1)	Ψ0,002.0	ψ1,-01.0	Ψ-20.7	Ψ00-1.0	Ψ0,-101.2

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June 22, 2020 Page 8 of 13

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 Return on Market Value (NOPAT / MV)	03/31/2015 8.08%	03/31/2016 12.75%	05/05/2017 10.88%	05/04/2018 7.16%	05/03/2019 7.07%	05/01/2020 5.15%	04/30/2021 5.79%	Average 8.60%	Average 6.46%	Trend. 5.47%
Return on Enterprise Value (NOPAT / EV)	18.01%	159.87%	33.62%	19.94%	7.89%	6.73%	7.57%	45.61%	11.52%	7.15%
Return on Capital (NOPAT / Average Capital)	11.27%	11.47%	13.76%	11.34%	19.18%	13.84%	16.83%	13.92%	14.79%	15.34%
Cost of Capital (WACC)	6.29%	5.36%	6.19%	6.41%	6.20%	4.15%	4.15%	5.66%	5.59%	4.15%
Economic Return Spread	4.98%	6.12%	7.57%	4.93%	12.98%	9.69%	10.90%	8.26%	9.20%	10.30%
Capital Charge	\$573.9	\$518.9	\$607.0	\$774.3	\$640.6	\$363.9	\$409.3	\$580.9	\$592.9	\$386.6
Economic Profit (EP)	\$454.0	\$592.7	\$742.7	\$594.9	\$1,340.9	\$850.0	\$956.1	\$824.2	\$928.6	\$903.0
Economic Profit Improvement (EPI)	(\$91.5)	\$138.8	\$149.9	(\$147.8)	\$746.0	(\$490.9)	\$106.2	\$79.2	\$35.8	(\$192.4)
EP Growth	-16.78%	30.57%	25.29%	-19.90%	125.41%	-165.81%	12.49%	-0.89%	-20.10%	-76.66%
Economic Profit Margin on Sales	7.34%	8.81%	10.26%	7.26%	14.53%	7.94%	8.11%	9.76%	9.91%	8.02%
Economic Profit Per Share	\$1.05	\$1.40 \$2.28	\$1.77	\$1.46 \$3.15	\$3.24	\$2.04 \$15.23	\$2.29 \$6.20	\$1.98 \$5.71	\$2.25	\$2.17 \$10.72
GAAP Earnings Per Share Excess Cash Per Share	\$2.06 \$16.38	\$2.26 \$18.97	\$3.02 \$20.55	\$30.26	\$4.85 \$7.10	\$13.23	\$14.88	\$18.02	\$7.74 \$16.86	\$14.06
2,355,5 52,51,7 51 51,215	Ψ10.00	4 10.01	420.00	400.20	4 7.1.0	V.0.20	\$14.00	¥10.02	\$10.00	41-1100
Performance Drivers										
Sales Growth	15.09%	8.73%	7.63%	13.18%	12.67%	15.94%	10.19%	11.63%	13.93%	13.06%
Sales Growth Trend (ROC Sales Growth)	14.40%	11.27%	8.07%	10.96%	12.87%	14.63%	12.49%	11.56%	12.82%	13.56%
EBITDAR Margin	46.37%	47.28%	50.64%	53.12%	57.36%	47.59%	52.69%	51.20%	52.69%	50.14%
EBITDAR Growth	4.20%	10.87%	15.27%	18.73%	21.66%	-3.82%	22.01%	12.54%	12.19%	9.10%
NOPBT Margin	19.31%	20.46%	22.71%	24.94%	24.31%	16.75%	22.00%	21.84%	22.00%	19.38%
NOPBT Growth	-4.82%	15.23%	19.45%	24.31%	9.81%	-20.10%	44.71%	9.74%	4.67%	12.31%
NOPAT Margin	16.62%	16.53%	18.64%	16.71%	21.47%	63.23%	17.38%	27.32%	33.80%	40.31%
NOPAT Growth	-3.25%	8.15%	21.41%	1.44%	44.73%	-38.74%	68.87%	7.40%	2.48%	15.06%
Economic Profit Margin on Sales (EP / Sales)	7.34%	8.81%	10.26%	7.26%	14.53%	7.94%	8.11%	9.76%	9.91%	8.02%
Economic Profit Growth	-16.78%	30.57%	25.29%	-19.90%	125.41%	-165.81% 9.69%	12.49%	-0.89%	-20.10% 9.20%	-76.66%
Economic Return Spread (ROC-WACC)	4.98%	6.12%	7.57%	4.93%	12.98%		12.68%	8.26%		11.19%
Economic Return Ratio (ROC / WACC) Economic Profit Momentum (ΔΕΡ/Capital)	179.10% -0.98%	214.23% 1.38%	222.34% 1.57%	176.83% -1.01%	309.30% 12.27%	333.60% -4.28%	405.73% 0.82%	251.26% 1.98%	273.24% 2.32%	369.67% -1.73%
Economic Profit Momentum (ΔΕΡ/Capital) Economic Profit Momentum Margin (ΔΕΡ/Sales)	-1.48%	2.06%	2.07%	-1.80%	8.08%	-4.59%	0.90%	1.16%	0.56%	-1.84%
Capital Growth	4.30%	8.04%	-5.02%	52.62%	-58.32%	88.54%	12.49%	17.17%	27.61%	50.51%
Capital Turns	0.66X	0.67X	0.76X	0.56X	1.52X	0.93X	0.91X	0.89X	1.00X	0.92X
EVC Acceleration Margin	-1.70%	2.24%	2.23%	-2.04%	9.11%	-5.32%	0.99%	0.67%	0.42%	-2.05%
EVC Acceleration Spread	-1.18%	1.52%	1.55%	-1.51%	6.18%	-4.75%	1.21%	0.65%	0.35%	-1.85%
Risk Factors										
Free Cash Flow (NOPAT - △ Capital)	\$643.8	\$362.6	\$1,854.6	(\$3,660.5)	\$10,489.6	(\$4,169.0)	\$618.2	\$975.5	\$886.7	(\$1,775.4)
Free Cash Flow Rate (FCF / Capital)	6.91%	3.60%	19.40%	-25.09%	172.54%	-36.37%	4.79%	26.82%	37.02%	-15.79%
Free Cash Flow Yield (FCF / MV)	5.06%	4.16%	14.95%	-19.15%	37.41%	-17.69%	2.33%	3.94%	0.19%	-7.68%
Total Debt / Total Capital	24.17%	22.43%	23.23%	34.09%	91.97%	84.51%	84.51%	51.25%	70.19%	84.51%
Total Debt / EBITDAR	78.47%	70.97%	60.56%	114.27%	105.60%	190.19%	175.35%	108.32%	136.69%	182.77%
Excess Cash	\$7,010.7	\$8,026.7	\$8,392.1	\$12,253.4	\$2,914.5	\$5,535.9	\$0.0	\$7,424.5	\$6,901.2	\$2,768.0
Financial Leverage ((Total Debt - Excess Cash) /		-66.15%	-49.75%	-38.07%	9.55%	17.61%	41.09%	-25.36%	-3.64%	29.35%
Pension Leverage (Net Pension Liability / MV)	0.00%	0.00% 1.01	0.00% 1.02	0.00%	0.00% 1.04	0.00%	0.00% 1.01	0.00% 1.02	0.00% 1.02	0.00%
Equity Risk Index (S&P 500 = 1.00) Stock Price Volatility	0.99 3.72	4.00	4.01	1.01 4.14	4.88	1.01 5.50	5.50	4.51	4.84	1.01 5.50
Sales Index (NL Sales)	8.73	8.81	8.89	9.01	9.13	9.28	9.38	9.02	9.14	9.33
Market Value Index (NL Market Value)	9.45	9.07	9.43	9.86	10.24	10.07	10.19	9.73	10.06	10.13
Size Index (NL Sales: MV)	9.09	8.94	9.16	9.43	9.69	9.67	9.78	9.38	9.60	9.73
Beta	0.98	1.02	1.02	1.01	1.06	1.01	1.01	1.03	1.03	1.01
TFP Adjusted Beta	0.99	1.01	1.02	1.01	1.04	1.01	1.01	1.02	1.02	1.01
Stock Price Volatility	3.72	4.00	4.01	4.14	4.88	5.50	5.50	4.51	4.84	5.50
Valuation Measures										
Total Economic Market Value (MV)	\$12.716.8	\$8,722.0	\$12,407.1	\$19.119.5	\$28.042.0	\$23,572.5	\$26,516.5	\$18.372.6	\$23.578.0	\$25.044.5
Economic Enterprise Value	\$5,706.1	\$695.3	\$4,015.1	\$6,866.1	\$25,127.5	\$18,036.6	\$20,289.2	\$10,948.1	\$16,676.7	\$19,162.9
Equity Market Value	\$10.465.9	\$6,465.1	\$10.187.2	\$14.145.8	\$25,127.5	\$13,886.1	\$15.620.4	\$10,946.1	\$16,876.7	\$14,753.2
Total Capital	\$9,313.9	\$10,062.9	\$9,558.0	\$14,587.6	\$6,079.5	\$11,462.4	\$12,893.9	\$10,350.1	\$10,709.8	\$12,178.1
Market Value Created MVC (MV - Capital)	\$3,402.9	(\$1,340.9)	\$2.849.2	\$4,531.8	\$21,962.4	\$12,110.1	\$13,622.6	\$8,022.5	\$12,868.1	\$12,176.1
MVC Margin (MVC / Sales)	55.01%	-19.94%	39.36%	55.31%	237.92%	113.16%	115.52%	95.30%	137.26%	114.39%
MVC Spread (MVC / Capital)	36.54%	-13.33%	29.81%	31.07%	361.25%	105.65%	105.65%	77.51%	120.15%	105.65%
Current EVC Value (EP / WACC)	\$7,215.5	\$11,067.2	\$12,002.5	\$9,275.2	\$21,628.4	\$20,489.1	\$23,048.0	\$14,559.7	\$16,619.7	\$21,768.6
Current Operations Value COV	\$16,337.3	\$20,755.6	\$21,813.0	\$21,348.0	\$31,961.9	\$29,260.1	\$35,226.2	\$24,694.9	\$27,012.1	\$32,243.1
Current Operations Value Per Share	\$37.96	\$48.95	\$51.87	\$52.49	\$77.25	\$70.16	\$84.59	\$59.30	\$65.48	\$77.37
Future Growth Value (MVC - EVA Value)	(\$3,620.5)	(\$12,033.6)	(\$9,405.8)	(\$2,228.5)	(\$3,920.0)	(\$5,687.6)	(\$8,709.7)	(\$6,322.3)	(\$3,434.1)	(\$7,198.7)
Future Growth Value Reliance (FGV / MV)	-28.47%	-137.97%	-75.81%	-11.66%	-13.98%	-24.13%	-32.85%	-34.41%	-14.57%	-28.74%
Share Price	\$82.01	\$52.31	\$93.97	\$134.35	\$203.28	\$125.34	\$125.34	\$121.85	\$154.32	\$125.34
Dividend Yield	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-2.78%	26.050/	10.7001
		-36.22%	79.64%	42.97% 1.31X	51.31% 4.61X	-38.34% 2.06X	0.00% 2.06X	-2.78% 1.78X	26.65% 2.20X	-18.78% 2.06X
Total Shareholder Return (TTM)	-24.08%	0.071/			4.61X					
MV to IC Ratio	1.37X	0.87X	1.30X		4 75V				3 30~	
MV to IC Ratio EV / EBITDAR Multiple	1.37X 1.99X	0.22X	1.10X	1.58X	4.75X 11 20X	3.54X	3.27X 7.82X	2.54X 6.02X	3.39X 8.23X	3.39X 8.74X
MV to IC Ratio EV / EBITDAR Multiple EV / NOPBIT Multiple	1.37X 1.99X 4.78X	0.22X 0.51X	1.10X 2.44X	1.58X 3.36X	11.20X	10.06X	7.82X	6.02X	8.23X	8.74X
MV to IC Ratio EV / EBITDAR Multiple	1.37X 1.99X 4.78X 5.55X	0.22X 0.51X 0.63X	1.10X 2.44X 2.97X	1.58X 3.36X 5.01X		10.06X 14.86X	7.82X 9.90X	6.02X 7.79X		8.74X 11.74X
MV to IC Ratio EV / BIITDAR Multiple EV / NOPBIT Multiple EV / NOPAT Multiple	1.37X 1.99X 4.78X	0.22X 0.51X	1.10X 2.44X	1.58X 3.36X	11.20X 12.68X	10.06X	7.82X	6.02X	8.23X 10.96X 17.96X -14.57%	8.74X
MV to IC Ratio EV / EBITDAR Multiple EV / NOPBIT Multiple EV / NOPAT Multiple EV / PWultiple	1.37X 1.99X 4.78X 5.55X 12.57X	0.22X 0.51X 0.63X 1.17X	1.10X 2.44X 2.97X 5.41X	1.58X 3.36X 5.01X 11.54X	11.20X 12.68X 18.74X	10.06X 14.86X 21.22X	7.82X 9.90X 21.22X	6.02X 7.79X 13.28X	8.23X 10.96X 17.96X	8.74X 11.74X 21.22X
MV to IC Ratio EV / EBITDAR Multiple EV / NOPBIT Multiple EV / NOPAT Multiple EV / PMultiple EV / EP Multiple Future Growth Value (% of MV) Current Operations Value (% of MV) Market Value (COV + FGV %)	1.37X 1.99X 4.78X 5.55X 12.57X -28.47% 128.47% 100.00%	0.22X 0.51X 0.63X 1.17X -137.97% 237.97% 100.00%	1.10X 2.44X 2.97X 5.41X -75.81% 175.81% 100.00%	1.58X 3.36X 5.01X 11.54X -11.66% 111.66% 100.00%	11.20X 12.68X 18.74X -13.98% 113.98% 100.00%	10.06X 14.86X 21.22X -24.13% 124.13% 100.00%	7.82X 9.90X 21.22X -32.85% 132.85% 100.00%	6.02X 7.79X 13.28X -34.41% 134.41% 100.00%	8.23X 10.96X 17.96X -14.57% 114.57% 100.00%	8.74X 11.74X 21.22X -28.74% 128.74% 100.00%
MV to IC Ratio EV / EBITDAR Multiple EV / NOPBIT Multiple EV / NOPAT Multiple EV / EP Multiple Future Growth Value (% of MV) Current Operations Value (% of MV)	1.37X 1.99X 4.78X 5.55X 12.57X -28.47% 128.47% 100.00% 430.4	0.22X 0.51X 0.63X 1.17X -137.97% 237.97%	1.10X 2.44X 2.97X 5.41X -75.81% 175.81%	1.58X 3.36X 5.01X 11.54X -11.66%	11.20X 12.68X 18.74X -13.98% 113.98%	10.06X 14.86X 21.22X -24.13% 124.13%	7.82X 9.90X 21.22X -32.85% 132.85%	6.02X 7.79X 13.28X -34.41% 134.41%	8.23X 10.96X 17.96X -14.57% 114.57%	8.74X 11.74X 21.22X -28.74% 128.74%

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June 22, 2020 Page 9 of 13

VMware, Inc. Class A (VMW-US)

Software

Ratings History

months.

VMware,	Inc. Class A (V	MW-US)			\$220 _— VMware, Inc. Class A
ltem #	Date	Research Action	Rating	Price	H1E
#17	03/02/2020	Reiterate Rating	Strong Buy	\$121.74	\$200 -
#16	01/13/2020	Reiterate Rating	Strong Buy	\$152.00	\$180 -
#15	12/11/2019	Reiterate Rating	Strong Buy	\$148.68	
#14	08/23/2019	Reiterate Rating	Strong Buy	\$133.42	\$160 -
#13	05/31/2019	Reiterate Rating	Strong Buy	\$176.51	\$140 - #2 #3 #6 #9 #10
#12	04/29/2019	Reiterate Rating	Strong Buy	\$201.38	
#11	09/27/2018	Reiterate Rating	Strong Buy	\$155.83	\$120 - #1 #4 #5 #7 #8 #11 #12
#10	02.22.2017	Reiterate Rating	Strong Buy	\$91.76	\$100 #10 #12
#9	07/21/2016	Reiterate Rating	Strong Buy	\$70.69	189± 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
#8	06/30/2016	Reiterate Rating	Strong Buy	\$57.22	\$80 - #13 #13
#7	10/23/2015	Reiterate Rating	Strong Buy	\$58.18	\$60 -
#6	10/14/2015	Reiterate Rating	Strong Buy	\$67.97	\$60 -
#5	07/24/2015	Reiterate Rating	Strong Buy	\$86.18	\$40 -
#4	02/11/2015	Reiterate Rating	Strong Buy	\$81.65	\$20
#3	03/31/2014	Reiterate Rating	Strong Buy	\$108.02	01/2013 01/2014 01/2015 01/2016 01/2017 01/2018 01/2019
#2	03/15/2013	Reiterate Rating	Strong Buy	\$83.85	01/2013 01/2014 01/2013 01/2016 01/2017 01/2016 01/2019
#1	11/02/2012	Initiation of Coverage	Strong Buy	\$88.74	

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Tigress Research employs a five-tier rating system for evaluating the investment opportunity and potential return associated with owning the common equity of rated firms within our research universe. The potential return is measured on a relative basis to the general market which is represented by the S&P 500 and to the subject company's industry peer group as indicated.

Rating Distribution (06/19/2020)

Relationship

•	try peer group as indicated.		Compani Under Co		Companies Under Coverage*	
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.		17	14%	2	25%
Buy:	Expect out-performance for the price of the stock relative to its industry peer group and general market over the next 12 months.		56	46%	5	63%
Neutral:	Expect little or no outperformance opportunity over the next 12 months.		44	36%	1	12%
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
Financial Partner banking or non-in	mpanies under research coverage are companies in which Tigress s LLC or one of its affiliates has received compensation for investment estimated by the services from the company, affiliated entities and/or thin the past twelve months or expects to do so within the next three	Total	122	100%	72	100%



June 22, 2020 Page 10 of 13

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I, Ivan Feinseth, hereby certify that the views expressed herein accurately reflect my personal views about the subject company and their securities and that I have not been and will not be directly or indirectly compensated for expressing specific recommendations or views in the report.

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June 22, 2020 Page 11 of 13

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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



June 22, 2020 Page 12 of 13

Specific Disclosures for the companies that are the subject of this Report

Company:	Disclosure:	
VMware, Inc. Class A (VMW-US)	14	
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June 22, 2020 Page 13 of 13

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