

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

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Alphabet Inc. Class A (GOOGL-US)

Internet Software & Services

- We reiterate our Strong buy rating on GOOGL and view the recent price weakness as a buying opportunity.
- Business Performance remains strong driven by consistent market share trends and operating margins.
- GOOGL continues to report strong growth in its cloud-based product offerings.
- GOOGL's mobile initiatives will become a greater future catalyst of growth.
- YouTube is well positioned to remain the dominate force in video advertising
- GOOGL will be one of the key companies to benefit from a possible tax holiday and international cash repatriation.
- GOOGL is on our Research Focus List and in our Focus Opportunity Portfolio.

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Company Note
Alphabet Inc. Class A (GOOGL-US)

Internet Software & Services

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Research Action:

Reiterate rating

Rating: Strong Buy

Prior Rating: Strong Buy

Price 07/25/2017: \$969.03

52 Week High / Low: \$1,008.61 / \$743.59

Key Data: (TTM as of Jun-17)
Excess Cash per Share: \$131.67

Annual Dividend: \$0.00

Dividend Yield: 0.00%

Avg. Volume (30 Day): 2.1M

Shares Outstanding: 691.7M

Float: 691.1M

Equity MV: \$670,247.1M

Sales TTM: \$98,950.0M

Beta: 1.21

EBITDAR: \$49,687.0M

NOPAT: \$21,711.3M

Total Invested Capital: \$150,602.6M

Return on Capital: 15.40%

Cost of Capital: 7.73%

Economic Profit: \$10,813.1M

Market Value Added: \$530,448.1M

Current Operations Value: \$290,529.7M

Future Growth Value: \$390,521.0M

- We reiterate our Strong buy rating on GOOGL and view the recent price weakness as a buying opportunity.** GOOGL reported another quarter of strong Business Performance driven by strong revenue growth and consistent market share trends. GOOGL continues to benefit from strength in mobile search and YouTube advertising. Payed click growth continues to accelerate, growing sequentially 12% and 52% Y/Y. Cost per click declined 6% sequentially and 23% Y/Y continuing a positive downward trend. We expect growth to continue in GOOGL's cloud product offerings along with increasing online, mobile and video advertising. We remain positive on GOOGL over the near and long-term and see continued improvement in return on capital producing greater Economic Profit growth and continuing to drive greater shareholder value creation.
- Business Performance remains strong driven by consistent market share trends and operating margins.** GOOGL reported very strong results for the quarter and LTM ending 06/30/2017. Y/Y sales increased over 21.82% from \$81.22 billion to \$98.95 billion over the LTM. We estimate a year over year increase of 12% over the NTM to \$110.8 billion. Economic Cash Flow (EBITDAR) increased Y/Y over 19% from \$39.5 billion to \$49.7 billion over the LTM. We see operating cash flow margins of at least 50% and estimate Y/Y EBITDAR growth of 13% to \$56.3 billion over the NTM. Net Operating Profit After Tax (NOPAT) increased 17% Y/Y from \$18.6 billion to \$21.7 billion over the LTM. We estimate at least a 24% increase Y/Y to \$26.96 billion over the NTM. Return on Capital increased Y/Y from 15.04% to 15.40% over the LTM. We believe this will surpass 17% over the NTM. Economic Profit increased Y/Y 8.35% from \$9.9 billion to \$10.8 billion over the LTM. We forecast an increase of 11.33% to \$12.5 billion over the NTM.

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- **GOOGL continues to report strong growth in its cloud-based product offerings.** GOOGL's other revenue drivers reported a significant increase Y/Y of 42% fueled by the strong performance of Google Cloud and Google Play. While little detail of other revenues is given, we see GOOGL's cloud-based service initiatives continuing to garner greater company focus and becoming a significant driver of growth in the future. In the most recently reported quarter, the number of Google Cloud Platform (GCP) transactions with a value greater than \$500,000 tripled over the LTM. Though GOOGL's cloud offerings currently trail those of Amazon's Web services (AMZN-US, Buy rated) and Microsoft's Azure Systems (MSFT-US, Buy rated), we believe this will be a source of significant opportunity.
- **GOOGL's mobile initiatives will become a greater future catalyst of growth.** GOOGL continues to leverage its Android OS, not just to drive search market share, but to also propel the sale of apps, content and digital products through Google Play. GOOGL's Android OS will extend beyond the usual handheld devices, and includes phones and tablets, to be a key operating platform for the Internet of Things (IoT) including use in automobiles and all other kinds of connected devices. Currently, the Android OS is used in over 1 billion device owners throughout the world and its installed user base significantly exceeds that of Apple's (AAPL-US, Strong Buy rated) iOS. GOOGL's Enhanced Campaigns program powers advertising campaigns across mobile and desktop platforms and continues to drive greater advertisers' ROI. GOOGL's mobile apps indexing, now at over 100 billion, continues to improve the user experience and will propel the next phase of its mobile revenue growth. GOOGL continues to gain traction in China, which has historically been difficult for US tech companies to penetrate, is enabling Chinese app makers to monetize their offerings through Google Play. GOOGL's acquisition of AdMob enables it to offer technology for users to create and analyze mobile advertising formats. As well, this is also accelerating growth in the mobile ad segment. Further, GOOGL is creating YouTube enhancements for users and advertisers, which is also driving increased revenues on mobile devices.

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Alphabet Inc. Class A (GOOGL-US)

Internet Software & Services

- **YouTube is well positioned to remain the dominate force in video advertising.** YouTube consistently exhibits strong advertising revenue growth and viewership fueled by video advertising across TrueView. More companies, individuals, and an increasing number of celebrities, are using the YouTube platform to launch their own YouTube channels.
- **GOOGL will be one of the key companies to benefit from a possible tax holiday and international cash repatriation.** GOOGL currently has over \$25 billion (\$120 per share) in excess cash. We believe that if a temporary favorable tax rate is passed to incentivize companies with significant cash holdings overseas to bring them back to the US, GOOGL will significantly increase its stock buyback well above the current \$7 billion authorization.
- **GOOGL is on our Research Focus List and in our Focus Opportunity Portfolio.** GOOGL's dominance in search, maps, digital advertising, overall management to information access will propel its lead in the future areas of home automation, automotive infotainment and so many other key areas, makes it one of our long standing must own stocks in the Internet, Software and Services Sector.

Investment Thesis

Alphabet is one of the leading providers of online engagement and target-based online and mobile advertising. GOOGL currently offers several significant and market-leading product platforms including the Android OS mobile platform, Chrome OS and Browser, Google Play; Google Drive; Google Wallet and Google TV. GOOGL's enterprise product offerings include Gmail, Google Docs, Google Calendar, and Google Sites. Other product offerings include Google Search Appliance, Google Site Search and Google Commerce Search. GOOGL operates in more than 50 countries worldwide.

GOOGL continues to demonstrate an incredible ability to innovate and execute as it becomes the dominant provider in all of its product offerings. We believe GOOGL will continue to drive greater shareholder value creation through the continued monetization of its product offerings and its dominance in mobile and online search and advertising. We also believe that YouTube will capture more video dollars shifting online and that strength in Google Play will continue.

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Alphabet Inc. Class A (GOOGL-US)
Internet Software & Services
Financial Data

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	06/30/2012	06/30/2013	06/30/2014	06/30/2015	06/30/2016	06/30/2017	06/30/2018	Average	Average	Trend
Net Sales Revenue	\$43,020.0	\$56,425.0	\$63,087.0	\$68,819.0	\$81,228.0	\$98,950.0	\$110,785.0	\$73,701.8	\$82,999.0	\$104,867.5
Sales Growth	29.60%	31.16%	11.81%	9.09%	18.03%	21.82%	11.96%	18.38%	16.31%	16.89%
Sales Growth Trend	28.68%	30.54%	19.55%	10.17%	14.45%	20.30%	15.90%	19.00%	14.98%	18.10%
Operating Cash Flow (EBITDAR)	\$21,837.7	\$25,612.5	\$29,064.7	\$34,431.2	\$41,729.7	\$49,687.0	\$56,330.0	\$36,105.0	\$41,949.3	\$53,008.5
EBITDAR Margin	50.76%	45.39%	46.07%	50.03%	51.37%	50.21%	50.85%	48.62%	50.54%	50.53%
EBITDAR Growth	21.18%	17.29%	13.48%	18.46%	21.20%	19.07%	13.37%	17.90%	19.58%	16.22%
Net Operating Profit Before Tax (NOPBT)	\$13,553.7	\$13,922.5	\$15,866.7	\$18,005.2	\$22,012.7	\$27,047.0	\$32,790.0	\$19,370.8	\$22,355.0	\$29,918.5
NOPBT Margin	31.51%	24.67%	25.15%	26.16%	27.10%	27.33%	29.60%	26.08%	26.87%	28.47%
NOPBT Growth	16.40%	2.72%	13.96%	13.48%	22.26%	22.87%	21.23%	15.06%	19.54%	22.05%
Cash Operating Income Tax	\$2,683.1	\$2,470.9	\$2,821.0	\$3,651.4	\$3,458.9	\$5,335.8	\$5,833.0	\$3,547.6	\$4,148.7	\$5,584.4
Economic Tax Effective Rate	19.80%	17.75%	17.78%	20.28%	15.71%	19.73%	17.79%	18.25%	18.57%	18.76%
Net Operating Profit After Tax (NOPAT)	\$10,870.5	\$11,451.7	\$13,045.7	\$14,353.8	\$18,553.8	\$21,711.3	\$26,957.0	\$15,823.3	\$18,206.3	\$24,334.1
NOPAT Margin	25.27%	20.30%	20.68%	20.86%	22.84%	21.94%	24.33%	21.32%	21.88%	23.14%
NOPAT Growth	17.38%	5.35%	13.92%	10.03%	29.26%	17.02%	24.16%	15.11%	18.77%	20.59%
Cash & Equivalents	\$44,162.0	\$54,432.0	\$61,204.0	\$74,189.0	\$82,580.0	\$96,055.0	\$111,331.0	\$73,692.0	\$84,274.7	\$103,693.0
Total Assets	\$86,051.0	\$101,182.0	\$121,608.0	\$138,807.0	\$154,292.0	\$178,621.0	\$207,027.8	\$138,902.0	\$157,240.0	\$192,824.4
Non - Interest Bearing Liabilities (NIBLs)	\$13,499.0	\$15,538.0	\$18,516.0	\$19,325.0	\$18,801.0	\$23,109.0	\$26,784.1	\$19,057.8	\$20,411.7	\$24,946.6
Net Assets	\$72,552.0	\$85,644.0	\$103,092.0	\$119,482.0	\$135,491.0	\$155,512.0	\$180,243.7	\$119,844.2	\$136,828.3	\$167,877.8
Economic Asset Adjustments	\$1,798.3	\$828.4	(\$1,650.6)	(\$1,730.9)	(\$630.6)	(\$1,638.4)	(\$1,899.0)	(\$964.4)	(\$1,333.3)	(\$1,768.7)
Net Operating Assets	\$74,350.3	\$86,472.4	\$101,441.4	\$117,751.1	\$134,860.4	\$153,873.6	\$178,344.7	\$118,879.8	\$135,495.0	\$166,109.2
Debt & Debt Equivalents	\$8,846.3	\$8,167.4	\$8,788.4	\$10,616.1	\$10,687.4	\$10,803.6	\$12,521.7	\$9,812.6	\$10,702.4	\$11,662.7
Equity & Equivalents	\$64,721.0	\$78,852.0	\$95,749.0	\$111,783.0	\$127,879.0	\$148,286.0	\$171,868.5	\$112,509.8	\$129,316.0	\$160,077.3
Total Capital - Financing Sources	\$73,567.3	\$87,019.4	\$104,537.4	\$122,399.1	\$138,566.4	\$159,089.6	\$184,390.2	\$122,322.4	\$140,018.4	\$171,739.9
Capital Adjustments	(\$843.0)	(\$2,350.0)	(\$5,198.0)	(\$7,114.0)	(\$7,115.0)	(\$8,487.0)	(\$9,836.7)	(\$6,052.8)	(\$7,572.0)	(\$9,161.9)
Net Capital Financing Sources	\$72,724.3	\$84,669.4	\$99,339.4	\$115,285.1	\$131,451.4	\$150,602.6	\$174,553.5	\$116,269.6	\$132,446.4	\$162,578.1
Net Working Capital	\$3,889.0	\$5,229.3	\$7,138.4	\$6,172.0	\$8,420.4	\$7,752.5	\$8,985.4	\$6,942.5	\$7,448.3	\$8,369.0
Cost of Net Working Capital	\$241.9	\$347.1	\$478.4	\$498.4	\$506.4	\$624.2	\$723.4	\$940.9	\$543.0	\$673.8
% of Revenue	0.56%	0.62%	0.76%	0.72%	0.62%	0.63%	0.65%	0.67%	0.66%	0.64%
Operational Capital	\$15,207.3	\$17,795.7	\$24,281.8	\$31,303.1	\$38,716.8	\$43,056.1	\$49,903.5	\$31,030.7	\$37,692.0	\$46,479.8
Cost of Operational Capital	\$875.1	\$1,256.2	\$1,627.6	\$2,081.3	\$2,429.7	\$3,155.9	\$3,657.7	\$2,110.1	\$2,555.6	\$3,406.8
% of Revenue	2.03%	2.23%	2.58%	3.02%	2.99%	3.19%	3.30%	2.80%	3.07%	3.25%
Productive Capital	\$33,189.3	\$35,749.7	\$44,101.8	\$51,126.1	\$58,009.8	\$62,593.1	\$72,547.5	\$50,316.1	\$57,243.0	\$67,570.3
Cost of Productive Capital	\$1,702.7	\$2,624.1	\$3,088.8	\$3,565.6	\$3,787.0	\$4,654.4	\$5,394.6	\$3,544.0	\$4,002.4	\$5,024.5
% of Revenue	3.96%	4.65%	4.90%	5.18%	4.66%	4.70%	4.87%	4.82%	4.85%	4.79%
Total Operating Capital	\$32,339.3	\$34,861.7	\$43,391.8	\$47,003.1	\$56,341.8	\$62,766.1	\$72,748.0	\$48,872.9	\$55,370.3	\$67,757.1
Cost of Total Operating Capital	\$1,623.1	\$2,558.0	\$3,027.0	\$3,384.7	\$3,586.1	\$4,596.7	\$5,327.8	\$3,430.5	\$3,855.8	\$4,962.2
% of Revenue	3.77%	4.53%	4.80%	4.92%	4.41%	4.65%	4.81%	4.66%	4.66%	4.73%
Non - Operating Capital	\$42,011.0	\$51,610.8	\$58,049.7	\$70,748.1	\$78,518.6	\$91,107.5	\$105,596.7	\$70,006.9	\$80,124.7	\$98,352.1
Cost of Non - Operating Capital	\$2,554.0	\$3,563.7	\$4,241.9	\$4,822.6	\$5,179.6	\$6,546.4	\$7,587.5	\$4,870.8	\$5,516.2	\$7,066.9
% of Revenue	5.94%	6.32%	6.72%	7.01%	6.38%	6.62%	6.85%	6.61%	6.67%	6.73%
Total Capital	\$74,350.3	\$86,472.4	\$101,441.4	\$117,751.1	\$134,860.4	\$153,873.6	\$178,344.7	\$118,879.8	\$135,495.0	\$166,109.2
Cost of Total Capital	\$4,177.1	\$6,121.6	\$7,268.9	\$8,207.3	\$8,765.7	\$11,143.1	\$12,915.2	\$8,301.3	\$9,372.0	\$12,029.2
% of Revenue	9.71%	10.85%	11.52%	11.93%	10.79%	11.26%	11.66%	11.27%	11.33%	11.46%
Cost of Capital (WACC)	6.36%	7.61%	7.74%	7.49%	6.94%	7.72%	7.72%	7.50%	7.38%	7.72%
Capital Structure										
Debt & Debt Equivalents	\$8,846.3	\$8,167.4	\$8,788.4	\$10,616.1	\$10,687.4	\$10,803.6	\$12,521.7	\$9,812.6	\$10,702.4	\$11,662.7
Debt & Debt Equivalents % of Market Value	5.54%	3.31%	2.38%	3.07%	2.35%	1.79%	1.79%	2.43%	2.29%	1.79%
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	\$150,806.0	\$238,688.5	\$359,894.9	\$334,864.3	\$444,304.0	\$591,999.0	\$686,147.0	\$393,950.2	\$457,055.8	\$639,073.0
Common Equity % of Market Value	94.46%	96.69%	97.62%	96.93%	97.65%	98.21%	98.21%	97.57%	97.71%	98.21%
Total Economic Market Value (MV)	\$159,652.4	\$246,856.0	\$368,683.3	\$345,480.4	\$454,991.4	\$602,802.6	\$698,668.7	\$403,762.7	\$467,758.1	\$650,735.7
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Excess Cash	\$42,011.0	\$51,610.8	\$58,049.7	\$70,748.1	\$78,518.6	\$91,107.5	\$105,596.7	\$70,006.9	\$80,124.7	\$98,352.1
Economic Enterprise Value	\$117,641.4	\$195,245.2	\$310,633.7	\$274,732.4	\$376,472.8	\$511,695.1	\$593,072.0	\$333,755.8	\$387,633.4	\$552,383.6
Average Capital	\$64,314.5	\$78,696.9	\$92,004.4	\$107,312.3	\$123,368.2	\$141,027.0	\$162,578.1	\$108,481.8	\$123,902.5	\$151,802.5
Capital Δ	\$16,819.7	\$11,945.1	\$14,670.0	\$15,945.7	\$16,166.2	\$19,151.2	\$23,950.9	\$15,575.7	\$17,087.7	\$21,551.1

Source: Company Data, Financial statements and Tigress Research

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Company Report – Research Update

Alphabet Inc. Class A (GOOGL-US)

Internet Software & Services

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	06/30/2012	06/30/2013	06/30/2014	06/30/2015	06/30/2016	06/30/2017	06/30/2018	Average	Average	Trend
Return on Market Value (NOPAT / MV)	6.81%	4.64%	3.54%	4.15%	4.08%	3.60%	4.17%	4.00%	3.94%	3.89%
Return on Enterprise Value (NOPAT / EV)	9.24%	5.87%	4.20%	5.22%	4.93%	4.24%	4.92%	4.89%	4.80%	4.58%
Return on Capital (NOPAT / Average Capital)	16.90%	14.55%	14.18%	13.38%	15.04%	15.40%	17.84%	14.51%	14.60%	16.62%
Cost of Capital (WACC)	6.36%	7.61%	7.74%	7.49%	6.94%	7.72%	7.72%	7.50%	7.38%	7.72%
Economic Return Spread	10.55%	6.94%	6.44%	5.89%	8.10%	7.68%	8.90%	7.01%	7.22%	8.29%
Capital Charge	\$4,087.9	\$5,991.1	\$7,117.8	\$8,036.2	\$8,561.8	\$10,885.3	\$12,616.4	\$8,118.5	\$9,161.1	\$11,750.9
Economic Profit (EP)	\$6,782.6	\$5,460.5	\$5,927.9	\$6,317.6	\$9,992.0	\$10,826.0	\$12,547.7	\$7,704.8	\$9,045.2	\$11,686.8
Economic Profit Improvement (EPI)	\$1,351.4	(\$1,322.0)	\$467.3	\$389.7	\$3,674.4	\$834.0	\$1,721.7	\$808.7	\$1,632.7	\$1,277.8
EP Growth	24.88%	-19.49%	8.56%	6.57%	58.16%	8.35%	15.90%	12.43%	24.36%	12.13%
Economic Profit Margin on Sales	15.77%	9.68%	9.40%	9.18%	12.30%	10.94%	11.33%	10.30%	10.81%	11.13%
Economic Profit Per Share	\$10.52	\$8.35	\$8.91	\$9.35	\$14.59	\$15.74	\$18.24	\$11.39	\$13.23	\$16.99
GAAP Earnings Per Share	\$17.12	\$16.51	\$19.69	\$20.32	\$26.19	\$28.03	\$36.40	\$22.15	\$24.85	\$32.21
Excess Cash Per Share	\$64.44	\$77.69	\$85.98	\$103.49	\$114.42	\$131.67	\$152.61	\$102.65	\$116.53	\$142.14
Performance Drivers										
Sales Growth	29.60%	31.16%	11.81%	9.09%	18.03%	21.82%	11.96%	18.38%	16.31%	16.89%
Sales Growth Trend (ROC Sales Growth)	28.68%	30.54%	19.55%	10.17%	14.45%	20.30%	15.90%	19.00%	14.98%	18.10%
EBITDAR Margin	50.76%	45.39%	46.07%	50.03%	51.37%	50.21%	50.85%	48.62%	50.54%	50.53%
EBITDAR Growth	21.18%	17.39%	13.48%	18.46%	21.20%	19.07%	13.37%	17.90%	19.58%	16.22%
NOPBT Margin	31.51%	24.67%	25.15%	26.16%	27.10%	27.33%	29.60%	26.08%	26.87%	28.47%
NOPBT Growth	16.40%	2.72%	13.96%	13.48%	22.26%	22.87%	21.23%	15.06%	19.54%	22.05%
NOPAT Margin	25.27%	20.30%	20.68%	20.86%	22.84%	21.94%	24.33%	21.32%	21.88%	23.14%
NOPAT Growth	17.38%	5.35%	13.92%	10.03%	29.26%	17.02%	24.16%	15.11%	18.77%	20.59%
Economic Profit Margin on Sales (EP / Sales)	15.77%	9.68%	9.40%	9.18%	12.30%	10.94%	11.33%	10.30%	10.81%	11.13%
Economic Profit Growth	24.88%	-19.49%	8.56%	6.57%	58.16%	8.35%	15.90%	12.43%	24.36%	12.13%
Economic Return Spread (ROC-WACC)	10.55%	6.94%	6.44%	5.89%	8.10%	7.68%	10.12%	7.01%	7.22%	8.90%
Economic Return Ratio (ROC / WACC)	265.92%	191.14%	183.28%	178.61%	216.70%	199.46%	231.18%	193.84%	198.26%	215.32%
Economic Profit Momentum (ΔEP/Capital)	1.86%	-1.56%	0.47%	0.34%	2.80%	0.55%	0.99%	0.52%	1.23%	0.77%
Economic Profit Momentum Margin (ΔEP/Sales)	3.14%	-2.34%	0.74%	0.57%	4.52%	0.84%	1.55%	0.87%	1.98%	1.20%
Capital Growth	30.09%	16.43%	17.33%	16.05%	14.02%	14.57%	15.90%	15.68%	14.88%	15.24%
Capital Turns	0.59X	0.67X	0.64X	0.60X	0.62X	0.66X	0.63X	0.63X	0.62X	0.65X
EVC Acceleration Margin	4.07%	-3.07%	0.83%	0.62%	5.34%	1.03%	1.74%	0.73%	2.22%	1.54%
EVC Acceleration Spread	2.81%	-2.06%	0.59%	0.42%	3.42%	0.68%	1.22%	0.50%	1.51%	1.03%
Risk Factors										
Free Cash Flow (NOPAT - Δ Capital)	(\$5,949.2)	(\$493.4)	(\$1,624.3)	(\$1,591.9)	\$2,387.6	\$2,560.0	\$3,006.1	\$247.6	\$1,118.6	\$2,783.1
Free Cash Flow Rate (FCF / Capital)	-8.18%	-0.58%	-1.64%	-1.38%	1.82%	1.70%	1.72%	-0.02%	0.71%	1.71%
Free Cash Flow Yield (FCF / MV)	-3.73%	-0.20%	-0.44%	-0.46%	0.52%	0.42%	0.43%	-0.03%	0.16%	0.43%
Total Debt / Total Capital	12.16%	9.65%	8.85%	9.21%	8.13%	7.17%	7.17%	8.60%	8.17%	7.17%
Total Debt / EBITDAR	40.51%	31.89%	30.24%	30.83%	25.61%	21.74%	22.23%	28.06%	26.06%	21.99%
Excess Cash	\$42,011.0	\$51,610.8	\$58,049.7	\$70,748.1	\$78,518.6	\$91,107.5	\$0.0	\$70,006.9	\$80,124.7	\$45,553.8
Financial Leverage ((Total Debt - Excess Cash) / Pension Leverage (Net Pension Liability / MV))	-20.77%	-17.60%	-13.36%	-17.41%	-14.91%	-13.32%	1.79%	-15.32%	-15.21%	-5.76%
Equity Risk Index (S&P 500 = 1.00)	1.14	1.14	1.19	1.19	1.21	1.21	1.21	1.19	1.21	1.21
Stock Price Volatility	4.02	3.59	3.04	4.00	3.96	2.78	2.78	3.47	3.58	2.78
Sales Index (NL Sales)	10.67	10.94	11.05	11.14	11.31	11.50	11.62	11.19	11.32	11.56
Market Value Index (NL Market Value)	11.98	12.42	12.82	12.75	13.03	13.31	13.46	12.86	13.03	13.38
Size Index (NL Sales / MV)	11.33	11.68	11.93	11.95	12.17	12.41	12.54	12.03	12.17	12.47
Beta	1.21	1.21	1.28	1.28	1.32	1.32	1.32	1.28	1.31	1.32
TFP Adjusted Beta	1.14	1.14	1.19	1.19	1.21	1.21	1.21	1.19	1.21	1.21
Stock Price Volatility	4.02	3.59	3.04	4.00	3.96	2.78	2.78	3.47	3.58	2.78
Valuation Measures										
Total Economic Market Value (MV)	\$159,652.4	\$246,856.0	\$368,683.3	\$345,480.4	\$454,991.4	\$602,802.6	\$698,668.7	\$403,762.7	\$467,758.1	\$650,735.7
Economic Enterprise Value	\$117,641.4	\$195,245.2	\$310,633.7	\$274,732.4	\$376,472.8	\$511,695.1	\$593,072.0	\$333,755.8	\$387,633.4	\$552,383.6
Equity Market Value	\$150,806.0	\$238,688.5	\$359,894.9	\$334,864.3	\$444,304.0	\$591,999.0	\$686,147.0	\$393,950.2	\$457,055.8	\$639,073.0
Total Capital	\$74,350.3	\$86,472.4	\$101,441.4	\$117,751.1	\$134,860.4	\$153,873.6	\$178,344.7	\$118,879.8	\$135,495.0	\$166,109.2
Market Value Created MVC (MV - Capital)	\$85,302.0	\$160,383.5	\$267,241.9	\$227,729.3	\$320,131.0	\$448,929.0	\$520,324.0	\$284,883.0	\$332,263.1	\$484,626.5
MVC Margin (MVC / Sales)	198.28%	284.24%	423.61%	330.91%	394.11%	453.69%	469.67%	386.53%	400.32%	462.13%
MVC Spread (MVC / Capital)	114.73%	185.47%	263.44%	193.40%	237.38%	291.75%	291.75%	239.64%	245.22%	291.75%
Current EVC Value (EP / WACC)	\$106,709.0	\$71,727.6	\$76,623.2	\$84,362.0	\$143,975.3	\$140,258.6	\$162,564.4	\$102,739.9	\$122,522.9	\$151,411.5
Current Operations Value COV	\$171,023.5	\$150,424.5	\$168,627.6	\$191,674.2	\$267,343.5	\$281,285.5	\$325,142.5	\$211,221.6	\$246,425.4	\$303,214.0
Current Operations Value Per Share	\$265.18	\$230.08	\$253.56	\$283.57	\$390.50	\$408.98	\$482.81	\$313.65	\$360.92	\$445.51
Future Growth Value (MVC - EVA Value)	(\$11,371.1)	\$96,431.4	\$200,055.8	\$153,806.2	\$187,647.8	\$321,517.1	\$373,526.2	\$192,541.1	\$221,332.7	\$347,521.7
Future Growth Value Reliance (FGV / MV)	-7.12%	39.06%	54.26%	44.52%	41.24%	53.34%	53.46%	47.69%	47.32%	53.40%
Share Price	\$290.32	\$440.61	\$584.67	\$540.04	\$703.53	\$929.68	\$929.68	\$639.71	\$724.42	\$929.68
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)	14.55%	51.77%	32.70%	-7.63%	30.27%	32.15%	0.00%	-31.19%	13.24%	28.33%
MV to IC Ratio	2.15X	2.85X	3.63X	2.93X	3.37X	3.92X	3.92X	3.40X	3.45X	3.92X
EV / EBITDAR Multiple	5.39X	7.62X	10.69X	7.98X	9.02X	10.30X	10.53X	9.24X	9.24X	10.42X
EV / NOPBIT Multiple	8.68X	14.02X	19.58X	15.26X	17.10X	18.92X	18.09X	17.23X	17.34X	18.46X
EV / NOPAT Multiple	10.82X	17.05X	23.81X	19.14X	20.29X	23.57X	22.00X	21.09X	21.29X	22.70X
EV / EP Multiple	17.34X	35.76X	52.40X	43.49X	37.68X	47.27X	47.27X	43.32X	42.86X	47.27X
Future Growth Value (% of MV)	-7.12%	39.06%	54.26%	44.52%	41.24%	53.34%	53.46%	47.69%	47.32%	53.40%
Current Operations Value (% of MV)	107.12%	60.94%	45.74%	55.48%	58.76%	46.66%	46.54%	52.31%	52.68%	46.60%
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	644.9	653.8	665.0	675.9	684.6	687.8	673.4	673.4	682.8	680.6

Source: Company Data, Financial statements and Tigress Research

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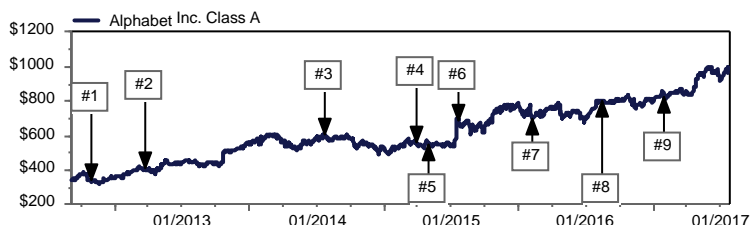
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Alphabet Inc. Class A (GOOGL-US)
Internet Software & Services
Ratings History

Alphabet Inc. Class A (GOOGL-US)				
Item #	Date	Research Action	Rating	Price
#9	01/30/2017	Reiterate Rating	Strong Buy	\$823.83
#8	08/16/2016	Reiterate Rating	Strong Buy	\$801.19
#7	02/09/2016	Reiterate Rating	Strong Buy	\$701.02
#6	07/20/2015	Reiterate Rating	Strong Buy	\$692.84
#5	05/01/2015	Reiterate Rating	Strong Buy	\$551.16
#4	03/27/2015	Reiterate Rating	Strong Buy	\$557.55
#3	07/23/2014	Reiterate Rating	Strong Buy	\$605.19
#2	03/20/2013	Reiterate Rating	Strong Buy	\$407.75
#1	10/25/2012	Initiation of Coverage	Strong Buy	\$339.21


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 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 (07/25/2017)			
		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	13%	0	0%
Buy:	Expect out-performance for the price of the stock relative to its industry peer group and general market over the next 12 months.	55	45%	4	80%
Neutral:	Expect little or no outperformance opportunity over the next 12 months.	46	37%	1	20%
Underperform:	Expect underperformance for the price of the stock relative to its industry peer group and general market over the next 12 months.	6	5%	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

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Total 123 100% 70 100%

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Company:	Disclosure:
Alphabet Inc. Class A (GOOGL-US)	14

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