

Alphabet Inc (NasdaqGS: GOOGL) Intrinsic Valuation

Alphabet Inc. will continue to sustain healthy growth in advertising and subscriptions. Investments in AI technology will continue to persist in the foreseeable future. Also, the company will continue to recalibrate its cost structure for further efficiency. There will be significant increases in CapEx investment which is expected in 2024. Alphabet's X division will be spinning out more projects into independent companies.

In the latter part of 2023, Alphabet's ad business made a sudden recovery due to a reduction in inflation and various restructuring moves. We expect improvements in Alphabet's ad business to continue throughout 2024. Alphabet has built a highly reliable business with substantial market share in advertising which makes it vulnerable to the shifts of the economic environment, nevertheless, this will not affect growth over the long term.

Alphabet has demonstrated a double-digit Compound Annual Growth Rate (CAGR) in revenue over the past four years. The pre-tax Operating Margin has been consistently over 30%. However, Alphabet faces stiff competition in growing its services and cloud revenues.

Alphabet has huge earning potential in Generative Artificial intelligence (AI). Alphabet has bolstered investment in AI in 2023. As of now, Alphabet has nine products with over a billion users such as Youtube, Android and many platforms under Google which present unlimited number of possibilities to monetize its AI venture.

However there have been challenges in AI Development such as the Gemini image launch. The Gemini image launch was problematic, highlighting the issue of Model Hallucination common in current Large Language Models (LLMs). Efforts are underway to mitigate model bias, prejudices, and hallucination effects. Future LLMs are expected to be thoroughly tested and improved.

In terms of investment outlook, there is optimism about Google's growth potential as a long-term investment. Alphabet's current valuation is seen as an attractive investment opportunity.

Our intrinsic valuation of Alphabet Inc (NasdaqGS: GOOGL) under three CAGR Revenue scenarios yield the following fair value estimates:

- CAGR of 7.02% is \$123
- CAGR of 9.48% is \$146
- CAGR of 11.92% is \$176

ALPHABET INC (NASDAQGS: GOOGL) INTRINSIC VALUATION

Past Performance: Year Ending 2023

CAGR Revenue Growth 4 year (2020-2023): 13.92%
CAGR Revenue Growth Past 6 year (2018-2023): 14.44%

Sales, General Admin Expenses as % Revenue

2021: 14.14 %
2023: 14.02 %

Past Pre-Tax Operating Margin

2021: 30.55%
2023: 27.70%

Forward looking Estimate (2024-2027)

Year	2024	2025	2026	2027
Revenue Estimate	342450.3	378405.5	415431.5	452397.4
Gross Margin	56.86%	57.14%	56.84%	56.55%
Gross Profit	194717.2	216220.9	236131.3	255830.7
Operating Expense	99411.8	108150.1	114919.3	121706.1
Depreciation	16896.40	19458.91	23619.64	25865.48
Operating Income	95305.4	108070.8	121212.0	134124.6
Net Interest Expense	-3818.00	-5196.00	-6917.50	-6917.50
EBIT	99123.4	113266.8	128129.5	141042.1
Pre-Tax Operating Margin	28.95%	29.93%	30.84%	31.18%
Operating Expense Margin	29.03%	28.58%	27.66%	26.90%
R&D	44801.73	45473.75	45697.76	45921.77
SG&A Margin	15.95%	16.56%	16.66%	16.75%

ALPHABET INC (NASDAQGS: GOOGL) INTRINSIC VALUATION

Model Key Estimate (2024-2032)

Three Scenarios

CAGR 11.92%
CAGR 9.48 %
CAGR 7.02 %

Cost of Calculation Inputs

Risk Free rate	4.22%
Market Return (Rm) -	14.04%
Market Risk Premium (Rm - Rf)	9.82%
Add: Risk-Free Rate of Return (Rf)(1)	4.22%
Add: Size Premium	

Terminal Rate into Perpetuity: 4.08%

Base Year (2024)

- Pre-Tax Operating Margin 32.04 % (incl. R&D and Operating Lease Capitalizations)
- Cost of Capital 15.48 %, Cost of Equity: 15.68%, After Tax Cost of Debt: 5.00%
- Equity Risk Premium: 4.60% (Country Specific: US 4.50%)
- Effective Tax Rate 13.91%
- Sales to Capital Ratio 3.28%

Year into perpetuity (2032+) and beyond

Expected Revenue Growth In perpetuity: 4.08%

Pre-tax Operating Margin 30%

Cost of Capital 8.38%, Cost of Equity :5.35%, Cost of Debt after Tax: 4.61%

Sales to Capital Ratio 3.28

Effective Tax Rate 13.9%

Return on Capital used: 15.00%

ALPHABET INC (NASDAQGS: GOOGL) INTRINSIC VALUATION

Fair Value Calculation

CAGR 11.92 % - Fair Value \$176

CAGR 9.48 % - Fair Value \$146

CAGR 7.02 % - Fair Value \$124

ALPHABET INC (NASDAQGS: GOOGL) INTRINSIC VALUATION

Alphabet Inc. (GOOGL)	Revenue Growth CAGR		11.92%								
Annual Data	Base	1	2	3	4	5	6	7	8	9	10
Fiscal Period	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Terminal Value
Revenue Growth Numbers		20.00%	18.23%	16.46%	14.69%	12.92%	11.16%	9.39%	7.62%	5.85%	4.08%
Revenues	342,601	411,121	486,073	566,092	649,269	733,184	814,975	891,474	969,384	1,015,497	1,056,930
EBIT	\$116,837	131,771	150,808	172,731	196,446	220,895	245,015	267,728	287,969	304,731	317,079
Pre Tax Operating Margin	34.10%	32.05%	31.03%	30.51%	30.26%	30.13%	30.06%	30.03%	30.02%	30.01%	30.00%
Income Taxes	16,049.25	18327.31	20975.12	24024.27	27322.67	30723.22	34077.90	37236.93	40052.17	42383.46	44,105.68
After Tax Operating Income	100,788	113,443	129,833	148,707	169,123	190,172	210,937	230,491	247,917	262,347	272,973
After Tax Operating Income Growth Rate		12.56%	14.45%	14.54%	13.73%	12.45%	10.92%	9.27%	7.56%	5.82%	4.05%
Depreciation	\$16,901	19683.26	22575.39	25493.13	28337.03	30996.94	33358.22	35309.30	36749.92	38249.32	39809.89
Capital Expenditure	-\$32,251	-\$38,701	-\$45,757	-\$53,289	-\$61,119	-\$69,019	-\$76,718	-\$83,920	-\$90,312	-\$95,595	-\$99,495
Change in Working Capital	-\$1,554	-\$3409.20	-\$3729.21	-\$3981.29	-\$4138.48	-\$4175.14	-\$4069.47	-\$3806.18	-\$3378.86	-\$2791.90	-\$2061.45
NOL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FCFE		\$90,615.73	\$105,462.19	\$123,373.82	\$143,565.99	\$165,261.69	\$187,638.31	\$209,807.97	\$230,826.85	\$249,728.45	\$198,724.52
Reinvestment (AI)		22827.53	24370.59	25332.79	25557.17	24910.36	23298.68	20682.96	17089.99	12618.71	74248.72
EPS											
Terminal Value											\$4,560,319
Cost of Capital Calculations											
Tax Rate	13.74%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%
Debt Ratio	1.61%	1.61%	1.61%	1.61%	1.61%	6.33%	7.52%	9.49%	13.42%	25.24%	25.24%
Beta	1.20	1.20	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.18	1.18
Correlation with Market	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Beta	1.20	1.20	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.18	1.18
Market Risk Premium	9.81%	9.81%	9.81%	9.81%	9.81%	9.81%	8.77%	7.73%	6.68%	5.64%	4.60%
Cost of Equity	16.04%	16.04%	16.04%	16.04%	16.04%	16.04%	14.76%	13.50%	12.23%	10.98%	9.73%
Cost of Debt	5.00%	5.00%	5.00%	5.00%	5.00%	5.07%	5.09%	5.12%	5.18%	5.35%	5.35%
After-tax cost of debt	4.31%	4.30%	4.30%	4.30%	4.30%	4.37%	4.38%	4.41%	4.46%	4.61%	4.61%
Cost of Capital	15.85%	15.85%	15.85%	15.85%	15.85%	15.30%	13.98%	12.63%	11.19%	9.37%	8.44%
Computed Variables (These are measures of how efficiently your firm is investing over time)											
Total Capital Invested	316,819.30	339,646.83	364,017.42	389,350.20	414,907.37	439,817.73	463,116.41	483,799.36	500,889.35	513,508.05	587,756.78
Reinvestment Rate		22.65%	21.48%	19.51%	17.19%	14.73%	12.25%	9.81%	7.41%	5.09%	28.30%
Increase in Revenue/Increase in Capital		3.00	3.08	3.16	3.25	3.37	3.51	3.70	3.97	4.45	0.56
Return on Capital		35.81%	38.23%	40.85%	43.44%	45.83%	47.96%	49.77%	51.24%	52.38%	15.00%
Sales to Capital Ratio	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041
Present Value Calculations											
Cumulative WACC		1.1585	1.3421	1.5548	1.8013	2.0768	2.3672	2.6663	2.9646	3.2424	
Present Value of FCFF		78,218.49	78,579.34	79,348.81	79,703.02	79,573.94	79,264.81	78,689.23	77,860.18	77,018.64	
Present Value of Terminal Value											1,406,446.02
The Valuation											
PV of FCFF during high growth phase =			708,256.45								
PV of Terminal Value =			1,406,446.02								
Value of Operating Assets of the firm =			2,114,702.47								
Value of Cash & Non-operating assets =			124,826.33								
Value of Firm =			2,239,528.80								
- Value of Outstanding Debt =			26,355.83								
Value of Equity =			2,213,172.97								
- Capital Infusion =			2,866.93								
- Value of Equity Options for Employees =			\$22,460.00								
Value of Equity in Common Stock =			2,193,579.90								
Value of Equity per share =			176.43								
						Treasury Stock Approach					
						\$ 176.43					

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ALPHABET INC (NASDAQGS: GOOGL) INTRINSIC VALUATION

Alphabet Inc. (GOOGL)	Revenue Growth CAGR		9.48%								
Annual Data	Base	1	2	3	4	5	6	7	8	9	10
Fiscal Period	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Terminal Value
Revenue Growth Numbers		15.00%	13.79%	12.57%	11.36%	10.15%	8.93%	7.72%	6.51%	5.29%	4.08%
Revenues	342,601	393,991	448,310	504,677	562,008	619,033	674,334	726,392	773,656	814,608	847,844
EBIT	\$116,837	126,280	139,091	153,991	170,044	186,504	202,732	218,151	232,221	244,448	254,353
Pre Tax Operating Margin	34.10%	32.05%	31.03%	30.51%	30.26%	30.13%	30.06%	30.03%	30.02%	30.01%	30.00%
Income Taxes	0.00	17563.67	19345.53	21417.90	23650.53	25939.87	28197.04	30341.46	32298.44	33999.02	35,380.55
After Tax Operating Income	116,837	108,716	119,746	132,574	146,393	160,564	174,535	187,809	199,922	210,449	218,973
After Tax Operating Income Growth Rate		-6.95%	10.15%	10.71%	10.42%	9.68%	8.70%	7.61%	6.45%	5.27%	4.05%
Depreciation	\$16,901	19026.00	21187.36	23337.17	25421.95	27384.53	29166.35	30710.22	31963.20	33267.30	34624.60
Capital Expenditure	-\$32,251	-\$37,089	-\$42,202	-\$47,508	-\$52,905	-\$58,273	-\$63,479	-\$68,379	-\$72,829	-\$76,684	-\$79,812
Change in Working Capital	-\$1,554	-2556.90	-2702.59	-2804.54	-2852.50	-2837.26	-2751.45	-2590.16	-2351.60	-2037.56	-1653.65
NOL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FCFE		\$92,173.18	\$102,578.49	\$115,112.61	\$129,025.47	\$143,721.48	\$158,680.31	\$173,414.25	\$187,449.92	\$200,326.33	\$159,412.17
Reinvestment (AI)		16543.28	17167.39	17460.94	17367.68	16842.38	15855.06	14394.80	12472.49	10122.43	59560.59
EPS											
Terminal Value											\$3,658,182
Cost of Capital Calculations											
Tax Rate	13.74%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%
Debt Ratio	1.61%	1.61%	1.61%	1.61%	1.61%	6.33%	7.52%	9.49%	13.42%	25.24%	25.24%
Beta	1.20	1.20	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.18	1.18
Correlation with Market	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Beta	1.20	1.20	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.18	1.18
Market Risk Premium	9.81%	9.81%	9.81%	9.81%	9.81%	9.81%	8.77%	7.73%	6.68%	5.64%	4.60%
Cost of Equity	16.04%	16.04%	16.04%	16.04%	16.04%	16.04%	14.76%	13.50%	12.23%	10.98%	9.73%
Cost of Debt	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.07%	5.12%	5.18%	5.35%	5.35%
After-tax cost of debt	4.31%	4.30%	4.30%	4.30%	4.30%	4.37%	4.38%	4.41%	4.46%	4.61%	4.61%
Cost of Capital	15.85%	15.85%	15.85%	15.85%	15.85%	15.30%	13.98%	12.63%	11.19%	9.37%	8.44%
Computed Variables (These are measures of how efficiently your firm is investing over time)											
Total Capital Invested	316,819.30	333,362.58	350,529.97	367,990.91	385,358.59	402,200.97	418,056.03	432,450.83	444,923.31	455,045.74	514,606.33
Reinvestment Rate		14.16%	15.79%	14.58%	13.10%	11.50%	9.87%	8.25%	6.64%	5.06%	28.30%
Increase in Revenue/Increase in Capital		3.11	3.16	3.23	3.30	3.39	3.49	3.62	3.79	4.05	0.56
Return on Capital		34.31%	35.92%	37.82%	39.78%	41.67%	43.40%	44.92%	46.23%	47.30%	15.00%
Sales to Capital Ratio	3.283403041	3.28340304	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.28340304	3.283403041	3.283403041
Present Value Calculations											
Cumulative WACC		1.1585	1.3421	1.5548	1.8013	2.0768	2.3672	2.6663	2.9646	3.2424	
Present Value of FCFF		79,562.86	76,430.71	74,035.55	71,630.61	69,202.27	67,031.96	65,039.63	63,228.71	61,782.55	
Present Value of Terminal Value											1,128,218.15
The Valuation											
PV of FCFF during high growth phase =			627,944.86								
PV of Terminal Value =				1,128,218.15							
Value of Operating Assets of the firm =				1,756,163.01							
Value of Cash & Non-operating assets=				124,826.33							
Value of Firm =				1,880,989.34							
- Value of Outstanding Debt =				26,355.83							
Value of Equity =				1,854,633.52							
- Capital Infusion =				2,866.93							
- Value of Equity Options for Employees =				\$22,460.00							
Value of Equity in Common Stock =				1,835,040.45							
Value of Equity per share =				147.59							
					Treasury Stock Approach						
					\$	147.59					

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Alphabet Inc. (GOOGL)	Revenue Growth CAGR		7.02%								
Annual Data	Base	1	2	3	4	5	6	7	8	9	10
Fiscal Period	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Terminal Value
Revenue Growth Numbers		10.00%	9.34%	8.68%	8.03%	7.37%	6.71%	6.05%	5.40%	4.74%	4.08%
Revenues	342,601	376,861	412,068	447,854	483,802	519,453	554,314	587,868	619,587	648,942	675,419
EBIT	\$116,837	120,790	127,847	136,653	146,381	156,502	166,650	176,549	185,975	194,735	202,626
Pre Tax Operating Margin	34.10%	32.05%	31.03%	30.51%	30.26%	30.13%	30.06%	30.03%	30.02%	30.01%	30.00%
Income Taxes	0.00	16800.03	17781.65	19006.41	20359.44	21767.07	23178.45	24555.31	25866.39	27084.65	28,185.22
After Tax Operating Income	116,837	103,990	110,066	117,647	126,022	134,735	143,471	151,994	160,109	167,650	174,440
After Tax Operating Income Growth Rate		-11.00%	5.84%	6.89%	7.12%	6.91%	6.48%	5.94%	5.34%	4.71%	4.05%
Depreciation	\$16,901	18368.74	19843.14	21305.36	22735.18	24111.42	25412.37	26616.35	27702.29	28832.55	30008.92
Capital Expenditure	-\$32,251	-\$35,476	-\$38,790	-\$42,159	-\$45,543	-\$48,899	-\$52,181	-\$55,339	-\$58,325	-\$61,089	-\$63,581
Change in Working Capital	-\$1,554	-\$1704.60	-\$1751.72	-\$1780.51	-\$1788.57	-\$1773.80	-\$1734.50	-\$1669.49	-\$1578.16	-\$1460.53	-\$1317.35
NOL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FCFE	\$93,266.88	\$99,166.67	\$106,698.48	\$115,163.93	\$124,117.47	\$133,251.67	\$142,333.31	\$151,168.73	\$159,586.05	\$126,992.59	\$126,992.59
Reinvestment (AI)		10722.78	10899.01	10948.33	10857.89	10617.36	10219.42	9660.33	8940.32	8063.84	47447.78
EPS											
Terminal Value											\$2,914,219
Cost of Capital Calculations											
Tax Rate	13.74%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%	13.91%
Debt Ratio	1.61%	1.61%	1.61%	1.61%	1.61%	6.33%	7.52%	9.49%	13.42%	25.24%	25.24%
Beta	1.20	1.20	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.18	1.18
Correlation with Market	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Beta	1.20	1.20	1.20	1.20	1.20	1.20	1.19	1.19	1.19	1.18	1.18
Market Risk Premium	9.81%	9.81%	9.81%	9.81%	9.81%	9.81%	8.77%	7.73%	6.68%	5.64%	4.60%
Cost of Equity	16.04%	16.04%	16.04%	16.04%	16.04%	16.04%	14.76%	13.50%	12.23%	10.98%	9.73%
Cost of Debt	5.00%	5.00%	5.00%	5.00%	5.00%	5.07%	5.09%	5.12%	5.18%	5.35%	5.35%
After-tax cost of debt	4.31%	4.30%	4.30%	4.30%	4.30%	4.37%	4.38%	4.41%	4.46%	4.61%	4.61%
Cost of Capital	15.85%	15.85%	15.85%	15.85%	15.85%	15.30%	13.98%	12.63%	11.19%	9.37%	8.44%
Computed Variables (These are measures of how efficiently your firm is investing over time)											
Total Capital Invested	316,819.30	327,542.08	338,441.09	349,389.42	360,247.31	370,864.67	381,084.08	390,744.42	399,684.73	407,748.57	455,196.35
Reinvestment Rate		9.18%	10.48%	9.95%	9.23%	8.43%	7.58%	6.73%	5.88%	5.04%	28.30%
Increase in Revenue/Increase in Capital		3.20	3.23	3.27	3.31	3.36	3.41	3.47	3.55	3.64	0.56
Return on Capital		32.82%	33.60%	34.76%	36.07%	37.40%	38.69%	39.88%	40.98%	41.95%	15.00%
Sales to Capital Ratio	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041	3.283403041
Present Value Calculations											
Cumulative WACC		1.1585	1.3421	1.5548	1.8013	2.0768	2.3672	2.6663	2.9646	3.2424	
Present Value of FCFE		80,506.92	73,888.58	68,623.93	63,935.15	59,762.89	56,290.04	53,382.62	50,990.71	49,217.86	
Present Value of Terminal Value											898,772.92
The Valuation											
PV of FCFE during high growth phase =			556,598.71								
PV of Terminal Value =			898,772.92								
Value of Operating Assets of the firm =			1,455,371.62								
Value of Cash & Non-operating assets =			124,826.33								
Value of Firm =			1,580,197.95								
- Value of Outstanding Debt =			26,355.83								
Value of Equity =			1,553,842.13								
- Capital Infusion =			2,866.93								
- Value of Equity Options for Employees =			\$22,460.00								
Value of Equity in Common Stock =			1,534,249.06								
Value of Equity per share =			123.40								
						Treasury Stock Approach					
						\$	123.40				

DISCLAIMER: This is not financial advice, but a fair value assessment of the company based on the past, present and forward-looking financials. We use this information to make our own decision on the stock purchase and sell for our portfolio.

Financial markets are notorious to predict, and past performance is no indicator of the future performance. We share information purely for knowledge and learning purpose. Please don't rely on the information shared and any decision you take is yours and we have zero liabilities in this regard.

Sources

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