

A Work Project, presented as part of the requirements for the Award of a Masters Degree in Finance from the Faculdade de Economia da Universidade Nova de Lisboa

CORPORATE CREDIT REPORT OF ALPHABET INC.

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I. Purpose of the project

A corporate credit rating measures a firm's total economic capacity to satisfy its debt or debt-like obligations as they are due. They are usually dispensed by credit rating agencies such as Fitch, Moody's or Standard and Poor's (S&P), which provide their opinions on a firm's future relative creditworthiness. Their ratings are intended to be purely a relative evaluation of a firm's credit quality, not indicating any buy, sell or hold recommendations. Nevertheless, investors are known to use credit ratings as a proxy for future profitability when performing investment decisions, which shows how influential these assessments can be for financial markets. Credit rating entities have been heavily criticized for both this influence and the conflicts of interest that could potentially arise due to their sources of income, especially after their dormancy in downgrading Enron's rating in 2001 from investment-grade to within the "junk" status as debt became noticeably riskier, the erroneous assessment of collateralized debt obligations (CDOs) that culminated in the 2008 sub-prime financial crisis or their role in the most recent European sovereign debt crisis of 2011.

Since the topic remains relevant even today, this work project focuses on the development of a credit rating report for Alphabet Inc., formerly known as Google Inc., a leading company in tech, valued above \$500 billion. However, because valuing a firm is different from analysing its creditworthiness, it seemed interesting to investigate how likely to default a "titan" like Alphabet really is.

Chapter II presents the methodology, adapted from Morningstar, used to attribute the credit rating. Chapter III consists of a report, structured much like those developed by credit rating agencies, which aims to present the rationale for the rating attribution in the form of a credit and business analysis, supported by both official data as well as forecasted data.

II. Methodology

The two main pillars in assigning a credit rating are the assessment of the business risk and the financial risk of the firm.

1. Business Risk

The business risk component of the CCR intends to capture the uncertainty that surrounds the environment in which the corporation operates and wherein it produces its cash flows. Thus, the assessment of the overall business risk implies looking into both the portion of risk that the firm always bears, regardless of the country chosen to develop its activities - **company risk** - as well as the segment of exposure that is specific to the chosen setting and thus, termed **country risk**.

Country risk is measured out of 25, with 25 representing a virtually riskless country and 1 the country in which operations are most subject to threats. On the other hand, the company risk adds up individual scores of seven different factors of risk it encompasses, returning a value out of 50, in which 50 characterises, for example, a company with a strong economic moat, low uncertainty, high revenues and a diversified product. For model purposes both values are adjusted into a 1 to 10 scale, with 1 indicating lower risk and 10 the highest.

$$\text{Business Risk} = 10\% \times \text{Country Risk} + 90\% \times \text{Company Risk}$$

The **business risk** score is then calculated as per the formula above. Using the data conversion in Table 1, the score is translated into a qualitative level of risk of the firm's operations.

Business Risk	Range
Very Poor	8 to 10
Poor	6 to 8
Fair	4 to 6
Good	2 to 4
Very Good	0 to 2

Table 1 - Business Risk

1.1. Country Risk

The country risk is related to the environment in which the company operates. The assumption is that there are potential credit threats resulting from, for example, the existence of political instability, past credit history, legislation or financial policies.

Thus, to assess a firm's risk, credit worthiness data is collected by country from Trading Economics, an unbiased online source which incorporates several important macroeconomic and political factors. Unlike most rating agencies like Moody's or S&P, the TE Rating is numerical, which makes it easier to understand and compare, ranging from 0 (likely to default) to 100 (virtually riskless) e.g. Switzerland is unlikely to default with a TE Rating of 100 while Venezuela is more likely with a score of 5. For commodity and model needs, we reassign the scores into a scale from 0 to 25 (with 25 the riskless scenario and 0 the highest risk). Country risk then represents 10% of the overall business risk.

1.2. Company Risk

On the other hand, the company risk translates the inherent characteristics of the firm, regardless of its financial position or capital structure, and the industry in which it is inserted. It makes up for the other 90% of risk. The assessment implies the evaluation of several individually important points: economic moat, uncertainty, size, product and client concentration, management, dependence on capital markets and cyclicity of operations.

1.2.1. Economic Moat – Sustainability Of Excess Profits

The economic moat is an indispensable part of the company analysis. It intends to point out the existence and degree of a discernible competitive advantage, which is particularly poignant if we associate a firm's continuing success with sustainable long-term cash

generation. However, excess profits from cash generation are both difficult to sustain over time and can actually worsen the position as they attract coveting new players. The ability of a firm to have something integral to the business that can't be easily replicated represents the strongest and most lasting competitive advantage it can have: profits protection.

Thus, the economic moat is a representation of how long the firm can keep competitors at bay while achieving very high excess returns. The economic moat factor is scored 1, 5 or 10 which corresponds to “none”, “narrow” or “wide”, respectively. The “narrow” or “wide” scores are determined by the existence of the prospect of earning above-average returns on capital as well as some edge that prevents them from quickly eroding.

1.2.2. Uncertainty – Range Of Future Enterprise Value

The uncertainty assessment aims to forecast enterprise value. Since the value of the firm is directly linked to long-term cash flow generation, it becomes indispensable to consider more in depth its sources. Thus, this methodology focuses on four key elements which are believed to be drivers of cash-flow generation: range of sales, operating leverage, financial leverage and contingent events. Uncertainty is measured according to the following scores: 1 point for Extreme Uncertainty, 2.5 for Very High Uncertainty, 5 for High Uncertainty, 7.5 for Medium Uncertainty, and 10 for Low Uncertainty.

1.2.3. Size

The size of a company’s annual revenue is also an important component of risk, since smaller companies tend to be less stable and thus more vulnerable to financial distress.

Annual Revenue	Score
< \$200 million	1
\$200 - \$500 million	2
\$500 - \$1 billion	3
\$1 - \$1.8 billion	4
\$1.8 - \$3 billion	5
\$3 - \$4.5 billion	6
\$4.5 - \$7 billion	7
\$7 - \$13 billion	8
\$13 - \$25 billion	9
> \$25 billion	10

Thus, a score is assigned according to Table 2.

Table 2 - Size score by annual revenue level

1.2.4. Product And Customer Concentration

A diversified product and customer base results in a great variety of products sold to a wide number of end markets. Therefore, a firm which cultivates an expanded mind-set is less likely to suffer from economic or regulatory shocks. We assign a value of 1 to 5, with a much diversified firm scoring a 5 and a company with a single product and/or a narrow base of customers scoring a 1.

1.2.5. Management

The score assigned to this factor ranges from 1 to 5 and it translates the perceived sense of management's transparency, financial prudence and reliability. Contemplating this factor when measuring risk is especially important since it helps clarify where priorities lie, which values are being protected and what bondholders can expect from future actions (e.g. in the event of M&A, shares buybacks, and dividends).

1.2.6. Dependence On Capital Markets

Capital markets are unpredictable and, as such, a company which depends greatly on them tends to be more at risk than one that could easily operate unaided for a time. To estimate the extent of a firm's needs for external financing we resort to the Liquidity Cushion which is described in the financial risk section of this methodology. If a company must access markets during the following five years it scores a 1. However, if it can go without them it scores a 5.

1.2.7. Cyclicalities Of Operations

Economic sensitivity to seasons and trends increases the probability of instability in a firm's operations, *ceteris paribus*. Thus, firms score a 1 if cyclicalities is high and a 5 if the firm's operations are unaffected by market movements.

2. Financial Risk

The assessment of a firm's financial risk is essentially done by evaluating performance as it is transmitted through its statements. While the previous analysis uses non-monetary information and its implications for the company, this analysis is all about financials.

2.1. Forecasts

We support ourselves in both past and current financial statements; however, the ability of a firm to meet future debt obligations can't be established by looking back. Rather, it becomes necessary to project future cash flows to great detail. This includes forecasting sources of revenue, financial requirements, estimating the impact of changes in tax rates and changes in working capital.

Overall, the three statements – income, balance sheet, cash flow – are estimated.

2.2. Measures of Financial Risk

Three metrics - the Liquidity Cushion, The Solvency Score and Distance To Default - are used to evaluate financial risk.

The **Liquidity Cushion** intends to measure a firm's future financial health by means of forecasted cash flows and financial obligations. Essentially, the ratio reveals how many times over the cash generated by the company plus total excess liquid cash can cover debt and debt-like commitments i.e. lease payments, across the next five years. The formula is:

$$\frac{\text{Total Liquid Cash}_{Yr 0} + \sum_{Yr 1}^{Yr 5} \text{Adjusted Free Cash Flow}}{\sum_{Yr 1}^{Yr 5} \text{Debt Like Contractual Commitments}}$$

On the other hand, the **Solvency Score** looks to the present, to the current financial health of the company, by means of key financial ratios. Its intuitive formula makes both scientific and

practical sense in explaining a firm's default risk since it encompasses ratios for liquidity, profitability, capital structure and debt service capability:

$$5 \times \sqrt{\frac{TL_0 + CLO_0}{TA_0 + CLO_0} \times \frac{IE_1}{EBITDA_1}} - (4 \times ROIC_1) - (1.5 \times QR_0), \text{ where } TL_0 \text{ is}$$

total liabilities, CLO_0 is capital lease obligations, TA_0 is total assets, IE_1 is interest expense, $EBITDA_1$ is earnings before interest, taxes, depreciations, amortization and rent, $ROIC_1$ return on invested capital and QR_0 quick ratio. It is calculated for the firm and its peers and then rearranged into a 1 to 10 score, with 1 representing the firm with the strongest financial health score and 10, the poorest.

Additionally, the **Z-Score test** is also performed alongside the Solvency Score for the company and its peers:

$$ZScore = 1.2 \times X1 + 1.4 \times X2 + 3.3 \times X3 + 0.6 \times X4 + 1 \times X5, \text{ where}$$

$X1$ =Working Capital/Total Assets, $X2$ =Retained Earnings/Total Assets, $X3$ =Earnings Before Interest and Taxes/Total Assets (EBIT/TA), $X4$ =Market Value of Equity/Book Value of Total Liabilities (MV/TL) and $X5$ =Revenue/Total Assets.

Finally, the **Distance To Default** intends to adjust the credit rating analysis for recent market activity, since accounting-based measures such as financial statements can be slower to translate changes of the fast-paced market. Because it depends exclusively on market data, the distance to default can improve responsiveness to early signs of distress.

Firstly, past 1 year daily stock prices (P) are collected for both the target firm and its comparable peers and returns are calculated through $(P_{t+1}/P_t)-1$. Next, in this adaptation of Merton's distance to default model, we state that by approximation Naïve $D=F$ i.e. the market value of debt is represented by the face value of a firm's debt. Furthermore, we also assume

that, because firms that are close to default have riskier debt, that risk is correlated with equity risk allowing us to approximate the volatility of a firm's debt as Naïve $\sigma_D = 0.05 + 0.25 \times \sigma_E$.

Volatilities are calculated by using the standard deviation formula applied to each firm's data.

The DDNaïve is then calculated through the following formula:

$$DDNaïve = \frac{\ln \frac{E + D}{D} + \mu E - 0.5 \times \sigma_{Naïve}^2}{\sigma_{Naïve}}$$

The DDNaïve is then transformed into a percentile against the universe of peer stocks, producing DDNaïveP which varies between 0 (low equity volatility) and 1 (high equity volatility).

3. Model Rating

The four components - Business Risk, Liquidity Cushion, Solvency Score and Distance to Default - are applied to the formula below to determine the firm's final credit score:

$$CCR = (3.5 \times DD) + (3.5 \times SS) + (8 \times BR) + (Max(DD; SS; BR) \times CC),$$

where *DD* is Distance to Default score, *SS* the Solvency Score, *BR* the Business Risk score and *CC* the Liquidity Cushion score. All components' scores are in decile terms - with 10 being the worst and 1 the most positive. For *BR*, *SS* and *CC*, the assignation of scores is relatively

Credit Score	Score	Default Risk
AAA	16-23	Extremely Low
AA	23-61	Very Low
A	61-96	Low
BBB	96-142	Moderate
BB	142-174	Above Average
B	174-199	High
CCC		Currently Very High
CC		Currently Extreme
C		Imminent Payment Default
D		In Default

Table 3 - Credit Risk by Score

static, allowing for smooth levels across business cycles. The *DD* score, however, is assigned on a relative basis, against the peer group we choose to incorporate in the study.

III. Credit Report

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
Good	Very Good	Fair	Very Good	Wide	Internet Content & Information	Technology

Google remains the leader of the online search market. “Moonshots” can become the future.

Credit Perspective

We expect strong revenue growth from Alphabet Inc. in the next intermediate term. The steady growth of advertising profits should strengthen as the number of online users and usage increases, particularly in mobile devices. Alphabet's “moonshot” projects are also projected to contribute with more reliable amounts of revenue as businesses mature.

The stable outlook reflects beliefs that the firm will maintain its market position in search advertising and grow profits in other areas. Alphabet's debt to EBITDA ratio is low at around 0.2. With over \$70 billion in cash and short-term investments as compared to \$5.2 billion in debt, Alphabet has high flexibility to deploy cash into its most capital intensive projects and into developing products and services at the same it can acquire other businesses and technologies without the need to raise external financing.

The Z-Score and Solvency Score both indicate a lower likelihood of financial distress compared to its peers. Going forward, we forecast Alphabet's financial health to remain stable and positive. Following the expiration of its current \$2 billion commercial paper program, Alphabet is expected to establish a new \$5 billion program, which should be backed by a new \$4 billion revolving credit facility.

We expect Alphabet's conservative financial philosophy and cash flow generation to contribute to keep the strong liquidity it enjoys. As demonstrated by the Liquidity Cushion, forecasted cash and free cash flow available for debt service across the next five years represents 28.4 times debt commitments for the same period.

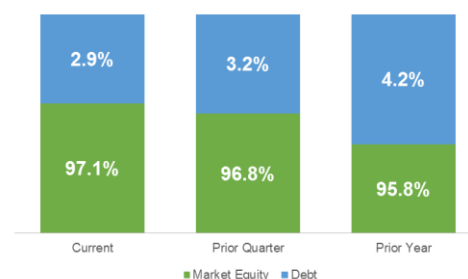
Credit Metrics (USD Mil)

	2014	2015	2016E	2017E
Cash And Equivalents	64,395	73,066	81,518	91,721
Total Debt	5,237	5,220	5,938	5,992
Interest Expense	101	104	118	118
EBITDA	22,855	24,818	30,285	35,508
Debt to Book Capital	0.05	0.04	0.04	0.04
Quick Ratio	4.69	4.67	5.58	5.62
Debt to EBITDA	0.23	0.21	0.20	0.17
EBITDA to Interest Expense	226.29	238.63	257.24	301.61

Operating Summary (USD Mil)

	2014	2015	2016E	2017E
Revenues	66,001	74,989	85,761	97,926
% Change	18.9%	13.6%	14.4%	14.2%
EBIT	17,876	19,755	23,689	27,683
% Net Sales	27.1%	26.3%	27.6%	28.3%
Net Income	14,136	16,348	19,093	22,328
% Net Sales	21.4%	21.8%	22.3%	22.8%
Free Cash Flow	11,417	16,109	21,938	25,874
% Net Sales	17.3%	21.5%	25.6%	26.4%

Capital Structure



Issuer Profile

As of August 2015, Google Inc. was restructured into Alphabet Inc., keeping the core Google businesses like Chrome, Maps or Gmail separated from the “Other Bets” segment, which includes “moonshot” projects like Verily, X or Nest. Google provides several free products across different screens and devices which generate revenue as users click on ads displayed alongside search results. Around 90% of revenues stem from online advertising services while the remaining percentage is divided between software and licensing fees and the Other Bets products.

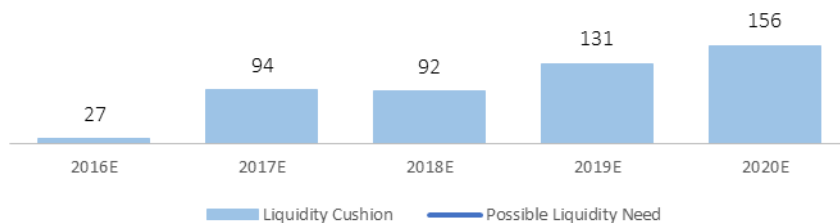
Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
Good	Very Good	Fair	Very Good	Wide	Internet Content & Information	Technology

Credit Analysis

Five Year Adjusted Cash Flow Forecast (USD Mil)

	2016E	2017E	2018E	2019E	2020E
Cash & Equivalents (beginning of period)	73,066	81,518	91,721	102,766	115,386
Adjusted Free Cash Flow	21,938	25,874	30,383	35,785	41,929
Total Cash Available for Debt Service	12,681	17,476	22,359	28,250	35,687
Principal Payments	-1,225	0	0	0	0
Interest Payments	-118	-118	-118	-118	-118
Other Cash Obligations and Commitments	2,191	1,024	1,207	938	888
Total Cash Obligations and Commitments	-3,533	-1,141	-1,325	-1,056	-1,006

Cummulative Annual Liquidity Cushion



Adjusted Cash Flow Summary

	USD Millions	% of Due
Beginning Cash Balance (T=0)	73,066	906.3
Sum of 5-Year Fwd Adj FCF (T=1-5)	155,909	1934.0
Sum of Cash and 5-Year Cash Generation	228,975	2840.3
Revolver Availability	0.0	0.0
Sum of Cash, 5-Year Cash Generation and Revolver	228,975	2840.3
Sum of 5-Year Cash Commitments (t=1-5)	-8,062	

Credit Rating Pillars - Peer Group Comparison

	GOOGL	Sector	Universe
Business Risk	2.5	5	5
Liquidity Cushion	1		
Solvency Score	5		
Distance to Default	1		
	AA	A+	BBB+

Financial Health

Alphabet holds \$73 billion of cash and cash equivalents, a situation most firms in the sector share, against \$27 billion in liabilities. Cash and cash equivalents for Alphabet Inc. are projected to keep increasing as revenues grow despite the second share buyback program of up to \$5.1 billion authorized in October 2016.

Ending 2015, Alphabet enjoyed a healthy financial position when compared to its peers as per its Solvency Score (detailed in the Financial Risk section). Short term liquidity, as indicated by the quick ratio, was above average with \$4.5 of liquid assets per each \$1 of current liabilities. It also exhibited one of the highest interest to EBITDA ratios, indicating high debt service capability. Its profitability measured by ROIC was moderately lower than its peers possibly due to the large amount of invested capital.

Additionally, the liquidity cushion suggests the firm should enjoy a positive future outlook since Alphabet's liquidity can cover its debt and debt-like commitments (which include operating leases, purchase obligations and other liabilities besides debt), 28.4 times across the next five years.

Capital Structure

Alphabet finances itself through both debt and equity, with equity representing more than 95% of all capital.

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
Good	Very Good	Fair	Very Good	Wide	Internet Content & Information	Technology

	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Commercial paper	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Notes	3,000	3,000	3,000	4,000	4,000	4,000	4,000	4,000
1.25% Notes due on May 19, 2014	1,000							
2.125% Notes due on May 19, 2016	1,000	1,000	1,000					
3.625% Notes due on May 19, 2021	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
3.375% Notes due on February 25, 2024		1,000	1,000	1,000	1,000	1,000	1,000	1,000
1.998% Notes due on August 15, 2026				2,000	2,000	2,000	2,000	2,000
Capital Lease Obligation	255	245	225					
Unamortized discount for the Notes above	-10	-8	-5	-62	-8	-8	-8	-8
Total debt and capital lease obligation	5,245	5,237	5,220	5,938	5,992	5,992	5,992	5,992

As of 2015, debt was represented by \$2 billion in commercial paper, capital leases obligations expiring that year and a \$3 billion revolving credit facility with notes due at different points in time. More lines of credit are expected to be implemented between 2016 and 2020 as the old ones expire. The issuance of new commercial paper is also anticipated so as to substitute the batch being terminated by the end of 2016. The firm incurs in principal payments from the retirement of its revolving credit facility and in interest payments every year in the amount of the interest rate fixed per line of credit.

Ending 2015, there were around 693 million stocks outstanding making Alphabet's market cap approximately \$522 billion. Alphabet introduced its first ever buyback program carried out during the last quarter of 2015 until June 2016. With around \$73 billion in cash and cash equivalents, Alphabet bought back and retired around 5.3 million shares, amounting to \$3.7 billion. As of October 2016, a new repurchase was authorized for up to \$5.1 billion. We believe this could become a regular occurrence for the company going forward.

Enterprise Risk

According to the methodology used throughout this report, Alphabet's business risk is affected by both the environment in which the company operates, comprised in the country risk indicator, and by the specific characteristics of the firm and the industry in which it is inserted, represented by company risk.

Given that Alphabet is a global company, it seems vital that country risk translates the firm's presence across geographies and their specific levels of threat. Thus, using the percentage distribution of revenues by geography, withdrawn from the 10K report pertaining to the fiscal year ending December 2015, and GDP per country as proxies for country risk weights, we achieve Alphabet's score of 17 out of 25 in country credit worthiness, which indicates low risk stemming from the geographic distribution of operations.

As for company risk, Alphabet presents high uncertainty in its operations mainly due to the dependency on continued growth of the online advertising market as well as risk born directly from its "moonshot" operations. While we believe the firm's moat to be wide and deep enough to allow it to retain its competitive advantage and dominance in the online search market, a potential downturn in online ad spending, apart from the natural level of business cyclicity, might imply direct loss of revenues for the firm. Alphabet is the leading firm in the ads industry – as of Jan 2016, market share was around 65% globally. It has a geographically diverse customer base i.e. 46% of customers are from the United States of America, 10% from the United Kingdom and the other 44% from around the world, and a product that is able to adapt to technological generation changes e.g. Google was able to follow users in their shift to mobile, contributing with better apps running in their own operating system, Android.

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
Good	Very Good	Fair	Very Good	Wide	Internet Content & Information	Technology
(10 is strong, 1 is poor)						
Country Risk (Annex 3)		3/10		Management		4/10
Economic Moat		10/10		Dependence on Capital Markets		4/10
Uncertainty		5/10		Cyclical		3/10
Size		10/10		Company Risk		3/10
Product and Customer Concentration		4/10		Business Risk		3/10

The existence of the Android mobile operating system provides a robust distribution channel for Google products. It helps to grow the firm's network and, consequently, ads revenue. Despite it all, a change in market trends such as the growth of social platforms like Facebook or Twitter where users share a lot of personal information and details, could threaten the firm's business since, similarly to Alphabet's *modus operandi*, information can be collected about the user to provide customized advertising results. Although Alphabet is still unparalleled in search, both in mobile and desktop use, the growing amount of time spent by users on social networks can imply a reduction of traffic time flowing through Google products, which threatens the network of advertisers-Google-users that is one of Alphabet's greatest pillars. The threat posed by social networks could be minimized if the firm presented a social network of its own. Google+ was the firm's proposal but has since been dismantled as it was not able to capture users away from Facebook which remains the biggest social network. What is more, Facebook itself might be preparing to enter the digital advertising market after the acquisition of LiveRail, a video ad property, which now joins the already in place display ads. The launch of Facebook Live which allows users to make videos and live-cast them across their network as well as having them available later for replaying, might potentially hurt Youtube. On the other side, we have Windows which is currently marketing the Windows 10 OS whose adoption might represent an erosion of Alphabet's Chrome market share. Thus, additional pressure could be felt across the next years on operating margin.

Still, Alphabet's main focus is innovation through the creation of market disruptive technologies. Its "moonshot" segment of products represents its mission of "creating opportunities that simply did not exist before for millions of people, all around the world". Thus, it is likely that we will see an escalation of costs in R&D and CAPEX as the firm focuses on future progress. Management is expecting Fiber to require a large sum of money in the short term.

Furthermore, a large part of the uncertainty surrounding Alphabet is connected to the industry in which it operates. Despite the protection it gains from the existence of barriers to entry present in the form of economies of scale, network effects and intellectual property, the technology software and services sector still presents risks related to technological change and/or substitution, mega trends and security and privacy concerns. Alphabet's Google faces several claims from regulatory agencies regarding search bias. Since this is the firm's largest driver of profit, litigation decisions might impact operations heavily. Several investigations were brought on accusations that the firm forced hardware makers to use Android services instead of the competition's or that it restricted ads from its competition in its products. A ruling related to these issues can strongly affect Alphabet's business and value going forward, especially since most of the firm's revenues (around 90%) are driven by online advertising. Also, since the UK left the EU, Alphabet should expect a less lenient context. As France and Germany's views become more central in Europe's decision making, stricter privacy rules could be expected. China was also a huge opportunity that resulted in a big loss. During the short time it operated in the country, the Google search engine managed to conquer significant market share from Baidu. However, the Chinese government has since blocked features that have damaged users perspective of quality in an effort to keep it from entering.

Finally, looking into financial leverage as a driver of risk since, even in a steady business, the existence of too much debt can affect

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
Good	Very Good	Fair	Very Good	Wide	Internet Content & Information	Technology

the firm's equity holders and the value of the firm since they always get their money first. However, since Alphabet has little debt there is low risk of possible uncertainty arising from financial leverage.

Financial Risk

Alphabet's financial risk indicators such as the Liquidity Cushion, the Solvency Score & Z-Score and the Merton Naïve Distance to Default (DDNaive) were calculated using forecasted data of the firm's statements. The main assumptions behind these forecasts can be found in Annex 1.

The Liquidity Cushion was shown above and indicates that the firm's total cash balance plus the sum of adjusted free cash flow can cover its debt and debt-like contractual commitments 28.4 times across the next five years. This conclusion is not unusual in the sector as these firms tend to accumulate large amounts of cash, reducing debt in the market, keeping liquidity high.

The Solvency Score measures the current status of financial health in the company and should in relative terms, comparing the firm against its peers. In Alphabet's case, Apple Inc., Microsoft Corp., Baidu Inc. and Facebook Inc. are the most appropriate group of peers. They either have products that compete directly with Alphabet's own such as Apple's iPhone or Microsoft's Windows Phone, which pressures the market for Android mobiles, threaten to erode Alphabet's advertising revenues by capturing users away from Google and Google network websites and onto social networks like Facebook or are present in geographies that Alphabet is unable to conquer, like the leader search engine Baidu in China. Additionally, the Z-Score performed for 2015 data also shows that Alphabet is in the Safe Zone and out of financial distress.

So as to incorporate more up to date market data into our risk calculation, the Distance to Default (DDNaive) analysis is added. It measures the likelihood of a firm defaulting using equity information i.e. the price of stocks and its volatility. Alphabet is far from default with a DD of 27.07. Furthermore, when comparing it to its peers, we can conclude that Alphabet's default is unlikely.

(USD Mil)	AAPL	MSFT	BIDU	FB	GOOG
Total Assets	290,345	174,472	22,825	49,407	147,461
Total Liabilities	170,990	94,389	10,433	5,189	27,130
Interest Expense	733	781	161	23	104
EBITDA	82,487	32,556	2,704	6,237	24,818
ROIC (%)	39.7	52.5	28.7	14.5	33.0
QR	1.1	2.4	3.0	11.3	5.3

Solvency Score	2.8	5.1	4.8	17.4	9.1
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GOOG	2015	2016E	2017E	2018E	2019E	2020E
X1	0.480	0.500	0.509	0.517	0.527	0.568
X2	0.605	0.651	0.679	0.702	0.712	0.751
X3	0.134	0.149	0.160	0.170	0.181	0.203
X4	19.227	19.227	19.227	19.227	19.227	19.227
X5	0.509	0.540	0.565	0.596	0.629	0.701

Z Score	13.91	14.08	14.19	14.29	14.39	14.64
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	AAPL	MSFT	BIDU	FB	GOOG
X1	0.030	0.419	0.353	0.399	0.480
X2	0.318	0.052	0.505	0.198	0.605
X3	0.252	0.111	0.263	0.126	0.134
X4	3.599	3.755	6.241	57.161	19.227
X5	0.805	0.536	0.449	0.363	0.509

Z Score	4.28	3.73	6.19	35.83	13.91
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(USD Mil)	AAPL	MSFT	BIDU	FB	GOOG
σE (%)	25.1	24.9	38.6	28.8	21.7
σD (%)	11.3	11.2	14.6	12.2	10.4
$\sigma Naive$ (%)	23.4	22.9	36.6	28.8	21.7
E	600,153	445,350	63,178	369,033	535,553
D	87,032	74,690	5,867	0	3,938
μE (%)	8.8	33.5	35.6	42.6	28.7

DDNaive	10.95	11.44	8.87	53.81	27.07
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Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
Good	Very Good	Fair	Very Good	Wide	Internet Content & Information	Technology

Business Analysis

Overview

Alphabet is a collection of businesses. The largest of them is, of course, Google. Google has consistently been the biggest source of revenues and growth for the company, holding both main internet products e.g. Search, Ads, Maps, Chrome, as well as hardware products e.g. Chromecast. As of November 2016, according to NetMarketShare, it was the most popular search engine holding 76% and 94% of global market share in desktop and mobile devices, respectively.

Alphabet generated 90% of 2015 revenue from advertising alone. The Google ecosystem improves as more users shift to Google products or adhere to new ones, making Google's advertising services more appealing to advertisers, increasing ad revenues. The firm recognizes the inherent risk of belonging to a "rapidly evolving, intensely competitive and subject to changing technologies" industry in which to compete successfully there is a need to deliver innovative and quality products rapidly to the market while keeping search results and ads relevant for users. Failure to do so could imply declining acceptance rates for products and, given the current business model, impact revenues greatly. Thus, we expect Google to continue investing in R&D, cementing its place in the search market which should translate into a continued improvement of cash flows.

As mobile devices' adoption and use continues to increase globally, the online market has shifted as well to better adapt to its users. Google followed the target audience to the mobile platform, managing to keep a large number of users engaged in Google products. According to the same data from NetMarketShare, 69% of all mobile devices run the Android operating system and 55% use the Chrome browser. We expect this scenario to improve in the future as certain Android devices keep its affordability and others its innovative side.

Additionally, the recently created Alphabet, also includes the Other Bets segment. While the Google part of the firm focuses on core products such as Search, Android, Maps, Chrome, Youtube and Gmail – each with over one billion monthly active users – the Other Bets segment deals with futuristic projects that are far afield from the main Internet ones.

Verily, Calico, X, Nest, Fiber and many more are the so called "moonshots" – ambitious projects with enormous potential for ground-breaking discoveries that require large investments with no certainty of profits. They are representative of the spirit of the firm, established in the original founders' letter: "Google is not a conventional company. We do not intend to become one." It is why we see these initiatives as attractive despite the fact that most are yet to generate revenues; if they succeed, the upside is enormous and ensures Alphabet's name as the place "of incredible creativity and innovation that uses our technical expertise to tackle big problems". The self-driving car market is forecasted to be worth billions by 2025; Alphabet's Project X is currently in development and should become available in the market in the next couple of years. The potential is vast.

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
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Economic Moat

Alphabet has a wide moat rating due to the sustainable competitive advantages it has which are believed to stem mostly from the company's intangible assets as well as via the network effect.

Intangible assets held by Alphabet encompass the **overall technical expertise in search** algorithms and machine learning as well as the **data accumulated and stored**, whose access is deemed valuable to advertisers. Additionally, the **Google brand** can also be regarded as a significant asset given its mass use; "Google it" has become eponymous of "search it online", as the Google search engine is indicated to be the most advanced in the industry. Google, the play of words with "googol", a mathematical term for a 1 followed by 100 zeros, the dream of organizing and infinite amount of web data.

Online search has come a long way and Google has dedicated plenty of resources to the **improvement of its search results**. From its original algorithms to the current machine-learning ones, Google has grown into the most popular search engine of the world; it alone processes more than three times the search requests of Bing and Yahoo. The main driver of success seems to be what first captivated PC Magazine's attention in 1998: the above-average significance of results.

The recent adoption of machine-learning technology should signal great days ahead for Google, as more search data and patterns are gathered and analyzed, allowing the algorithm to improve on itself. Machine learning is present in most Google products; the Google app allows for speech recognition, the Gmail offers smart replies, Google Photos recognizes and groups faces in pictures, and many more. These are products that don't generate revenue but at the source of the wide and deep moat of Alphabet. As more and more products are developed and improved, the more the likelihood of usage increases. With it, **more data about behaviors is collected and analyzed** and applied to rank ads that show up to the user based on its singular relevancy. Ads are, in fact, Alphabet's greatest source of revenue and the "castle" it has to protect.

The continued investment in machine learning improvements contributes to the accumulation of data which, in turn, increases the ranking of ads and their placement for users. The more users click on individually curated ads, the higher the ROI for advertisers and, ultimately, revenues for Alphabet.

The widespread adoption of Google products has fostered regular dependence from users. The "Google it" phenomenon mentioned before has strengthened the **brand** as it is now associated with the concepts of reliability and innovation.

The future perspective is for the brand name to continue being an enabler of growth for other products and apps, expanding its user base and thus monetizing it through online advertising processes.

Alphabet's **network effects** are believed to be strong and difficult to replicate. Typically, we point out the existence of an effect when value is created for the existing users of a network as more and more people join it. Google is the most widely used search engine; like it was mentioned before, the more search requests are made, the more relevant the search results and the lower the probability of users leaving that network. On the other hand, advertisers' value also improves as new people join the network; more data is collected and delivered. Overall, the heterogeneous network of Alphabet made up by Google products such as search, Maps, Gmail, Youtube, Android and more, allows for a massive consumer base who benefits from other users' searches at the same time it is

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
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catered to by advertisers that generate revenues for Alphabet. Thus, we deem the network difficult to replicate and attribute it as a contributor to Alphabet's economic moat.

Similarly to Google search, other products also contribute to the creation and maintenance of strong network effects, thus solidifying Alphabet's economic moat. More traffic data and commuting habits help Google Maps supply more accurate travel times and suggestions of routes. This benefits both users and advertisers. The Gmail platform and Chrome browser also offer an additional opportunity to place ads which favors the latter's value creation. Chrome is the only browser with year-over-year usage share growth which should carry on into the future. Alphabet is leaving its mark also on mobile market. From the launch of Android in 2007, Google has been able to position itself within the mobile ad market, once again enlarging its search dominance and monetizing the network effect. The use of apps from Google Play and Chrome in Android-powered devices further strengthens this conclusion.

The Youtube platform also contributes for the network effect. As a source of content distribution, the growth of viewers tends to improve the library further. This ends up benefitting both creators, users and advertisers alike. The monetization of this platform is currently achieved through advertisements, both on desktops and mobile devices, but also via the subscription model (Youtube Red). In the future, it is expected that growth in Youtube viewers should drive growth in revenue by means of ads. Additionally, even though we can expect Google to take its place in the growing enterprise cloud market, its standing does not seem to pose a network effect. Amazon's AWS is the clear leader in cloud services followed closely by Microsoft's Azure; while Google can leverage on learnings and technical expertise from the creation and maintenance of its own private cloud platform, its presence does not add any particular value for its already broad network.

Moreover, we do not believe Alphabet's moat stems from any of the remaining possible sources. Regarding **cost advantage**, Alphabet does not seem to possess a structure that other competitors can't replicate. The firm is able to invest large amounts of capital to maintain products e.g. Maps and Youtube and enter new capital-intensive areas e.g. Google Fiber or cloud mainly due to the size of its operations. **Switching costs** exist for users of Alphabet's products but the difficulty is moderate. Problems rest mainly in the time and effort needed to move to a new platform or product e.g. learn a new mailing interface beside Gmail's, notify all contacts that reach the user through that email, be it the bank or a newsletter subscription, move video content off Youtube and into another platform, together with the loss of subscribers and view count etc. Additionally, Alphabet might even benefit since apps and content running on Android and bought on Google Play can't be transferred to another operating system, urging users to stay.

However, Alphabet is more than Google. While the Google part contributes to create a very wide economic moat - built mainly on technical and data accumulation assets as well as the presence of an easy, mostly-free and effective Google product for every daily need - the Other Bets segment of the business signifies Alphabet's desire and need to always be a step ahead, as a banner of innovation. Thus, the profits acquired from the lucrative segment of the business are used to invest in moonshot projects i.e. projects that address a huge problem, proposing a radical solution and using breakthrough technology, in the words of Google. In practice, these are ambitious, ground-breaking projects, economically risky and that hold little to no expectation of short term profitability or benefit.

Thus, we believe it is too early to forecast future competitive advantages stemming from the Other Bets segment, choosing not to consider them contributors for the firm's economic moat.

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
<i>Good</i>	<i>Very Good</i>	<i>Fair</i>	<i>Very Good</i>	<i>Wide</i>	<i>Internet Content & Information</i>	<i>Technology</i>

We have to recognize, however, that Nest's smart home, Verily's health aid, Google Fiber's faster Internet access or Project X's self-driving cars and other Alphabet moonshots harness the possibility of future high returns. In any of these cases, Alphabet can benefit from network effects, intangible assets or even cost benefits through first mover advantage in the future.

In the end, the Other Bets segments seem to strengthen what is written in the original founders' letter and Alphabet carries that banner; the firm's objective is to continue being the leader with the ultimate goal of integrating technology so as to simplify and improve people's lives. This can only be sustained by innovating, sometimes in "areas that might seem very speculative or even strange when compared to our current businesses."

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
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Forecasts

Income Statement (USD Mil)

	Dec 2013	Dec 2014	Dec 2015	Forecast	
				Dec 2016	Dec 2017
Total Revenue	55,519	66,001	74,989	85,761	97,926
Cost of Revenues	21,993	25,691	28,164	31,781	36,485
Gross Profit	33,526	40,310	46,825	53,980	61,441
Sales, Marketing, General & Administrative Expenses	10,986	13,982	15,183	17,021	18,606
Research & Development Expenses	7,137	9,832	12,282	13,722	15,668
Total Expenses	40,116	49,505	55,629	62,524	70,759
Operating Income (EBIT)	15,403	16,496	19,360	23,237	27,167
Interest Expense	81	101	104	118	118
Other Income (Expense)	577	864	395	452	516
Income From Continuing Operations (Pre-Tax Income)	15,899	17,259	19,651	23,571	27,565
Income Tax Expense (Benefit)	2,739	3,639	3,303	4,479	5,237
Net Income From Continuing Operations (Income After Taxes)	13,160	13,620	16,348	19,093	22,328
Net Income (Loss) From Discontinued Operations	-427	516	0	0	0
Net Income	12,733	14,136	16,348	19,093	22,328
Less: Adjustment Payment To Class C Capital Stockholders	0	0	522	0	0
Net Income Excluding Charges	12,733	14,136	15,826	19,093	22,328
Diluted Shares Outstanding (Mil)	678	687	693	691	689
Diluted EPS Including Charges (USD)	18.78	20.58	23.59	27.65	32.39
Diluted EPS Excluding Charges (USD)	18.78	20.58	22.84	27.65	32.39
EBITDA	19,492	22,855	24,818	30,285	35,508

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
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Balance Sheet (USD Mil)

	Dec 2013	Dec 2014	Dec 2015	Forecast	
				Dec 2016	Dec 2017
Assets					
Cash and cash equivalents	18,898	18,347	16,549	9,720	8,015
Short-term investments/Marketable Securities	39,819	46,048	56,517	71,798	83,706
Accounts Receivables	8,882	9,383	11,556	12,208	12,896
Inventory	0	0	0	0	0
Other current assets	5,287	4,878	5,492	3,009	2,842
Total Current Assets	72,886	78,656	90,114	96,735	107,460
Property, Plant & Equipment, Net	16,524	23,883	29,016	34,215	38,536
Property, Plant & Equipment, Gross	23,837	32,746	40,146	51,135	62,557
(Accumulated Depreciation)	-7,313	-8,863	-11,130	-16,920	-24,022
Equity and other investments/Non-Marketable/Long term Investments	1,976	3,079	5,183	5,185	5,186
Goodwill	11,492	15,599	15,869	15,869	15,869
Intangible assets, net	6,066	4,607	3,847	3,206	2,650
Deferred income taxes	0	176	251	358	511
Other long-term assets	1,976	3,187	3,181	3,181	3,181
Total Assets	110,920	129,187	147,461	158,749	173,392
Liabilities					
Accounts payable	2,453	1,715	1,931	1,959	1,855
Short-term debt	3,009	2,009	3,225	2,000	2,000
Other current liabilities	10,446	13,055	14,154	13,386	15,268
Total Current Liabilities	15,908	16,779	19,310	17,346	19,122
Long-term debt	2,236	3,228	1,995	3,938	3,992
Deferred Tax Liabilities	1,947	758	189	284	425
Long-term Operating Liabilities	139	104	151	176	206
Long-Term Non-Operating Liabilities	3,381	4,458	5,485	6,990	8,755
Total Liabilities	23,611	25,327	27,130	28,734	32,501
Shareholders' Equity					
Common stock	25,922	28,767	32,982	37,208	42,318
Additional paid-in capital/Convertible Preferred Stock	0	0	0	0	0
Retained earnings	61,262	75,066	89,223	103,373	117,700
Accumulated other comprehensive income/Treasury Stock & Other	125	27	-1,874	-1,874	-1,874
Total Shareholders' Equity	87,309	103,860	120,331	138,707	158,144
Total Liabilities + Shareholders' Equity	110,920	129,187	147,461	167,441	190,645

Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
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Cash Flow (USD Mil)	Forecast				
	Dec 2013	Dec 2014	Dec 2015	Dec 2016	Dec 2017
Net Income From Continuing Operations	12,733	14,136	16,348	19,093	22,328
Depreciation and impairment of property and equipment	2,781	4,979	5,063	5,790	7,101
Amortization and impairment of intangible assets	1,158	1,456	931	806	724
Stock based compensation	3,343	4,279	5,203	6,203	7,203
Adjustments	-1,512	-1,690	-181	155	155
Changes in Operating Assets and Liabilities					
(Increase) Decrease in Accounts Receivables	-1,307	-1,641	-2,094	-2,681	-2,681
Increase (Decrease) in Inventory	0	0	0	0	0
(Increase) Decrease in Prepayments, other Current Assets	-930	459	-318	-318	-318
Increase (Decrease) in Accounts Payable	605	436	203	415	415
Increase (Decrease) in Other Current Liabilities	1,788	1,418	1,800	2,957	1,936
Cash From Operations	18,659	23,832	26,955	32,420	36,863
(Capital Expenditures)	-7,358	-10,959	-9,915	-10,482	-10,989
(Acquisitions)	1,077	-4,502	-236	-2,369	-1,303
Purchases of investments	-46,013	-57,537	-76,540	-83,640	-88,640
Sales/Maturities of investments	38,314	51,315	62,905	72,905	74,905
Other Investing (Cash Flows) Outlays	301	628	75	-3,000	0
Cash From Investing	-13,679	-21,055	-23,711	-26,586	-26,027
Net Issuance of Debt	-557	-18	-23	-28	-33
Common stock Purchase (or Sale)	0	0	-1,780	-6,829	-1,705
Other financing activities	-300	-1,421	-1,874	-2,874	-3,874
Cash From Financing	-857	-1,439	-3,677	-9,731	-5,612
(Benefit) Loss From Exchange Rates	-3	-433	-434	-434	-434
Net Change in Cash	4,123	-118	-1,364	-3,896	5,224

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Business Risk	Liquidity	Solvency Score	Distance to Default	Economic Moat	Industry Group	Sector
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Comparable Company Analysis

Profitability Analysis

Company	Last Historical Year Net Income (Mil)	Gross Margin %			EBITDA Margin %			Operating Margin %			Net Margin %			Free Cash Flow Margin %		
		2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E
Apple Inc AAPL	\$53,731	40.1	39.1	38.1	35.3	32.7	30.3	31.0	28.5	26.1	22.8	21.2	19.6	29.9	24.2	19.7
Microsoft Corp MSFT	\$11,408	64.7	61.6	58.6	34.8	32.2	29.7	20.6	23.1	26.0	13.0	19.7	29.7	25.4	29.3	33.8
Baidu Inc BIDU	\$33,664	58.6	59.1	59.6	26.4	26.6	26.8	58.7	59.1	59.6	48.9	49.2	49.6	17.6	17.8	17.9
Facebook Inc FB	\$3,688	84.0	84.7	85.4	45.6	45.9	46.3	34.5	34.8	35.1	20.6	20.7	20.9	33.9	34.2	34.4
Average	\$25,623	61.8	61.1	60.4	35.5	34.4	33.3	36.2	36.4	36.7	26.3	27.7	30.0	26.7	26.4	26.5
Alphabet Inc GOOG	\$16,348	62.4	62.9	62.7	33.1	35.3	36.3	25.8	27.1	27.7	21.8	22.3	22.8	21.5	25.6	26.4

Leverage Analysis

Company	Last Historical Year Total Debt (Mil)	Debt/Equity			Debt/Total Cap %			EBITDA/Int Expense %			Total Debt/EBITDA %			Assets/Equity %		
		2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E
Apple Inc AAPL	\$87,032	0.5	0.7	0.9	35.0	40.4	46.7	112.5	48.4	20.9	0.8	1.2	2.0	2.4	2.5	2.6
Microsoft Corp MSFT	\$74,690	0.4	0.8	1.3	30.6	42.7	59.7	41.7	22.1	11.7	1.1	2.0	3.5	2.2	2.7	3.3
Baidu Inc BIDU	\$5,956	0.4	0.5	0.5	30.4	30.7	30.9	16.8	16.9	17.1	2.0	2.0	2.0	1.8	1.9	1.9
Facebook Inc FB	\$0	0.0	0.0	0.0	0.3	0.3	0.3	355.2	358.1	360.9	0.0	0.0	0.0	1.1	1.1	1.1
Average	\$41,919	0.4	0.5	0.6	24.1	28.5	34.4	131.6	111.4	102.6	1.0	1.3	1.9	1.9	2.0	2.2
Alphabet Inc GOOG	\$5,220	0.0	0.0	0.0	4.2	4.1	3.7	238.6	257.2	301.6	0.2	0.2	0.2	1.2	1.1	1.1

Liquidity Analysis

Company	Last Historical Year Market Cap (Mil)	Cash per Share %			Net Cash per Share %			CFO per Share %			Free Cash Flow per Share %			Payout Ratio %		
		2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E	2015	2016E	2017E
Apple Inc AAPL	\$583,613	7.2	12.2	20.8	-22.3	-23.0	-23.6	14.0	12.0	10.2	12.1	9.5	7.5	0.2	0.3	0.3
Microsoft Corp MSFT	\$439,679	11.7	14.1	17.1	0.3	-1.1	4.3	3.6	4.2	4.8	2.9	3.1	3.4	0.8	0.7	0.5
Baidu Inc BIDU	\$65,420	30.0	30.2	30.5	0.2	0.2	0.2	8.6	8.6	8.7	5.2	5.2	5.2	0.0	0.0	0.0
Facebook Inc FB	\$296,606	6.5	6.5	6.6	4.6	4.7	4.7	3.0	3.0	3.1	2.1	2.1	2.2	0.0	0.0	0.0
Average	\$346,330	13.8	15.8	18.7	-4.3	-4.8	-3.6	7.3	7.0	6.7	5.6	5.0	4.6	0.3	0.2	0.2
Alphabet Inc GOOG	\$521,615	105.4	118.1	133.1	66.3	76.4	85.9	37.6	47.0	53.5	23.2	31.8	37.5	0.0	0.0	0.0

IV. ANNEXES

Annex 1

Revenue growth should mainly be driven by the increase of Google advertising revenues (avg. 13% across the next 5 years) due to pricing improvements on mobile and the continued growth of the firm's network. Google revenue from non-advertising products is also expected to increase, averaging 22% growth per year across the next 5 years, due mainly to Google Cloud improvements, which should offset Chromecast's decline. The Other Bets segment is also expected to draw in revenues, growing an average of 46% during the same period. Since this is a very unpredictable segment, forecasts could easily overestimate growth. However, Other Bets represent a small percentage of total revenues (around 0.4% average in the past three years). Overall, total revenue growth should average 14% per year across the next five years, contributing for a forecasted 5 year CAGR of 11%.

Costs of revenue have been decaying due mainly to efficiency improvements and learnings related to the online advertising business e.g. Traffic Cost as well reduced costs with depreciation and amortization. In the following years, CAPEX should grow as the firm enters new businesses and improves their ads technology and thus, depreciation and amortization evolution should match it. Expenses with R&D, from sales or administrative sources should also growth at a smaller stable pace, assuming that past's years' costs shown some inflation from the Google restructuring.

The effective tax rate applied to pre-tax income is expected to increase to 19% in 2016 and 2017 and increase further to 20% in the following three years. This is justified with Alphabet's vast geographic distribution; the worsening of political and economic instability in regions such as the United States of America, where the firm has nearly half its operations, could imply the rising of statutory rates that could worsen the global effective tax rate for the company.

Annex 2

Search Engine (Nov 2016, NetMarketShare)	Desktop Search Engine Market Share	Mobile/Tablet Search Engine Market Share
Google – Global	75.97%	94.27%
Bing	8.28%	1.11%
Baidu	7.54%	0.49%
Yahoo - Global	6.56%	3.33%
Ask - Global	0.17%	0.04%

Annex 3

Alphabet's Country Risk Weighted by Geographical Distribution of Revenues

	2015 onwards	TERating w. % GDP	TERating w. % Revs
United States	46%	23.2	10.7
United Kingdom	10%	3.1	0.3
Rest of the World	44%	13.4	5.9
Alphabet Inc.'s Country Risk			16.9

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