

# Alphabet Inc.

(NASDAQ: **GOOG**)

Communications:

Interactive Media & Services

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## Investment Thesis

We recommend a **HOLD** rating for Alphabet Inc. with a target price of \$134 - \$146. We expect Alphabet to rebound after negative reception to its positive 2023 third quarter earnings. We have confidence in Alphabet's market share dominance and continued development of its various goods and internet services. We believe Alphabet offers a potential upside of 11% or greater based on our valuation.

### Drivers of Investment Thesis:

**Digital advertising:** Continued investments in digital advertising on the Google search engine and YouTube has proved profitable for Alphabet and we believe ad revenue will continue to blossom.

**Research and Innovation:** As Alphabet continues to invest in their development of artificial intelligence, we believe their cloud computing platform (Google Cloud) will evolve efficiently, leading to increased revenues.

### Risks of Investment Thesis:

**Antitrust Regulations:** Alphabet is currently being sued by the DOJ for breaking antitrust laws and allegedly "monopolizing" digital advertising technologies. This suit could result in negative public reception and growth.

## LTM Stock Performance Vs. S&P 500<sup>0</sup>



## Krause Fund Research Fall 2023

Recommendation: **HOLD**

### Financial Snapshot

November 10, 2023

#### Model Prices:

DCF	\$134.65
DDM	\$119.08
Relative P/E	\$146.22

#### Price Data:

Current Price	\$131.91
52-Week High	\$142.38
52-Week Low	\$85.57

#### Key Statistics:

Market Capitalization	1.656T
Shares Outstanding	12,849
Beta	1.15
EPS (TTM)	5.22
EPS (2023E)	4.43
2022 Revenue	\$282,836
2023E Revenue	\$299,762

#### Key Ratios:

ROE 2022	23.83%
ROA 2022	16.69%
Debt/Equity 2022	43%

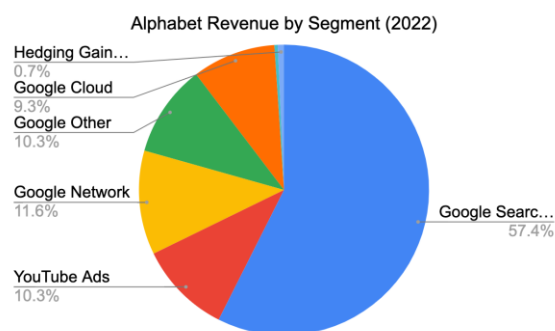
## Company Description

Alphabet Inc. (NASDAQ:GOOG) is a multifaceted holding firm that is primarily known for being the parent company of internet giants Google and YouTube. Headquartered in Mountain View, CA, Alphabet Inc. operates through three main segments of revenue: Google Services, Google Cloud, and Other Bets. Google Services includes revenues from the Google search engine and YouTube advertising, while Google Cloud includes revenues from their Cloud platform and Google Workspace. Other Bets refers to revenues that are primarily generated from the sale of health technology and various internet services. Alphabet's immense presence in the interactive media space is thanks to its diversified products and services.

## Company Analysis

With a market capitalization of 1.656 trillion dollars, Alphabet Inc. is one of the largest companies in the world. Alphabet Inc. was established in October of 2015 with the purpose of becoming Google's parent company. With this corporate structure change, Alphabet was able to better integrate Google's various product lines and highlight the company's grand scheme. Alphabet generates income from several streams of revenue, primarily in the internet advertisement space. Additionally, Alphabet offers cloud-based computing software, Google Pixel phones, and various other internet services.

### Revenue Segments:



### Google Search & other:

In 2022, Google Search & other accounted for 57.44% (or \$162,450 million) of total revenue earned by Alphabet, making it the largest source of revenue for the company. This figure is a 9.06% increase from 2021 where Alphabet earned \$148,951 million from Google Search & other. This segment accounts for ad revenue generated from the Google search bar and other Google owned internet properties such as: Gmail, Google Maps, and the Google Play store. Ad revenue is the primary mode in which Alphabet generates wealth and we expect this segment to increase by another 8% in 2023 as advertiser spending and consumer usage on mobile devices increases.

### YouTube Ads:

The YouTube Ads segment is another major contributor to Alphabet's advertisement revenue and accounts for all revenues generated on YouTube properties. In 2022, it accounted for \$29,243 million (or 10.34%) of Alphabet's total revenue. YouTube ads use Google Network ad programs such as: AdSense,

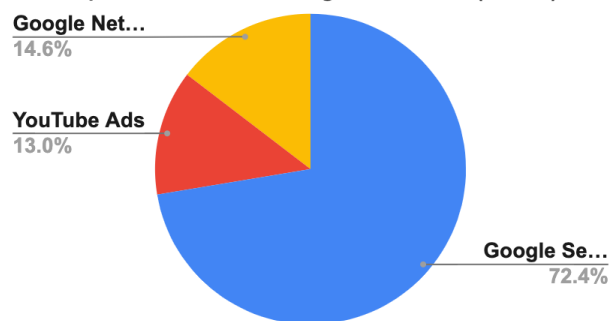
Ad Mob, and Google Ad Manager. These programs serve advertisements for creators based on consumer interests and content preference. These programs have proven to be an effective source of income for Alphabet as the 5-year growth in this segment is 162.15%. We expect this segment to grow an additional 3% in 2023, as YouTube further develops its platform with content additions such as NFL Sunday Ticket.

### Google Network:

Google Network represents revenues earned through Google Network properties that participate in the previously mentioned ad programs: AdSense, Ad Mob, and Google Ad Manager. In 2022, the Google Network segment accounted for 11.59% (or \$32,780 million) of Alphabet's total generated revenue. Google Network consists of two groups: the Search Network and the Display Network. The Search Network includes Google search result pages and other Google partnered search sites, while the Display Network includes Google sites like YouTube, Gmail, and numerous internet sites that Google partners with. With investments and advancements in their ad programs, we predict the Google Network segment to grow another 5% in 2023.

Google Search & other, YouTube Ads, and Google Network make up the total ad revenue for Alphabet, which was 79.37% of their total revenue in 2022. Alphabet is currently the world's leader in advertising revenue with \$224,472 million generated in 2022, a 7.15% increase from the prior year.

### Alphabet Advertising Revenue (2022)



### Google Other:

The Google Other revenue segment represents revenues from the Google Play Store, YouTube TV and YouTube Premium subscriptions, and hardware sales. Hardware that Alphabet sells primarily includes Google Pixel mobile phones, Google Nest products, and Fitbit wearable devices. In 2022, Google Other generated \$29,055 million (or 10.27%) of total revenue. This 3.65% increase in revenue from the prior year was attributed to the industry trend of streaming content, where YouTube TV subscription sales blossomed. We believe that this segment is in a solid position for future revenues with growing subscription sales and stellar reviews for the 2023 released, Google Pixel 8.

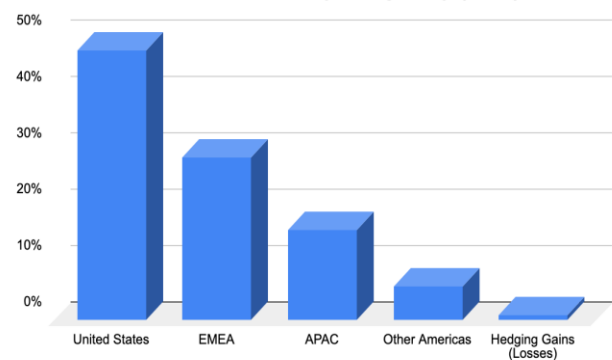
### Google Cloud:

Google Cloud serves as Alphabet's cloud-based computing platform. The services that this platform provides include data storage, data management & analytics, and AI and machine learning tools. Google Cloud accounted for \$26,280 million (or 9.29%) of Alphabet's total revenue. In Alphabet's third quarter earnings report of 2023, Google Cloud missed revenue expectations by over \$200 million which sparked a sell-off of Alphabet stock, despite positive overall earnings. At the same time, Microsoft's cloud-based computing platform actually beat earnings expectations, which worried Alphabet investors<sup>1</sup>. However, we expect Google Cloud to recover in the future as the company further develops its AI technology.

### Other Bets:

Alphabet's Other Bets segment refers to investments in businesses that are in the early stages of development. These businesses often have a sizable level of uncertainty towards their futures, but it is Alphabet's goal to develop them into strong, successful ventures. The majority of revenue that is garnered from this segment stems from the sale of health technology and internet service. Overall, Other Bets earns a minute portion of Alphabet's total revenue, collecting only 0.38% of Alphabet's total revenue in 2022. However, this segment is important for the company as they continue to innovate and explore new markets.

Alphabet Revenues by Geography (2022)



This chart represents Alphabet's revenues by geography. EMEA refers to Europe, Middle East, and Africa. APAC refers to Asia-Pacific, while Other Americas consists of South and Latin America.

## SWOT Analysis

### Strengths:

Alphabet's greatest strengths consist of its market supremacy and formidable brand recognition. As of May 2023, Google maintained an 83.49% market share on the global desktop search engine<sup>2</sup>. Additionally, Google holds a 96.46% market share for worldwide mobile search engines<sup>3</sup>. Google's dominance in the search engine market provides Alphabet with several advantages. One advantage that Google's search engine provides is the vast amount of data it is able to collect from its extensive internet traffic. Collected data is vital to Google's operations as they use it for targeted advertisements, search result algorithm improvements, and general product and service innovation<sup>4</sup>. Furthermore, user data is used to spot trends and patterns that can help enhance the browser's performance. Another major strength of Alphabet is Google's significant brand recognition. Since its launch in the late 90's, Google has been a household name in web browsing and has amassed a large number of loyal and passionate users. This brand recognition allows Google to retain its dominant market share and deter competitors from garnering attention in digital navigation.

### Weaknesses:

Alphabet's most pronounced weaknesses include its lack of success in the social media market, as well as its undiversified revenue streams.

During the current era of social media, Alphabet has been unable to produce and sustain a lucrative platform. This is an area where some of Alphabet's greatest competitors, like Meta, have been vastly successful. Meta owns and operates some of the largest social media platforms in the world, including Facebook, Instagram, and WhatsApp. In 2011, Google entered the social media landscape with the launch of Google+, but ultimately scrapped the platform in 2019 after overwhelming negative reception, as well as several other issues including security leaks.<sup>5</sup> In conclusion, Alphabet simply has not been able to compete in this extremely profitable market.

Alphabet's other considerable weakness is its lack of diversified revenue streams. Alphabet's over-reliance on digital advertising revenue sets the company up for potential issues in the future. Factors like ad-blockers, government regulations, and potential downward trends in online shopping all threaten Alphabet's growth in ad revenue. We believe it is important for Alphabet to find other streams of revenue in the future in order to counter this potential issue.

#### **Opportunities:**

One of Alphabet's biggest opportunities in the near future is the development of its artificial intelligence (AI) systems. Alphabet has invested heavily in the development of its AI technology in recent years. In 2022, Alphabet totaled \$39,500 million in R&D expenses, with a large amount of that contributing to AI enhancement. In Alphabet's 2022 10-k report, they wrote a section on AI where they noted that they hope their investments in the technology will be able to enhance their products and services while bettering people's lives. Investments in AI will be able to improve Google's search algorithm, ad personalization, and other Google services such as Google's Bard AI. Additionally, consumers rely on Google Cloud's AI and machine learning systems and improvements in those systems will ultimately lead to increased revenue in the Google Cloud revenue segment.

#### **Threats:**

One of the greatest threats Alphabet faces today is government regulations and sanctions. Currently Alphabet is taking on court cases against the United States Department of Justice (DOJ) and Epic Games, the creator of the popular video game, Fortnite. The DOJ has accused Alphabet of breaking several antitrust laws and claims that the company illegally arranged business deals to make Google the default search engine on mobile devices and web browsers<sup>6</sup>. By doing this, the DOJ is accusing Alphabet of holding a monopoly on the search engine market and eliminating competition. In the other trial, Epic Games claims Alphabet's Google Play Store takes an unfair cut of revenue that is earned through in-app purchases<sup>7</sup>. Unfavorable outcomes in these trials could result in hefty fines, disadvantageous new search engine regulations, and overall negative consumer reception.

### **Economic Analysis**

#### **Inflation:**

Inflation measures the increase in prices of goods and services over a specific period of time. The best measure of inflation stems from the Consumer Price Index (CPI) which measures the percent change in the price of a basket of goods and services<sup>8</sup>. Inflation affects major advertisers like Alphabet as marketers are less likely to spend money when inflation rates are high.

The Federal Reserve sets a target rate of inflation at 2% and since March of 2021, the rate has been above that target. Inflation rates are currently sitting at 3.7%. Inflation has declined in 2023, due to the Federal Reserve's rate hike campaign and we expect inflation to inch closer to that 2% mark by Q4 of 2024, as consumer demand slows, and supply chain issues resolve.

U.S. Inflation Rates (Oct 22-Sept 23)<sup>9</sup>

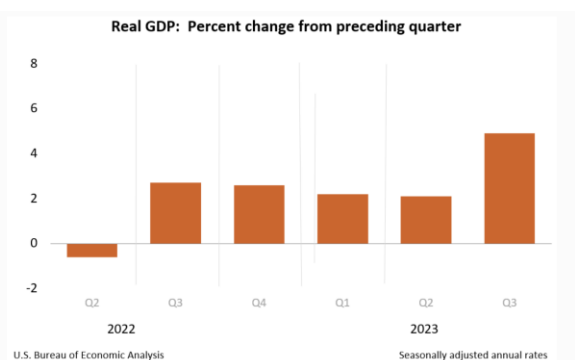


### Real Gross Domestic Product (GDP):

Real GDP refers to the inflation adjusted value of goods and services produced by labor and property in the United States<sup>10</sup>. Real GDP includes consumer and government spending, private investments, and the net exports of a given country. U.S. Real GDP growth was 2.06% in 2022, which was a 3.88% decline from the year prior. In the third quarter of 2023, Real GDP grew at an annual rate of 4.9% which was an increase from Q2's 2.1% increase. According to the U.S. Bureau of Economic Analysis, this Q3 performance was thanks to an increase in consumer spending and inventory investments<sup>10</sup>.

Real GDP is an important measure to Alphabet as a growing GDP typically results in an increased advertising budget for companies. When marketers have a larger budget, Alphabet thrives as those marketers buy advertising space on Alphabet's internet services. We predict Real GDP to rebound in 2024 as the federal reserve lowers interest rates and consumer spending increases.

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### Foreign Exchange Rates:

Large tech and communication firms, like Alphabet, are directly affected by foreign exchange rates. Foreign exchange rates refer to the rate at which one currency will be exchanged for another currency and these rates affect the way money is able to move between different countries<sup>12</sup>.

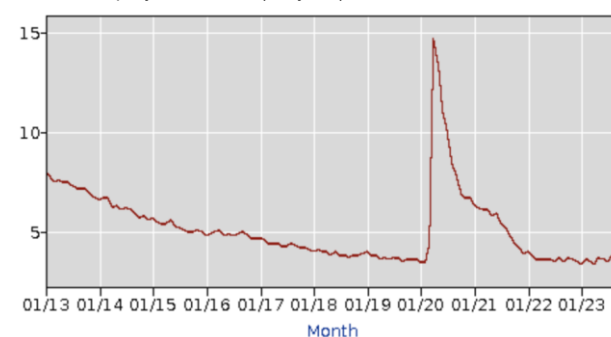
Since Alphabet operates in over 50 countries, they often lose a percentage of their foreign revenue when exchanging currencies. However, as noted in its 10-k report, Alphabet runs a foreign exchange risk management program. Alphabet uses a strategy of purchasing forward and option contracts to protect

forecasted U.S. dollar earnings from changes in foreign currency exchange rates. Ultimately, these options act as a hedge device towards change in currency exchange rates.

### Unemployment:

Unemployment rates are another economic factor that directly affects the communications sector. One result of unemployment that affects Alphabet is the slowdown of innovation. When unemployment rates are high, firms are typically less likely to spend money on research & development. Innovation is specifically important to tech firms as they are always looking to create and better develop their products and services. Additionally, consumer spending decreases during periods of high unemployment. Low consumer spending equates to decreased advertising budgets, which adversely affects Alphabet as they thrive when businesses splurge on digital advertising.

U.S. Unemployment Rate (10-year)<sup>13</sup>



### Industry Analysis

Alphabet Inc. operates in the communications sector under the GICS classification, specifically the interactive media & service industry. Key activities within the sector include providing consumers with social networking, search engines, video games, mobile apps, virtual reality experiences, and subscription-based platforms. Prominent companies include Alphabet Inc., which dominates the online search and advertising space, as well as social media giants like Meta and X. This sector's key revenue streams include content creation and distribution, digital advertising, and telecommunications services. Research and innovation are driving forces towards keeping this industry profitable.

### Industry Trends:

**Cybersecurity threats:**

The digital revolution has brought about unprecedented cybersecurity challenges to interactive media and communication service platforms which threaten the integrity of platforms and the security of user data. One noticeable example was the data breach event from Facebook in 2018 which affected its 50 million users. This event emphasized the vulnerability of user data and the instant need for enhanced cybersecurity measures within the industry.

One way for the interactive media and service industry to deescalate cyber threats is to boost its cybersecurity capabilities through mergers and acquisitions. Investor Group led by Advent International and Permira completed the acquisition of McAfee with approximately \$14 billion in 2021, emphasizing the industry's recognition of the critical role that cybersecurity plays in safeguarding digital assets<sup>14</sup>. In addition, Alphabet also closed the acquisition of Mandiant for a total purchase price of \$6.1 billion (including cash and debt) in 2022 to protect its Google Cloud security.

The functioning of platforms and the personalized experiences offered to users heavily rely on the collection and utilization of user data which stands as a cornerstone of interactive media and communication service industries. To demonstrate a commitment to transparency and also let user understand how the platform collects and use information, Meta platform introduced their Privacy Center in 2022<sup>15</sup>. In addition, Google continually invests and develops in Post-Quantum Cryptography to protect their assets and users' data from cyber threats<sup>16</sup>. These examples emphasize the industry's promise to ensure the confidentiality and integrity of user data, reflecting the important relationship between cybersecurity and the preservation of user trust.

Cybersecurity is not only a challenge, but a top priority for continued growth, innovation, and user trust. Lessons learned from specific threat examples and innovative measures

implemented can serve as a roadmap for a secure and trustworthy digital future. An interactive media and service company with cybersecurity can maximize its popularity and increase its loyal customers, thus affecting the company's business.

**Artificial Intelligence:**

In the dynamic landscape of interactive media & service and communication sectors, Artificial Intelligence has emerged as a transformative force, reshaping the strategies and operations of industry leaders like Alphabet, Meta, Twitter, etc. Under AI algorithms, Alphabet's YouTube can ensure users engage with content relative to their preferences. Besides that, the Google search engine can let users get accurate results by SEO Keywords. Facebook and Instagram, a part of the Meta platform, can use AI to deploy content moderation. It can provide its users with a better and safer digital environment. In addition, Snapchat also used AI to drive their augmented reality (AR) features with dynamic filters and lenses to enhance user interaction experience.

The impact can also extend to the digital advertising market and communication area. Companies can efficiently provide personalized content to each user based on their interests and data through AI algorithms and increase advertisers' return on investment. Combining AI with virtual assistants and chatbots under companies' service can better understand and reply to customers' questions with instantaneous and context-aware responses and give them a comfortable experience. AI language translation ability is extremely important across language barriers, especially in AR, VR and MR areas. If Google can apply this ability to its developing AR glasses, Meta applies this to its VR headset Meta Quest, and Apple applies this to its introduced MR headset Vision Pro, it could greatly foster global connectivity.

From personalized content recommendations and streamlined communication to innovative advertising strategies, AI remains the key to propelling these industries into a new era. The first company to make a breakthrough in artificial

intelligence can have profound and transformative effects on various aspects of its business and this industry as a whole.

### **Porter's Five Forces:**

#### **Existing Competition: Moderate**

Alphabet's product diversity ensures that it will encounter competitors on multiple fronts. Facing competition from other major tech companies like Facebook (Meta), Amazon, and Microsoft, among others. The constant innovation, rapid technological advancements, and the need to stay ahead in terms of algorithms, data processing, and user experience contribute to the intensity of competitive rivalry. Besides that, the switching costs for customers to move from Alphabet to other companies are pretty low which will affect Alphabet's business. However, Alphabet's strong market position and diversified portfolio help mitigate some of this competition.

#### **Threat of New Entrants into the Industry: Low**

Although the cost of entry into the interactive media market is low and easy for users to switch their preference platforms, the market is already dominated by several industries. New entrants can get into this market; however, established brands and platforms often have strong user bases and content libraries. It is extremely difficult for them to affect established platforms' position and attract users from them.

#### **Threat of Substitutes: Moderate**

As we mentioned before, it is easy for users to switch their preference platforms, especially search engines, and digital advertisements become commonly used by multiple platforms. It is a threat to Alphabet and other industries that dominate this market share as the unit of advertisement that could be posted on other platforms increases.

#### **Bargaining Power of Customers: Low**

The buyer demand for advertising is continuously increasing, so it could be possible for businesses and advertisers that are major customers to have more negotiating strength. However, Alphabet's dominant position in online advertising, particularly through Google, gives it significant influence in the relationship with advertisers. Additionally, Alphabet

has an advanced advertisement analysis vision to provide information and help those buyers, thus, the power of them is low.

#### **Bargaining Power of Suppliers: Low**

Alphabet is primarily focused on digital areas like their search engine, advertising platform, google cloud, etc. Which means Google doesn't need many suppliers. However, if Alphabet wanted to invest more of their budget on the AI and technology hardware area, the need of suppliers might increase, but its size and influence in the industry enables it to negotiate favorable terms and pricing.

### **Valuation Analysis**

#### **Revenues:**

As noted previously, Alphabet comprises its revenue in five main segments, and hedging gains (losses). Google Search & Other is by far the largest segment of revenue and makes up the majority of Alphabet's advertising revenue. We are forecasting the Google Search & Other segment to increase 8% in 2023, before reaching an eventual continued growth of 10%. This large growth stems from our belief in Google's data-driven advertising and overall search recommendation improvements.

We believe the YouTube Ad revenue segment is bound for success as well. Although its growth decreased from 2021 to 2022, we believe YouTube Ads has the potential to reach a constant growth of 9%. The idea behind this belief is that YouTube is a massive and growing platform that continues to add features and improvements. Additionally, as users of the platform mature, marketers will be able to take advantage of their advertisements due to a higher consumer spending limit.

We forecasted an 8% future constant growth for the Google Other segment mainly due to YouTube TV's gaining popularity. Alphabet was able to take advantage of the streaming television market with YouTube TV subscriptions and we believe that trend is here to stay. Additionally, Google Pixel mobile phones have been gaining increasingly more popularity, specifically in East Asian nations like Japan.

Google Cloud is another segment that we believe has a very promising future as Alphabet's cloud-based computing technology improves. We're forecasting a 14% future constant growth due to our belief in the demand of quality AI-driven data platforms, where we are hopeful that Alphabet will be an industry leader.

#### **Cost of Equity:**

We calculated Alphabet's cost of equity using the capital asset pricing model (CAPM). For the risk-free rate, we used the 10-year treasury bond which was 4.95%. The beta used is the 5-year raw beta from FactSet, which was 1.15. Additionally, we used Professor Aswath Damodaran's trailing 12-month cash yield equity risk premium of 4.84%. Finally, we produced a value of 10.52% for our cost of equity.

#### **Cost of Debt:**

The capital asset pricing model was also used to equate Alphabet's cost of debt. As previously mentioned, we used the 10-year treasury bond as our risk-free rate of 4.95%. We then found the pre-tax cost of debt by finding the YTM on Alphabet's 20-year corporate bonds, which is 5.66%. The difference between our pre-tax cost of debt and risk-free rate gave us an implied default premium of 0.71%. We then multiplied the pre-tax cost of debt by  $(1 - \text{Alphabet's marginal tax rate})$  to find a 4.36% after-tax cost of debt.

#### **WACC:**

Alphabet's weighted average cost of capital (WACC) is 10.42%. We calculated this number by using the previously calculated cost of equity (10.52%) and cost of debt (4.36%) coupled with their market value percentages of 98.42% and 1.58% respectively. This WACC value was then used in our DCF and EP valuation models as a discount factor.

#### **DCF and EP Valuation Models:**

The discounted cash flow and economic profit valuation methods are practices used to calculate implied stock price. To calculate the DCF value, we began by forecasting free cash flow through 2023 and discounted each figure by the WACC that we previously calculated (10.42%). We then summed the present values of the free cash flows, including the terminal value, to find our total value of operating assets. We then adjusted the remaining non-

operating assets to find our total value of equity and divided that by Alphabet's shares outstanding in 2022. Finally, we found our DCF value to be \$134.65. The economic profit method gave us the exact same value but was derived in a separate way. This method involves summing the present value of our forecasted economic profits through 2023 and adding back invested capital from the last FYE. We then made similar adjustments to arrive at \$134.65. These two methods of valuation are very valuable estimates as we believe they most accurately measure Alphabet's intrinsic value based on our forecasts.

#### **Dividend Discount Model:**

The dividend discount model (DDM) is a valuation model that calculates a company's stock price based on the present value of its expected future dividends. We calculated a stock price of \$119.08 based on our DDM valuation. However, we do not believe this metric to be very valuable as Alphabet has never paid a dividend to its investors before. Instead, they focus on reinvesting profits into new business ventures and the development of their current products and services.

#### **Relative Valuation Model:**

For our relative valuation we compared several of Alphabet's greatest competitors in the communications and tech industries. These competitors include Adobe Inc., Apple Inc., Baidu Inc., Match Group, Meta Platforms, Microsoft Corporation, Netflix Inc., Pinterest Inc., and Snap Inc. We then calculated each of their expected P/E ratios using their estimated EPS for 2023 and 2024. After averaging the given companies P/E ratios, we then multiplied that average by Alphabet's anticipated EPSs to calculate implied relative value. We came up with an implied relative value of \$146.22 for 2023 and \$135.28 for 2024. We believe the P/E valuation metric is a valuable estimate because average P/E ratios can give investors a good look at future earnings growth.

### **Sensitivity Analysis**

#### **Inflation Rate vs. Cost of Equity:**

As previously mentioned in the report, Inflation measures the increase in prices of goods and services over a specific period of time. Meanwhile,



cost of equity is a significant value used to calculate Alphabet's WACC. As the cost of equity increases, the share price increases slightly in this table. However, it appears that the inflation rate does not have much impact on the share price.

**CV Growth of NOPLAT vs. WACC:**

When computing the DCF valuation, CV Growth of NOPLAT and WACC are two values essential to the calculation. The continuing value makes up the majority of Alphabet's total value according to the DCF valuation, while WACC is used to discount the cash flows in the model. With a WACC range of 10.10% - 10.70% and a CV Growth range of 4.70% - 5.30%, we found a share price range of \$124.20 - \$148.70. We believe this range to be valuable as NOPLAT growth rates are susceptible to changes.

**Marginal Tax Rate vs. Pre-tax Cost of Debt:**

For this table, we wanted to test how the marginal tax rate affected the share price when pre-tax cost of debt. Pre-tax cost of debt is used when calculating the WACC's total cost of debt and then used again when using the DCF valuation method. We used a marginal tax rate range of 24.13% - 22.73%, and a cost of debt range of 5.3% - 6%. These inputs equated to a share range of \$132.79 - \$135.

**Equity Risk Premium vs. Beta:**

In order to compute the cost of equity in the WACC calculation, equity risk premium and beta are essential values. The cost of equity equates to 98.42% of the WACC according to our model, thus changes in the equity risk premium and beta notably impact intrinsic value results. We used an ERP range of 4.24% - 5.44% and a beta range of 0.85 - 1.45. These ranges equated to a share price range of \$96.34 - \$206.85.

**Risk-free Rate vs. G&A Expense (% of sales):**

Finally, we wanted to test how the changes in the risk-free rate and general and administrative expense affects the share price of Alphabet. We used a risk-free rate range of 4.35% - 5.55%, and a G&A expense range of 5.10% - 6%. This gave us a share price range of \$121.91 - \$150.55. Our interpretation of this table is that as the risk-rate increases, the share price goes down, but the G&A expense does not have any effect on the overall share price.

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10-K for 2018 - SEC.gov

[Goog-20201231](#)

[Goog-20221231](#)

[https://www.gurufocus.com/term/shares\\_basic/GOOG/Shares-Outstanding-Basic-Average/AlphabetGoogle](https://www.gurufocus.com/term/shares_basic/GOOG/Shares-Outstanding-Basic-Average/AlphabetGoogle)

### **Important Disclaimer**

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**Alphabet Inc.**  
Sensitivity Tables

		Inflation Rate							
		134.65	3.10%	3.30%	3.50%	3.70%	3.90%	4.10%	4.30%
Cost of Equity	10.22%	135.19	134.91	134.63	134.34	134.05	133.75	133.46	
	10.32%	135.30	135.02	134.73	134.44	134.15	133.86	133.56	
	10.42%	135.40	135.12	134.84	134.55	134.26	133.96	133.66	
	10.52%	135.51	135.23	134.94	134.65	134.36	134.07	133.77	
	10.62%	135.61	135.33	135.05	134.76	134.47	134.17	133.87	
	10.72%	135.72	135.44	135.15	134.86	134.57	134.27	133.98	
	10.82%	135.83	135.54	135.26	134.97	134.67	134.38	134.08	

		Beta							
		134.65	0.85	0.95	1.05	1.15	1.25	1.35	1.45
Equity Risk Premium	4.24%	206.85	185.14	167.66	153.28	141.24	131.03	122.25	
	4.44%	197.55	176.86	160.20	146.49	135.03	125.29	116.93	
	4.64%	189.06	169.31	153.40	140.31	129.36	120.07	112.09	
	4.84%	181.30	162.40	147.17	134.65	124.17	115.28	107.65	
	5.04%	174.16	156.05	141.45	129.45	119.40	110.88	103.57	
	5.24%	167.58	150.19	136.17	124.65	115.01	106.83	99.81	
	5.44%	161.50	144.77	131.30	120.21	110.95	103.09	96.34	

		WACC							
		134.65	10.10%	10.20%	10.30%	10.41%	10.50%	10.60%	10.70%
CV Growth of NOPLAT	4.70%	138.18	135.63	133.18	130.58	128.53	126.33	124.20	
	4.80%	139.77	137.15	134.63	131.96	129.86	127.59	125.41	
	4.90%	141.41	138.72	136.13	133.39	131.23	128.91	126.67	
	5.00%	143.13	140.35	137.69	134.87	132.65	130.26	127.96	
	5.10%	144.91	142.05	139.30	136.40	134.12	131.67	129.31	
	5.20%	146.77	143.82	140.99	138.00	135.65	133.13	130.70	
	5.30%	148.70	145.65	142.73	139.66	137.23	134.64	132.15	

		G&A Expense as a % of sales (2022)							
		134.65	5.10%	5.25%	5.40%	5.56%	5.70%	5.85%	6.00%
Risk-free Rate	4.35%	150.55	150.55	150.55	150.55	150.55	150.55	150.55	150.55
	4.55%	144.83	144.83	144.83	144.83	144.83	144.83	144.83	144.83
	4.75%	139.54	139.54	139.54	139.54	139.54	139.54	139.54	139.54
	4.95%	134.65	134.65	134.65	134.65	134.65	134.65	134.65	134.65
	5.15%	130.10	130.10	130.10	130.10	130.10	130.10	130.10	130.10
	5.35%	125.86	125.86	125.86	125.86	125.86	125.86	125.86	125.86
	5.55%	121.91	121.91	121.91	121.91	121.91	121.91	121.91	121.91

		Pre-Tax Cost of Debt							
		134.65	5.30%	5.40%	5.50%	5.66%	5.80%	5.90%	6.00%
Marginal Tax Rate	22.73%	135.00	134.99	134.98	134.96	134.94	134.93	134.91	
	22.13%	135.91	135.90	135.89	135.87	135.85	135.84	135.83	
	22.53%	135.31	135.29	135.28	135.26	135.24	135.23	135.22	
	22.93%	134.70	134.68	134.67	134.65	134.64	134.62	134.61	
	23.33%	134.09	134.08	134.06	134.04	134.03	134.02	134.00	
	23.73%	133.48	133.47	133.45	133.44	133.42	133.41	133.40	
	24.13%	132.87	132.86	132.85	132.83	132.81	132.80	132.79	

**Alphabet Inc.**

*Revenue Decomposition*

<i>Fiscal Years Ending Dec. 31</i>	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Google Search & Other	\$ 104,062	\$ 148,951	\$ 162,450	\$ 175,446	\$ 191,236	\$ 209,404	\$ 230,344	\$ 253,378	\$ 278,716	\$ 306,588	\$ 337,247	\$ 370,971	\$ 408,068
<i>Growth Rate</i>	6.06%	43.14%	9.06%	8.00%	9.00%	9.50%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
YouTube Ads	19,772	28,845	29,243	30,120	31,476	33,364	36,033	39,276	42,811	46,664	50,864	55,442	60,432
<i>Growth Rate</i>	30.52%	45.89%	1.38%	3.00%	4.50%	6.00%	8.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Google Network	23,090	31,701	32,780	34,419	36,828	39,775	42,957	45,964	49,181	52,624	56,307	60,249	64,466
<i>Growth Rate</i>	7.16%	37.29%	3.40%	5.00%	7.00%	8.00%	8.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
<b>Total Google Advertising</b>	\$ 146,924	\$ 209,497	\$ 224,473	\$ 239,985	\$ 259,540	\$ 282,542	\$ 309,334	\$ 338,618	\$ 370,708	\$ 405,876	\$ 444,418	\$ 486,662	\$ 532,966
<i>Growth Rate</i>	8.99%	42.59%	7.15%	6.91%	8.15%	8.86%	9.48%	9.47%	9.48%	9.49%	9.50%	9.51%	9.51%
Google Other	21,711	28,032	29,055	30,798	32,954	35,426	38,260	41,321	44,626	48,196	52,052	56,216	60,714
<i>Growth Rate</i>	27.61%	29.11%	3.65%	6.00%	7.00%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
<b>Total Google Services</b>	\$ 168,635	\$ 237,529	\$ 253,528	\$ 270,784	\$ 292,494	\$ 317,968	\$ 347,594	\$ 379,939	\$ 415,335	\$ 454,072	\$ 496,470	\$ 542,878	\$ 593,680
<i>Growth Rate</i>	11.07%	40.85%	6.74%	6.81%	8.02%	8.71%	9.32%	9.31%	9.32%	9.33%	9.34%	9.35%	9.36%
Google Cloud	13,059	19,206	26,280	27,857	30,085	33,094	37,065	42,254	48,170	54,914	62,602	71,366	81,357
<i>Growth Rate</i>	46.43%	47.07%	36.83%	6.00%	8.00%	10.00%	12.00%	14.00%	14.00%	14.00%	14.00%	14.00%	14.00%
Other Bets	657	753	1,068	1,100	1,144	1,178	1,225	1,250	1,275	1,301	1,327	1,353	1,380
<i>Growth Rate</i>	-0.30%	14.61%	41.83%	3.00%	4.00%	3.00%	4.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Hedging Gains (losses)	176	149	1,960	-	-	-	-	-	-	-	-	-	-
<i>Growth Rate</i>	-61.32%	-15.34%	1215.44%	-	-	-	-	-	-	-	-	-	-
<b>Total Revenues</b>	\$ 182,527	\$ 257,637	\$ 282,836	\$ 299,740	\$ 323,724	\$ 352,240	\$ 385,884	\$ 423,443	\$ 464,779	\$ 510,286	\$ 560,398	\$ 615,597	\$ 676,417
<i>Growth Rate</i>	12.77%	41.15%	9.78%	5.98%	8.00%	8.81%	9.55%	9.73%	9.76%	9.79%	9.82%	9.85%	9.88%



## Alphabet Inc.

## Balance Sheet

(In million)

Fiscal Years Ending Dec. 31	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
<b>Assets</b>															
<b>Current Assets:</b>															
Cash and cash equivalents	\$16,701	\$18,498	\$26,465	\$20,945	\$21,879	\$48,912	\$69,523	\$97,239	\$133,827	\$180,227	\$237,998	\$308,601	\$393,498	\$494,603	\$613,997
Marketable securities	92,439	101,177	110,229	118,704	91,883	96,866	102,119	107,657	113,495	119,650	126,138	132,979	140,190	147,793	155,808
<b>Total cash, cash equivalents, &amp; marketable securities</b>	<b>109,140</b>	<b>119,675</b>	<b>136,694</b>	<b>139,649</b>	<b>113,762</b>	<b>145,778</b>	<b>171,642</b>	<b>204,896</b>	<b>247,322</b>	<b>299,877</b>	<b>364,137</b>	<b>441,580</b>	<b>533,689</b>	<b>642,396</b>	<b>769,805</b>
Accounts receivable, net	20,838	25,326	30,930	39,304	40,258	47,205	50,982	55,473	60,771	66,686	73,196	80,362	88,254	96,947	106,525
Inventory	1,107	999	728	1,170	2,670	1,932	2,087	2,271	2,488	2,730	2,996	3,290	3,613	3,968	4,361
Other current assets	4,591	6,578	5,944	8,020	8,105	8,545	9,008	9,496	10,011	10,554	11,127	11,730	12,366	13,037	13,744
<b>Total current assets</b>	<b>135,676</b>	<b>152,578</b>	<b>174,296</b>	<b>188,143</b>	<b>164,795</b>	<b>203,460</b>	<b>233,719</b>	<b>272,135</b>	<b>320,592</b>	<b>379,847</b>	<b>451,456</b>	<b>536,962</b>	<b>637,922</b>	<b>756,349</b>	<b>894,435</b>
Non-marketable securities	13,859	13,078	20,703	29,549	30,492	32,146	33,889	35,727	37,664	39,707	41,860	44,130	46,523	49,046	51,706
Deferred income taxes	737	721	1,084	1,284	5,261	2,274	2,532	2,820	3,164	3,530	3,959	4,467	5,029	5,659	6,366
Property and equipment, net	59,719	73,646	84,749	97,599	112,668	119,081	125,927	133,082	140,506	147,229	153,821	160,669	167,676	174,766	181,864
Operating lease assets	-	10,941	12,211	12,959	14,381	15,200	16,073	16,987	17,934	18,792	19,634	20,508	21,402	22,307	23,213
Intangible assets, net	2,220	1,979	1,445	1,417	2,084	1,621	1,177	863	628	476	240	240	240	240	240
Goodwill	17,888	20,624	21,175	22,956	28,960	28,994	28,994	28,994	28,994	28,994	28,994	28,994	28,994	28,994	28,994
Other non-current assets	2,693	2,342	3,953	5,361	6,623	6,982	7,361	7,760	8,181	8,624	9,092	9,585	10,105	10,653	11,231
<b>Total assets</b>	<b>\$232,792</b>	<b>\$275,909</b>	<b>\$319,616</b>	<b>\$359,268</b>	<b>\$365,264</b>	<b>\$409,757</b>	<b>\$449,671</b>	<b>\$498,367</b>	<b>\$557,663</b>	<b>\$627,199</b>	<b>\$709,055</b>	<b>\$805,555</b>	<b>\$917,891</b>	<b>\$1,048,014</b>	<b>\$1,198,048</b>
<b>Liabilities and Stockholders' Equity</b>															
<b>Current liabilities:</b>															
Accounts payable	\$4,378	\$5,561	\$5,589	\$6,037	\$5,128	\$ 8,305	\$ 8,970	\$ 9,760	\$ 10,692	\$ 11,733	\$ 12,878	\$ 14,139	\$ 15,527	\$ 17,057	\$ 18,742
Accrued compensation and benefits	6,839	8,495	11,086	13,889	14,028	15,989	17,268	18,789	20,584	22,588	24,793	27,220	29,893	32,838	36,082
Accrued expenses and other current liabilities	16,958	23,067	28,631	31,236	37,866	40,671	43,925	47,795	52,360	57,456	63,065	69,240	76,039	83,529	91,781
Accrued revenue share	4,592	5,916	7,500	8,996	8,370	10,534	11,377	12,379	13,561	14,881	16,334	17,933	19,694	21,634	23,771
Deferred revenue	1,784	1,908	2,543	3,288	3,908	3,917	4,230	4,603	5,043	5,533	6,074	6,668	7,323	8,044	8,839
Income taxes payable, net	69	274	1,485	808	-	-	-	-	-	-	-	-	-	-	-
<b>Total current liabilities</b>	<b>34,620</b>	<b>45,221</b>	<b>56,834</b>	<b>64,254</b>	<b>69,300</b>	<b>79,416</b>	<b>85,770</b>	<b>93,326</b>	<b>102,240</b>	<b>112,191</b>	<b>123,143</b>	<b>135,200</b>	<b>148,477</b>	<b>163,102</b>	<b>179,216</b>
Long-term debt	4,012	4,554	13,932	14,817	14,701	13,676	14,285	14,934	15,615	16,241	16,851	17,486	18,156	18,835	19,518
Deferred revenue, non-current	396	358	481	535	599	716	773	841	921	1011	1110	1218	1338	1470	1615
Income taxes payable, non-current	11,327	9,885	8,849	9,176	9,258	14,469	16,107	17,939	20,132	22,457	25,187	28,420	31,993	36,002	40,499
Deferred income taxes	1,264	1,701	3,561	5,257	514	5,007	5,573	6,207	6,966	7,771	8,715	9,834	11,070	12,458	14,014
Operating lease liabilities	-	10,214	11,146	11,389	12,501	13,659	14,444	15,264	16,116	16,887	17,643	18,429	19,232	20,046	20,860
Other long-term liabilities	3,545	2,534	2,269	2,205	2,247	3,592	3,998	4,453	4,997	5,574	6,252	7,054	7,941	8,936	10,053
<b>Total liabilities</b>	<b>55,164</b>	<b>74,467</b>	<b>97,072</b>	<b>107,633</b>	<b>109,120</b>	<b>130,533</b>	<b>140,949</b>	<b>152,964</b>	<b>166,986</b>	<b>182,132</b>	<b>198,900</b>	<b>217,639</b>	<b>238,207</b>	<b>260,849</b>	<b>285,774</b>
<b>Stockholders' equity:</b>															
Preferred stock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Class A, class B, & class C stock & additional paid-in capit	45,049	50,552	58,510	61,774	68,184	68,184	68,184	68,184	68,184	68,184	68,184	68,184	68,184	68,184	68,184
Accumulated other comprehensive income (loss)	(2,306)	(1,232)	633	(1,623)	(7,603)	(7,603)	(7,603)	(7,603)	(7,603)	(7,603)	(7,603)	(7,603)	(7,603)	(7,603)	(7,603)
Retained earnings	134,885	152,122	163,401	191,484	195,563	218,643	248,141	284,822	330,096	384,486	449,575	527,335	619,102	726,585	851,693
<b>Total stockholders' equity</b>	<b>177,628</b>	<b>201,442</b>	<b>222,544</b>	<b>251,635</b>	<b>256,144</b>	<b>279,224</b>	<b>308,722</b>	<b>345,403</b>	<b>390,677</b>	<b>445,067</b>	<b>510,156</b>	<b>587,916</b>	<b>679,683</b>	<b>787,166</b>	<b>912,274</b>
<b>Total liabilities and stockholders' equity</b>	<b>\$232,792</b>	<b>\$275,909</b>	<b>\$319,616</b>	<b>\$359,268</b>	<b>\$365,264</b>	<b>\$409,757</b>	<b>\$449,671</b>	<b>\$498,367</b>	<b>\$557,663</b>	<b>\$627,199</b>	<b>\$709,055</b>	<b>\$805,555</b>	<b>\$917,891</b>	<b>\$1,048,014</b>	<b>\$1,198,048</b>

**Alphabet Inc.***Historical Cash Flow Statement*

<b>Fiscal Years Ending Dec. 31</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>Operating activities</b>			
Net income	\$40,269	\$76,033	\$59,972
Adjustments:			
Depreciation and impairment of property and equipment	12,905	11,555	15,287
Amortization and impairment of intangible assets	792	886	641
Stock-based compensation expense	12,991	15,376	19,362
Deferred income taxes	1,390	1,808	(8,081)
(Gain) loss on debt and equity securities, net	(6,317)	(12,270)	5,519
Other	1,267	(213)	1,030
Changes in assets and liabilities, net of effects of acquisitions:			
Accounts receivable, net	(6,524)	(9,095)	(2,317)
Income taxes, net	1,209	(625)	584
Other assets	(1,330)	(1,846)	(5,046)
Accounts payable	694	283	707
Accrued expenses and other liabilities	5,504	7,304	3,915
Accrued revenue share	1,639	1,682	(445)
Deferred revenue	635	774	367
<b>Net cash provided by operating activities</b>	<b>65,124</b>	<b>91,652</b>	<b>91,495</b>
<b>Investing activities</b>			
Purchases of property and equipment	(22,281)	(24,640)	(31,485)
Proceeds from disposals of property & equipment	-	-	-
Purchases of marketable securities	(136,576)	(135,196)	(78,874)
Maturities and sales of marketable securities	132,906	128,294	97,822
Purchases of non-marketable securities	(7,175)	(2,838)	(2,531)
Maturities and sales of non-marketable securities	1,023	934	150
Acquisitions, net of cash acquired, and purchases of intangible assets	-	-	(6,969)
Acquisitions, net of cash acquired, & purchases of intangibles & other : Other investing activities	(738)	(2,618)	-
	68	541	1,589
<b>Net cash flows from investing activities</b>	<b>(32,773)</b>	<b>(35,523)</b>	<b>(20,298)</b>
<b>Financing activities</b>			
Net payments related to stock-based award activities	(5,720)	(10,162)	(9,300)
Repurchases of stock	(31,149)	(50,274)	(59,296)
Proceeds from issuance of debt, net of costs	11,761	20,199	52,872
Repayments of debt	(2,100)	(21,435)	(54,068)
Proceeds from sale of interest in consolidated entities, net	2,800	310	35
<b>Net cash used in financing activities</b>	<b>(24,408)</b>	<b>(61,362)</b>	<b>(69,757)</b>
Effect of exchange rate changes on cash and cash equivalents	24	(287)	(506)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>7,967</b>	<b>(5,520)</b>	<b>934</b>
Cash and cash equivalents at beginning of period	18,498	26,465	20,945
<b>Cash and cash equivalents at end of period</b>	<b>\$26,465</b>	<b>\$20,945</b>	<b>\$21,879</b>



**Alphabet Inc.**

*Forecasted Cash Flow Statement*

<b>Fiscal Years Ending Dec. 31</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>	<b>2027E</b>	<b>2028E</b>	<b>2029E</b>	<b>2030E</b>	<b>2031E</b>	<b>2032E</b>
<b>Cash Flows from Operating Activities</b>										
<b>Net Income</b>	\$ 56,714	\$ 63,132	\$ 70,315	\$ 78,908	\$ 88,024	\$ 98,722	\$ 111,394	\$ 125,402	\$ 141,116	\$ 158,742
Depreciation and impairment of property and equipment	18,987	19,494	20,159	20,901	22,649	23,868	24,739	25,748	26,877	28,127
Amortization and impairment of intangible assets	463	444	314	235	152	236	-	-	-	-
Change in receivables	(6,947)	(3,777)	(4,491)	(5,298)	(5,915)	(6,510)	(7,167)	(7,892)	(8,693)	(9,578)
Change in inventories	738	(155)	(184)	(217)	(242)	(266)	(293)	(323)	(356)	(392)
Change in accounts payable	3,177	665	790	932	1,041	1,145	1,261	1,388	1,529	1,685
Change in accrued compensation and other liabilities	1,961	1,279	1,521	1,795	2,003	2,205	2,427	2,673	2,944	3,244
Change in income taxes payable	-	-	-	-	-	-	-	-	-	-
Change in other current assets	(440)	(463)	(488)	(515)	(543)	(572)	(603)	(636)	(671)	(707)
Change in deferred income taxes	2,987	(257)	(288)	(345)	(366)	(429)	(508)	(562)	(630)	(707)
Change in deferred revenue	9	313	373	440	491	540	595	655	721	795
Change in other non-current liabilities	1,345	406	455	544	577	677	802	887	995	1,116
Change in operating lease assets	(819)	(874)	(913)	(948)	(858)	(841)	(874)	(894)	(905)	(906)
Change in operating lease liabilities	1,158	785	821	851	771	756	785	804	813	814
Change in income taxes, non current	5,211	1,637	1,833	2,192	2,326	2,729	3,233	3,574	4,009	4,497
Change in deferred revenue, non-current	117	57	68	80	90	99	109	120	132	145
Change in accrued expenses	2,805	3,254	3,869	4,565	5,096	5,609	6,175	6,800	7,490	8,253
Change in accrued revenues	2,164	843	1,002	1,182	1,320	1,453	1,599	1,761	1,940	2,137
<b>Net cash provided by operating activities</b>	<b>89,629</b>	<b>86,784</b>	<b>95,156</b>	<b>105,304</b>	<b>116,617</b>	<b>129,420</b>	<b>143,674</b>	<b>159,504</b>	<b>177,313</b>	<b>197,266</b>
<b>Cash Flows from Investing Activities</b>										
Capital Expenditures	(25,400)	(26,340)	(27,314)	(28,325)	(29,373)	(30,460)	(31,587)	(32,756)	(33,968)	(35,224)
Change in other assets	(359)	(379)	(399)	(421)	(444)	(468)	(493)	(520)	(548)	(578)
Change in non-marketable securities	(1,654)	(1,743)	(1,838)	(1,937)	(2,043)	(2,153)	(2,270)	(2,393)	(2,523)	(2,660)
Change in deferred income taxes	4,493	567	634	759	805	944	1,119	1,237	1,387	1,556
Change in marketable securities	(4,983)	(5,253)	(5,538)	(5,838)	(6,155)	(6,489)	(6,840)	(7,211)	(7,603)	(8,015)
Change in goodwill	(34)	-	-	-	-	-	-	-	-	-
<b>Net cash used for investing activities</b>	<b>(27,937)</b>	<b>(33,148)</b>	<b>(34,455)</b>	<b>(35,763)</b>	<b>(37,209)</b>	<b>(38,625)</b>	<b>(40,072)</b>	<b>(41,643)</b>	<b>(43,254)</b>	<b>(44,921)</b>
<b>Cash Flows from Financing Activities</b>										
Change in long-term debt	(1,025)	609	649	681	626	610	635	670	680	683
Share Repurchases	(33,634)	(33,634)	(33,634)	(33,634)	(33,634)	(33,634)	(33,634)	(33,634)	(33,634)	(33,634)
<b>Net Cash provided by Financing Activities</b>	<b>(34,659)</b>	<b>(33,025)</b>	<b>(32,985)</b>	<b>(32,953)</b>	<b>(33,008)</b>	<b>(33,024)</b>	<b>(32,999)</b>	<b>(32,964)</b>	<b>(32,954)</b>	<b>(32,951)</b>
<b>Net Increase (Decrease) in Cash Flows</b>	<b>27,033</b>	<b>20,611</b>	<b>27,715</b>	<b>36,588</b>	<b>46,400</b>	<b>57,771</b>	<b>70,603</b>	<b>84,897</b>	<b>101,105</b>	<b>119,394</b>
Cash, beginning of year	21,879	48,912	69,523	97,239	133,827	180,227	237,998	308,601	393,498	494,603
Cash, end of year	48,912	69,523	97,239	133,827	180,227	237,998	308,601	393,498	494,603	613,997

**Alphabet Inc.**

*Common Size Income Statement*

<b>Fiscal Years Ending Dec. 31</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>	<b>2027E</b>	<b>2028E</b>	<b>2029E</b>	<b>2030E</b>	<b>2031E</b>	<b>2032E</b>
<b>Costs and Expenses:</b>													
Cost of Revenues	38.92%	38.23%	38.99%	38.71%	38.71%	38.71%	38.71%	38.71%	38.71%	38.71%	38.71%	38.71%	38.71%
Depreciation and impairment of property and equipm	7.07%	4.48%	5.40%	6.33%	6.02%	5.72%	5.42%	5.35%	5.14%	4.85%	4.59%	4.37%	4.16%
Amortization and impairment of intangible assets	0.43%	0.34%	0.23%	0.15%	0.14%	0.09%	0.06%	0.04%	0.05%	0.00%	0.00%	0.00%	0.00%
Research and Development	15.11%	12.25%	13.97%	14.61%	14.61%	14.61%	14.61%	14.61%	14.61%	14.61%	14.61%	14.61%	14.61%
Sales and Marketing	9.83%	8.89%	9.39%	10.29%	10.29%	10.29%	10.29%	10.29%	10.29%	10.29%	10.29%	10.29%	10.29%
General and Administrative	6.05%	5.24%	5.56%	5.74%	5.74%	5.74%	5.74%	5.74%	5.74%	5.74%	5.74%	5.74%	5.74%
European Commission Fees	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Total Costs and Expenses</b>	<b>77.41%</b>	<b>69.45%</b>	<b>73.54%</b>	<b>75.84%</b>	<b>75.51%</b>	<b>75.17%</b>	<b>74.83%</b>	<b>74.74%</b>	<b>74.54%</b>	<b>74.20%</b>	<b>73.95%</b>	<b>73.72%</b>	<b>73.51%</b>
Income from Operations:	22.59%	30.55%	26.46%	24.16%	24.49%	24.83%	25.17%	25.26%	25.46%	25.80%	26.05%	26.28%	26.49%
Other Income (Expense), Net	3.76%	4.67%	-1.24%	0.40%	0.82%	1.07%	1.37%	1.71%	2.10%	2.53%	2.99%	3.47%	3.97%
<b>Income Before Income Taxes</b>	<b>26.34%</b>	<b>35.22%</b>	<b>25.22%</b>	<b>24.55%</b>	<b>25.31%</b>	<b>25.90%</b>	<b>26.53%</b>	<b>26.97%</b>	<b>27.56%</b>	<b>28.33%</b>	<b>29.04%</b>	<b>29.75%</b>	<b>30.45%</b>
Provision for Income Taxes	4.28%	5.71%	4.02%	5.63%	5.80%	5.94%	6.09%	6.19%	6.32%	6.50%	6.66%	6.82%	6.98%
<b>Net Income</b>	<b>22.06%</b>	<b>29.51%</b>	<b>21.20%</b>	<b>18.92%</b>	<b>19.50%</b>	<b>19.96%</b>	<b>20.45%</b>	<b>20.79%</b>	<b>21.24%</b>	<b>21.83%</b>	<b>22.38%</b>	<b>22.92%</b>	<b>23.47%</b>

Alphabet Inc.  
Common Size Balance Sheet

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
<b>Assets</b>													
<b>Current Assets:</b>													
Cash and cash equivalents	14.50%	8.13%	7.74%	16.32%	21.48%	27.61%	34.68%	42.56%	51.21%	60.48%	70.22%	80.35%	90.77%
Marketable securities	60.39%	46.07%	32.49%	32.32%	31.55%	30.56%	29.41%	28.26%	27.14%	26.06%	25.02%	24.01%	23.03%
<b>Total cash, cash equivalents, &amp; marketable securities</b>	<b>74.89%</b>	<b>54.20%</b>	<b>40.22%</b>	<b>48.63%</b>	<b>53.02%</b>	<b>58.17%</b>	<b>64.09%</b>	<b>70.82%</b>	<b>78.35%</b>	<b>86.54%</b>	<b>95.23%</b>	<b>104.35%</b>	<b>113.81%</b>
Accounts receivable, net	17.38%	15.26%	14.23%	15.75%	15.75%	15.75%	15.75%	15.75%	15.75%	15.75%	15.75%	15.75%	15.75%
Inventory	0.40%	0.45%	0.94%	0.64%	0.64%	0.64%	0.64%	0.64%	0.64%	0.64%	0.64%	0.64%	0.64%
Other current assets	3.26%	3.11%	2.87%	2.85%	2.78%	2.70%	2.59%	2.49%	2.39%	2.30%	2.21%	2.12%	2.03%
<b>Total current assets</b>	<b>95.92%</b>	<b>73.03%</b>	<b>58.27%</b>	<b>67.88%</b>	<b>72.20%</b>	<b>77.26%</b>	<b>83.08%</b>	<b>89.70%</b>	<b>97.13%</b>	<b>105.23%</b>	<b>113.83%</b>	<b>122.86%</b>	<b>132.23%</b>
Non-marketable securities	11.34%	11.47%	10.78%	10.72%	10.47%	10.14%	9.76%	9.38%	9.01%	8.65%	8.30%	7.97%	7.64%
Deferred income taxes	0.59%	0.50%	1.86%	0.76%	0.78%	0.80%	0.82%	0.83%	0.85%	0.88%	0.90%	0.92%	0.94%
Property and equipment, net	46.43%	37.88%	39.84%	39.73%	38.90%	37.78%	36.41%	34.77%	33.10%	31.49%	29.92%	28.39%	26.89%
Operating lease assets	6.69%	5.03%	5.08%	5.07%	4.97%	4.82%	4.65%	4.44%	4.22%	4.02%	3.82%	3.62%	3.43%
Intangible assets, net	0.79%	0.55%	0.74%	0.54%	0.36%	0.25%	0.16%	0.11%	0.05%	0.00%	0.00%	0.00%	0.00%
Goodwill	11.60%	8.91%	10.24%	9.67%	8.96%	8.23%	7.51%	6.85%	6.24%	5.68%	5.17%	4.71%	4.29%
Other non-current assets	2.17%	2.08%	2.34%	2.33%	2.27%	2.20%	2.12%	2.04%	1.96%	1.88%	1.80%	1.73%	1.66%
<b>Total assets</b>	<b>175.54%</b>	<b>139.45%</b>	<b>129.14%</b>	<b>136.70%</b>	<b>138.91%</b>	<b>141.48%</b>	<b>144.52%</b>	<b>148.12%</b>	<b>152.56%</b>	<b>157.86%</b>	<b>163.79%</b>	<b>170.24%</b>	<b>177.12%</b>
<b>Liabilities and Stockholders' Equity</b>													
<b>Current liabilities:</b>													
Accounts payable	3.06%	2.34%	1.81%	2.77%	2.77%	2.77%	2.77%	2.77%	2.77%	2.77%	2.77%	2.77%	2.77%
Accrued compensation and benefits	6.07%	5.39%	4.96%	5.33%	5.33%	5.33%	5.33%	5.33%	5.33%	5.33%	5.33%	5.33%	5.33%
Accrued expenses and other current liabilities	15.69%	12.12%	13.39%	13.57%	13.57%	13.57%	13.57%	13.57%	13.57%	13.57%	13.57%	13.57%	13.57%
Accrued revenue share	4.11%	3.49%	2.96%	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%
Deferred revenue	1.39%	1.28%	1.38%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%	1.31%
Income taxes payable, net	0.81%	0.31%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Total current liabilities</b>	<b>31.14%</b>	<b>24.94%</b>	<b>24.50%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>	<b>26.49%</b>
Long-term debt	7.63%	5.75%	5.20%	4.56%	4.41%	4.24%	4.05%	3.84%	3.63%	3.43%	3.24%	3.06%	2.89%
Deferred revenue, non-current	0.26%	0.21%	0.21%	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%
Income taxes payable, non-current	4.85%	3.56%	3.27%	4.83%	4.98%	5.09%	5.22%	5.30%	5.42%	5.57%	5.71%	5.85%	5.99%
Deferred income taxes	1.95%	2.04%	0.18%	1.67%	1.72%	1.76%	1.81%	1.84%	1.88%	1.93%	1.98%	2.02%	2.07%
Operating lease liabilities	6.11%	4.42%	4.42%	4.56%	4.46%	4.33%	4.18%	3.99%	3.80%	3.61%	3.43%	3.26%	3.08%
Other long-term liabilities	1.24%	0.86%	0.79%	1.20%	1.23%	1.26%	1.29%	1.32%	1.35%	1.38%	1.42%	1.45%	1.49%
<b>Total liabilities</b>	<b>53.18%</b>	<b>41.78%</b>	<b>38.58%</b>	<b>43.55%</b>	<b>43.54%</b>	<b>43.43%</b>	<b>43.27%</b>	<b>43.01%</b>	<b>42.79%</b>	<b>42.65%</b>	<b>42.51%</b>	<b>42.37%</b>	<b>42.25%</b>
<b>Stockholders' equity:</b>													
Preferred stock	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Class A, class B, & class C stock & additional paid-in capit	32.06%	23.98%	24.11%	22.75%	21.06%	19.36%	17.67%	16.10%	14.67%	13.36%	12.17%	11.08%	10.08%
Accumulated other comprehensive income (loss)	0.35%	-0.63%	-2.69%	-2.54%	-2.35%	-2.16%	-1.97%	-1.80%	-1.64%	-1.49%	-1.36%	-1.24%	-1.12%
Retained earnings	89.52%	74.32%	69.14%	72.94%	76.65%	80.86%	85.54%	90.80%	96.73%	103.34%	110.48%	118.03%	125.91%
<b>Total stockholders' equity</b>	<b>121.92%</b>	<b>97.67%</b>	<b>90.56%</b>	<b>93.16%</b>	<b>95.37%</b>	<b>98.06%</b>	<b>101.24%</b>	<b>105.11%</b>	<b>109.76%</b>	<b>115.21%</b>	<b>121.29%</b>	<b>127.87%</b>	<b>134.87%</b>
<b>Total liabilities and stockholders' equity</b>	<b>175.11%</b>	<b>139.45%</b>	<b>129.14%</b>	<b>136.70%</b>	<b>138.91%</b>	<b>141.48%</b>	<b>144.52%</b>	<b>148.12%</b>	<b>152.56%</b>	<b>157.86%</b>	<b>163.79%</b>	<b>170.24%</b>	<b>177.12%</b>

Alphabet Inc.  
Value Driver Estimation

Fiscal Years Ending Dec. 31	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
<b>NOPLAT:</b>															
Revenues	\$136,819	\$161,857	\$182,527	\$257,637	\$282,836	\$299,740	\$323,724	\$352,240	\$385,884	\$423,443	\$464,779	\$510,286	\$560,398	\$615,597	\$676,417
Operating Expenses:															
(-) Cost of Revenues	29,966	35,022	71,035	98,498	110,275	116,037	125,322	136,361	149,386	163,926	179,928	197,545	216,945	238,314	261,859
(-) Depreciation and impairment of property and equipment	8,164	10,856	12,905	11,555	15,287	18,987	19,494	20,159	20,901	22,649	23,868	24,739	25,748	26,877	28,127
(-) Amortization and impairment of intangible assets	871	925	792	886	641	463	444	314	235	152	236	-	-	-	-
(-) Research and Development	21,419	26,018	27,573	31,562	39,500	43,793	47,297	51,464	56,379	61,867	67,906	74,555	81,877	89,941	98,827
(-) Sales and Marketing	16,333	18,464	17,946	22,912	26,567	30,851	33,320	36,255	39,718	43,584	47,838	52,522	57,680	63,361	69,621
(-) General and Administrative	8,126	9,551	11,052	13,510	15,724	17,204	18,581	20,217	22,148	24,304	26,677	29,289	32,165	35,333	38,824
(+) Implied Interest on Operating Leases	495	569	619	691	733	814	860	910	961	1,015	1,064	1,111	1,161	1,211	1,263
<b>EBITA</b>	<b>52,435</b>	<b>61,590</b>	<b>41,843</b>	<b>79,405</b>	<b>75,575</b>	<b>73,218</b>	<b>80,126</b>	<b>88,379</b>	<b>98,078</b>	<b>107,976</b>	<b>119,390</b>	<b>132,747</b>	<b>147,144</b>	<b>162,981</b>	<b>180,421</b>
<b>Adjusted Taxes</b>															
Provision for Tax Expense	4,177	5,282	7,813	14,701	11,356	16,877	18,787	20,924	23,481	26,194	29,378	33,148	37,317	41,993	47,238
(+) Tax on implied interest on operating leases	78	94	135	153	182	187	197	209	220	233	244	255	266	278	290
(+) Tax on European Commission Fines	796	280	-	-	-	-	-	-	-	-	-	-	-	-	-
(-) Tax on Other Income	1160	890	1495	2668	-871	272	608	865	1,209	1,664	2,241	2,960	3,838	4,894	6,151
<b>Total Adjusted Taxes</b>	<b>3,891</b>	<b>4,766</b>	<b>6,453</b>	<b>12,186</b>	<b>12,409</b>	<b>16,791</b>	<b>18,376</b>	<b>20,268</b>	<b>22,492</b>	<b>24,762</b>	<b>27,380</b>	<b>30,443</b>	<b>33,745</b>	<b>37,377</b>	<b>41,377</b>
<b>Change in Deferred Taxes</b>	<b>778</b>	<b>173</b>	<b>1,390</b>	<b>1,808</b>	<b>(8,081)</b>	<b>7,479</b>	<b>309</b>	<b>346</b>	<b>414</b>	<b>439</b>	<b>515</b>	<b>611</b>	<b>675</b>	<b>757</b>	<b>849</b>
<b>EBITA</b>	<b>\$52,435</b>	<b>\$61,590</b>	<b>\$41,843</b>	<b>\$79,405</b>	<b>\$75,575</b>	<b>\$73,218</b>	<b>\$80,126</b>	<b>\$88,379</b>	<b>\$98,078</b>	<b>\$107,976</b>	<b>\$119,390</b>	<b>\$132,747</b>	<b>\$147,144</b>	<b>\$162,981</b>	<b>\$180,421</b>
Less Adjusted Taxes	3,891	4,766	6,453	12,186	12,409	16,791	18,376	20,268	22,492	24,762	27,380	30,443	33,745	37,377	41,377
<b>Change in Deferred Taxes</b>	<b>778</b>	<b>173</b>	<b>1,390</b>	<b>1,808</b>	<b>-8,081</b>	<b>7,479</b>	<b>309</b>	<b>346</b>	<b>414</b>	<b>439</b>	<b>515</b>	<b>611</b>	<b>675</b>	<b>757</b>	<b>849</b>
<b>NOPLAT</b>	<b>49,323</b>	<b>56,997</b>	<b>36,780</b>	<b>69,027</b>	<b>55,085</b>	<b>63,906</b>	<b>62,060</b>	<b>68,457</b>	<b>75,999</b>	<b>83,653</b>	<b>92,525</b>	<b>102,914</b>	<b>114,074</b>	<b>126,361</b>	<b>139,894</b>
<b>Invested Capital (IC):</b>															
<b>Operating Current Assets:</b>															
Normal Cash (7.74%)	10,584	12,521	14,120	19,930	21,879	23,187	25,042	27,248	29,850	32,756	35,953	39,474	43,350	47,620	52,325
Accounts Receivable	20,838	25,326	30,930	39,304	40,258	47,205	50,982	55,473	60,771	66,686	73,196	80,362	88,254	96,947	106,525
Inventory	1,107	999	728	1,170	2,670	1,932	2,087	2,271	2,488	2,730	2,996	3,290	3,613	3,968	4,361
Other Current assets	4,591	6,578	5,944	8,020	8,105	8,545	9,008	9,496	10,011	10,554	11,127	11,730	12,366	13,037	13,744
<b>Total Operating Current Assets</b>	<b>37,120</b>	<b>45,424</b>	<b>51,722</b>	<b>68,424</b>	<b>72,912</b>	<b>80,868</b>	<b>87,118</b>	<b>94,488</b>	<b>103,120</b>	<b>112,726</b>	<b>123,272</b>	<b>134,856</b>	<b>147,583</b>	<b>161,573</b>	<b>176,955</b>
<b>Operating Current Liabilities:</b>															
Accounts payable	4,378	5,561	5,589	6,037	5,128	8,305	8,970	9,760	10,692	11,733	12,878	14,139	15,527	17,057	18,742
Accrued compensation and benefits	6,839	8,495	11,086	13,889	14,028	15,989	17,268	18,789	20,584	22,588	24,793	27,220	29,893	32,838	36,082
Accrued expenses and other current liabilities	16,958	23,067	28,631	31,236	37,866	40,671	43,925	47,795	52,360	57,456	63,065	69,240	76,039	83,529	91,781
Accrued revenue share	4,592	5,916	7,500	8,996	8,370	10,534	11,377	12,379	13,561	14,881	16,334	17,933	19,694	21,634	23,771
Deferred revenue	1,784	1,908	2,543	3,288	3,908	3,917	4,230	4,603	5,043	5,533	6,074	6,668	7,323	8,044	8,839
Income taxes payable, net	69	274	1,485	808	-	-	-	-	-	-	-	-	-	-	-
<b>Total Operating Current Liabilities</b>	<b>34,620</b>	<b>45,221</b>	<b>56,834</b>	<b>64,254</b>	<b>69,300</b>	<b>79,416</b>	<b>85,770</b>	<b>93,326</b>	<b>102,240</b>	<b>112,191</b>	<b>123,143</b>	<b>135,200</b>	<b>148,477</b>	<b>163,102</b>	<b>179,216</b>
<b>Total Net Operating Working Capital</b>	<b>2,500</b>	<b>203</b>	<b>-5,112</b>	<b>4,170</b>	<b>3,612</b>	<b>1,452</b>	<b>1,348</b>	<b>1,162</b>	<b>881</b>	<b>535</b>	<b>129</b>	<b>-344</b>	<b>-894</b>	<b>-1,529</b>	<b>-2,261</b>
(+) Net Property Plant & Equipment	59,719	73,646	84,749	97,599	112,668	119,081	125,927	133,082	140,506	147,229	153,821	160,669	167,676	174,766	181,864
(+) Net Other Operating Assets	-	10,941	12,211	12,959	14,381	15,200	16,073	16,987	17,934	18,792	19,634	20,508	21,402	22,307	23,213
Operating lease assets	-	10,941	12,211	12,959	14,381	15,200	16,073	16,987	17,934	18,792	19,634	20,508	21,402	22,307	23,213
Intangible assets, net	2,220	1,979	1,445	1,417	2,084	1,621	1,177	863	628	476	240	240	240	240	240
Other non-current assets	2,693	2,342	3,953	5,361	6,623	6,982	7,361	7,760	8,181	8,624	9,092	9,585	10,105	10,653	11,231
(-) Other Operating Liabilities															
Deferred revenue, non-current	396	358	481	535	599	716	773	841	921	1,011	1,110	1,218	1,338	1,470	1,615
Income taxes payable, non-current	11,327	9,885	8,849	9,176	9,258	14,469	16,107	17,939	20,132	22,457	25,187	28,420	31,993	36,002	40,499
<b>Invested Capital (IC)</b>	<b>55,409</b>	<b>78,868</b>	<b>87,916</b>	<b>111,795</b>	<b>129,511</b>	<b>129,151</b>	<b>135,007</b>	<b>141,074</b>	<b>147,077</b>	<b>152,189</b>	<b>156,620</b>	<b>161,020</b>	<b>165,199</b>	<b>168,966</b>	<b>172,173</b>
<b>Free Cash Flow (FCF):</b>															
NOPLAT	49,323	56,997	36,780	69,027	55,085	63,906	62,060	68,457	75,999	83,653	92,525	102,914	114,074	126,361	139,894
Change in IC	20,682	23,459	9,048	23,879	17,716	(360)	5,856	6,067	6,003	5,112	4,431	4,400	4,178	3,767	3,207
<b>FCF</b>	<b>28,641</b>	<b>33,538</b>	<b>27,732</b>	<b>45,148</b>	<b>37,369</b>	<b>64,266</b>	<b>56,204</b>	<b>62,390</b>	<b>69,996</b>	<b>78,540</b>	<b>88,094</b>	<b>98,515</b>	<b>109,895</b>	<b>122,594</b>	<b>136,687</b>
<b>Return on Invested Capital (ROIC):</b>															
NOPLAT	49,323	56,997	36,780	69,027	55,085	63,906	62,060	68,457	75,999	83,653	92,525	102,914	114,074	126,361	139,894
Beginning IC	41,090	55,409	78,868	87,916	111,795	129,511	129,151	135,007	141,074	147,077	152,189	156,620	161,020	165,199	168,966
<b>ROIC</b>	<b>120.03%</b>	<b>102.87%</b>	<b>46.64%</b>	<b>78.52%</b>	<b>49.27%</b>	<b>49.34%</b>	<b>48.05%</b>	<b>50.71%</b>	<b>53.87%</b>	<b>56.88%</b>	<b>60.80%</b>	<b>65.71%</b>	<b>70.84%</b>	<b>76.49%</b>	<b>82.79%</b>
<b>Economic Profit (EP):</b>															
Beginning IC	41,090	55,409	78,868	87,916	111,795	129,511	129,151	135,007	141,074	147,077	152,189	156,620	161,020	165,199	168,966
x (ROIC - WACC)	109.62%	92.45%	36.22%	68.10%	38.85%	38.93%	37.63%	40.29%	43.45%	46.46%	50.38%	55.29%	60.43%	66.07%	72.38%
<b>EP</b>	<b>45,041</b>	<b>51,224</b>	<b>28,563</b>	<b>59,867</b>	<b>43,437</b>	<b>50,413</b>	<b>48,604</b>	<b>54,391</b>	<b>61,301</b>	<b>68,329</b>	<b>76,669</b>	<b>86,596</b>	<b>97,297</b>	<b>109,150</b>	<b>122,289</b>

**Alphabet Inc.***Weighted Average Cost of Capital (WACC) Estimation***Cost of Equity:**

Risk-Free Rate	4.95%
Beta	1.15
Equity Risk Premium	4.84%
<b>Cost of Equity</b>	<b>10.52%</b>

**ASSUMPTIONS:**

10-year Treasury Bond  
 5-year raw beta (Factset)  
 Damodaran Estimate (Trailing 12 month cash yield)

**Cost of Debt:**

Risk-Free Rate	4.95%
Implied Default Premium	0.71%
Pre-Tax Cost of Debt	5.66%
Marginal Tax Rate	22.93%
<b>After-Tax Cost of Debt</b>	<b>4.36%</b>

10-year Treasury Bond

YTM on Alphabet's 20-year Corporate Bond

**Market Value of Common Equity:**

Total Shares Outstanding	12,849
Current Stock Price	\$131.91
<b>MV of Equity</b>	<b>1,694,911.59</b>

**MV Weights**

98.42%
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**Market Value of Debt:**

Short-Term Debt	0
Current Portion of LTD	
Long-Term Debt	14,701
PV of Operating Leases	12,501
<b>MV of Total Debt</b>	<b>27,202.00</b>

1.58%
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**Market Value of the Firm**

**1,722,113.59**

100.00%

**Estimated WACC**

<b>10.42%</b>
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**Alphabet Inc.***Discounted Cash Flow (DCF) and Economic Profit (EP) Valuation Models*

## Key Inputs:

CV Growth of NOPLAT	5.00%
CV Year ROIC	82.79%
WACC	10.42%
Cost of Equity	10.52%

<b>Fiscal Years Ending Dec. 31</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>	<b>2027E</b>	<b>2028E</b>	<b>2029E</b>	<b>2030E</b>	<b>2031E</b>	<b>2032E</b>
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**DCF Model:**

Free Cash Flow (FCF)	64,266	56,204	62,390	69,996	78,540	88,094	98,515	109,895	122,594	136,687
Continuing Value (CV)										2,425,731
PV of FCF	58,202	46,098	46,343	47,087	47,850	48,606	49,227	49,732	50,244	994,159

Value of Operating Assets:	1,437,547
Non-Operating Adjustments	
(+) LT Non marketbale securities	30,492
(+) Marketable securities	91,883
(-) Operating lease assets	14,381
(-) Debt	14,701
Value of Equity	1,530,840
Shares Outstanding	12,390
Intrinsic Value of Last FYE	\$ 123.55
<b>Implied Price as of Today</b>	<b>\$ 134.65</b>

**EP Model:**

Economic Profit (EP)	50,413	48,604	54,391	61,301	68,329	76,669	86,596	97,297	109,150	122,289
Continuing Value (CV)										2,256,766
PV of EP	45,656	39,864	40,402	41,238	41,628	42,302	43,271	44,031	44,734	924,910

Total PV of EP	1,308,036
Invested Capital (last FYE)	129,511
Value of Operating Assets:	1,437,547
Non-Operating Adjustments	
(+) LT Non marketable securities	30,492
(+) Marketable securities	91,883
(-) Operating lease assets	14,381
(-) Debt	14,701
Value of Equity	1,530,840
Shares Outstanding	12,390
Intrinsic Value of Last FYE	\$ 123.55
<b>Implied Price as of Today</b>	<b>\$ 134.65</b>

## Alphabet Inc.

Dividend Discount Model (DDM) or Fundamental P/E Valuation Model

<b>Fiscal Years Ending Dec. 31</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>	<b>2027E</b>	<b>2028E</b>	<b>2029E</b>	<b>2030E</b>	<b>2031E</b>	<b>2032E</b>
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EPS	\$ 4.49	\$ 5.18	\$ 5.97	\$ 6.92	\$ 7.97	\$ 9.20	\$ 10.68	\$ 12.34	\$ 14.24	\$ 16.40
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### Key Assumptions

CV growth of EPS	6.25%
CV Year ROE	20.76%
Cost of Equity	10.52%

### Future Cash Flows

P/E Multiple (CV Year)	16.38
EPS (CV Year)	\$ 16.40
Future Stock Price	\$ 268.73
Dividends Per Share	
Discounted Cash Flows	\$ 109.27

Intrinsic Value as of Last FYE \$ 109.27

**Implied Price as of Today** **\$ 119.08**

**Alphabet Inc.***Relative Valuation Models*

Ticker	Company	Price	EPS		P/E 23	P/E 24
			2023E	2024E		
META	Meta Platforms	\$296.73	\$12.90	\$13.93	23.00	21.30
AAPL	Apple	\$168.22	\$5.93	\$6.26	28.37	26.87
MSFT	Microsoft Corporation	\$329.81	\$9.72	\$11.07	33.93	29.79
BIDU	Baidu Inc	\$107.06	\$7.89	\$10.77	13.57	9.94
MTCH	Match Group	\$33.98	\$1.25	\$2.38	27.18	14.28
ADBE	Adobe Inc	\$508.12	\$12.81	\$14.27	39.67	35.61
NFLX	Netflix Inc	\$434.63	\$9.95	\$11.40	43.68	38.13
PINS	Pinterest Inc.	\$31.55	\$0.62	\$0.96	50.89	32.86
SNAP	Snap Inc	\$9.30	(\$0.81)	(\$0.65)	<del>(11.48)</del>	<del>(14.31)</del>
			Average		<b>32.54</b>	<b>26.10</b>

GOOG	Alphabet Inc.	\$131.91	4.49	5.18	29.4	25.4
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**Implied Relative Value:**

**P/E (EPS23)                      \$ 146.22**

**P/E (EPS24)                      \$ 135.28**



**Alphabet Inc.**

*Key Management Ratios*

<i>Fiscal Years Ending Dec. 31</i>	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
<b>Liquidity Ratios:</b>													
Current Ratio(Current Assets/Current Liabilities)	3.07	2.93	2.38	2.56	2.72	2.92	3.14	3.39	3.67	3.97	4.30	4.64	4.99
Quick Ratio(Cash and equivalent+Marketable securities+)	2.95	2.79	2.22	2.43	2.60	2.79	3.01	3.27	3.55	3.86	4.19	4.53	4.89
Cash Ratio(Cash and equivalent/Current liabilities)	0.47	0.33	0.32	0.62	0.81	1.04	1.31	1.61	1.93	2.28	2.65	3.03	3.43
<b>Asset-Management Ratios:</b>													
Inventory Turnover Ratio(COGS/Average Inventory)	82.26	103.79	57.43	50.43	62.36	62.58	62.79	62.84	62.85	62.85	62.86	62.87	62.88
Total Asset Turnover Ratio(Sales/Average Total Asset)	0.61	0.76	0.78	0.77	0.75	0.74	0.73	0.71	0.70	0.67	0.65	0.63	0.60
Fixed Asset Turnover(Sales/Net Fixed Asset)	2.15	2.64	2.51	2.52	2.57	2.65	2.75	2.88	3.02	3.18	3.34	3.52	3.72
<b>Financial Leverage Ratios:</b>													
Debt-to-Equity Ratio(Total Liabilities/Total Shareholders)	0.44	0.43	0.43	0.47	0.46	0.44	0.43	0.41	0.39	0.37	0.35	0.33	0.31
Debt-to-Assets Ratio(Total Debt/Total Assets)	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Asset-to-Equity Ratio(Total Asset/Total Equity)	1.44	1.43	1.43	1.47	1.46	1.44	1.43	1.41	1.39	1.37	1.35	1.33	1.31
<b>Profitability Ratios:</b>													
Return on Equity(Net Income/Shareholder's Equity)	19.99%	34.17%	23.83%	22.14%	22.61%	22.78%	22.85%	22.53%	22.18%	21.84%	21.33%	20.76%	20.17%
Gross Profit Margin Ratio(Revenue-COGS)/Revenue)	61.08%	61.77%	61.01%	61.29%	61.29%	61.29%	61.29%	61.29%	61.29%	61.29%	61.29%	61.29%	61.29%
Return on Asset(Net Income/Total Asset)	14.60%	23.79%	16.69%	15.53%	15.41%	15.64%	15.83%	15.78%	15.74%	15.71%	15.57%	15.37%	15.15%
<b>Payout Policy Ratios:</b>													
Dividend Payout Ratio (Dividend/EPS)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Payout Ratio ((Divs. + Repurchases)/NI)	0.77	0.66	0.99	0.59	0.53	0.48	0.43	0.38	0.34	0.30	0.27	0.24	0.21