

Major Research Project on
REGRESSION AND INDUSTRY ANALYSIS
OF FACTORS AFFECTING CAPITAL
STRUCTURE

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CERTIFICATE

This is to certify that the project report entitled " Regression and Industry Analysis of Factors Affecting Capital Structure" by Anshuman Singh (2K20/UMBA/53), Shreya Makhija (2K20/UMBA/54), Aditi Aggarwal (2K20/UMBA/56), & Muskan Goel (2K20/UMBA/63) is submitted in partial fulfillment for the award of degree of Masters of Business Administration of USME, Delhi Technological University , Delhi, is an authentic record of the candidate's own work carried out by them under my supervision and guidance.

The contents of this report have not been submitted and will not be submitted either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university. The report fulfills the requirements and regulations of the University and in my opinion meets the necessary standards for submission.

Mr. Anurag Chaturvedi
Assistant Professor

DECLARATION

We declare that this submission is a representation of our own ideas and where ideas of others have been included, we have cited and referenced the original sources.

We also declare that there has been adherence to all principles of academic honesty and integrity and have not misinterpreted/fabricated/falsified and data/idea/fact/source in our submission.

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EXECUTIVE SUMMARY

This project aims to analyze how risk profiles and different industries impact the capital structure, for this we have analyzed four companies in total.

Two companies from the automobile industry and two companies from the software industry. We want to find whether being in an asset driven industry has an impact on the capital structure vs an industry which is human resource driven for that we have chosen software industries company. At the same time, to analyze whether Risk profiles has an impact on the Capital Structure, for that we have taken up 2 companies in the electric space.

To have comparability in the data, we have selected public companies which are listed in the US stock market with the year-end closing on December 31, 2021. We have collected the data from the U.S. Securities and Exchange Commission (SEC) website. For each company we have utilized their Annual Year End Filing (10-K).

We have analyzed top 20 US companies in terms of market capitalization, and then using regression we would be observing whether factors like Gross Margin, Return on Asset and Return on Equity have an effect on the capital structure of the companies. We have taken the data from the company's annual filings.

TABLE OF CONTENTS

S.NO	TITLE	PAGE NO.
1	Introduction	1
1.1	Capital Structure	1
1.2	Short Term Financing	2
1.3	Long Term Financing	3
1.4	Cost of Capital	5
2	Automobile Industry in US	7
2.1	Introduction	7
2.2	Ford Motors Capital Structure Analysis	9
2.3	Tesla Inc. Capital Structure	17
3	Software company in United States	23
3.1	Introduction	23
3.2	Cvent Holding Corp Structure Analysis	25
3.3	Adobe Inc. Capital Structure	32
4	Comparative Analysis	41
5	Regression Analysis	43
5.1	Regression Analysis between Capital Structure and Return on Assets	45
5.2	Regression Analysis between Capital Structure and Return on Equity	46
5.3	Regression Analysis between Capital Structure and Gross Margin	48
6	Conclusion	50

1. INTRODUCTION

1.1. The Capital Structure

The capital structure of an organization is referred to as the amount of Debt or equity required by any company to fund its operations, expenditures, cost and also to finance its assets & for other investing activities.

Equity comparatively has a higher cost associated with it, long-term method of financing that provides a corporation with more financial flexibility. Debt, on the other hand, is comparatively less costly, as debt have fixed due date, hence this capital source legally binds the corporation to predictable cash outflows and the need to refinance at a later period at an unknown cost.

These corporate money decisions, which are impacted by capital structure policies or targets established by management and the board of directors, result in a firm's debt to equity structure. A firm's capital structure is also influenced by aspects like its maturity and size, which affect the financing choices available to it.

The focus is mainly on the market prices of capital because we're looking at how a firm might reduce its overall cost of capital. As a result, changes in the market prices of these company's securities over a period of phase, especially the price of the stock, have an impact on capital structure.

The expression which expresses the capital structure is the ratio which is debt to equity ratio, which will be calculated for the company's we are analyzing.

There are two types of financing which are covered in this research, that is:

- Short Term Financing
- Long Term Financing

1.2. Short Term Financing

Financing with the help of short-term sources which will be there for less than 1 year. The short-term financing helps the company generate the amount of cash for the working of the business and handling the expenses which is usually for a very smaller amount.

Factors Affecting Short-Term Financing

There are various advantages associated with the short-term financing of the sources, the advantages count in liquidity, higher profitability and lower possible financing costs.

Some disadvantages are also there, such as, higher interest rates risk and reduced amount of capital availability.

Methods of Short-Term Financing

The methods that are included short term financing are:

- Working capital financing: In this method the current assets get financed with the trading accounts payable and the accrued liabilities.
- Letter of Credit: In this the financing is accommodated by the third- party guarantee team, for example: a bank.
- Line of Credit: In this method of short-term financing the financing is taken care with the help of short-term borrowings with the help of a financial institution.

1.3. Long Term Financing

Factors Affecting Long-Term Financing

Long term financing is just opposite of short-term financing, that is the loan or borrowings is taken for a term of more than 1 year.

The advantages associated with long term financing is lower amount of interest rate risk and the incremented capital availability.

The Disadvantages of the long-term financing is reduced amount of the profitability, decrement in liquidity and the higher cost of financing.

Methods of Long-Term Financing

The methods incorporated in the long-term financing is mentioned as follows:

a. Leasing Options:

In this method of financing, the owner of the assets gives another person the right to use the asset in an agreement of using it for a determined time and cost/payments. In here, the lessee of the asset must tell that the lease taken should be a financing lease or an operating lease.

i. Operating Leases: In this method of leasing the balance sheet reflects the right of use (ROU) of any asset or a lease liability, of the lessee. The difference between the ROU of asset and lease liability is that the asset will get amortized and the lease liability would be paid down over the life of the lease taken. In the income statement, the expense of lease is written down every year for the entire lease term.

ii. Finance Lease: A financing lease, like an operational lease, will have both a ROU asset and a lease debt on the lessee's balance sheet. Each lease payment will include a portion of interest and a portion of principal paydown, with interest expenditure appearing on the income statement and the liability reduction appearing on the balance sheet.

Lessees can choose not to recognizing the ROU assets and the lease liabilities with maturities of 12 months or less by making an accounting policy election. This selection must be made by

underlying asset class, and it cannot contain asset purchase options that the lessee is fairly certain to execute.

b. Debentures and Bonds:

Bonds are a type of debt in which the borrower is obligated to pay an agreed-upon coupon payment (typically semiannually) over a set period of time.

- i. Debentures:** Debentures are unsecured bonds backed by the issuer's full faith and credit.
- ii. Subordinated Debentures:** In the event of an issuer liquidation, subordinated debentures are unsecured liabilities that rank behind senior fixed-income instruments.
- iii. Income Bonds:** Income bonds are fixed-income securities that pay interest only if certain income goals are met.
- iv. Mortgage Bonds:** Long-term loans backed by residential or commercial real estate are known as mortgage bonds.

c. Equity Financing:

- i. Preferred stock:** Preferred stock is a hybrid investment that combines debt and equity qualities. Preferred shareholders often get a fixed dividend payment and, in the case of an issuer liquidation, have a higher claim to the issuer's assets than common stockholders. Preferred stockholders typically do not have voting rights.
- ii. Common stock:** A corporation's basic equity ownership is represented by common stock. Although common stockholders may enjoy capital gains (in addition to periodic dividends) when they hold the issuer's shares, they have a residual claim to the issuer's assets if the company is liquidated.

1.4. Cost of Capital

Cost of Long-Term Debt:

The after-tax cost of debt is the pre-tax cost of debt multiplied by one minus the tax rate.

- After-tax cost of debt = Pretax cost of debt X (1-Tax rate)
- Pretax cost of debt = Face value X coupon rate

Cost of Equity:

- Cost of Preferred Stock = Preferred stock dividends / Net proceeds of preferred stock
- Cost of Common Stock = (Expected dividend / Current stock price) + constant growth rate in dividends.

Capital Asset Pricing Model (CAPM)

In addition to the DCF method, the capital asset pricing model can be used to calculate the cost of retained earnings (CAPM).

$$R_e = \text{Risk Free Rate} + \text{Beta} [\text{Market Return} - \text{Risk Free Rate}]$$

Weighted average cost of capital (WACC):

The sum of the weighted percentages of each form of capitalization utilized by a company is the weighted average cost of capital. The combination of debt and equity securities (debt to equity ratio) that yields the lowest weighted average cost of capital is the optimal cost of capital.

$$\text{WACC} = (E/V) * R_e + (P/V) * R_p + (D/V) [R_d(1-T)]$$

Where,

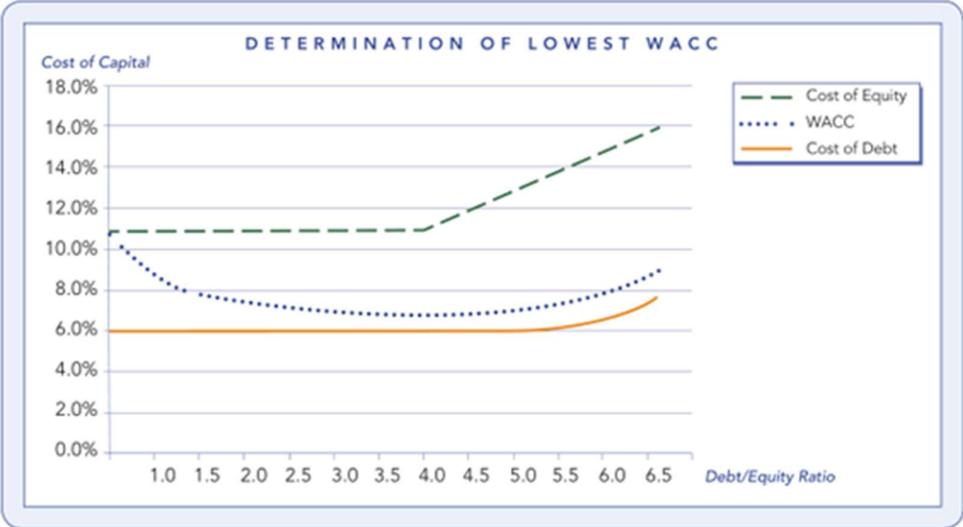
V = The sum of the market prices of the firm's separate capital structure components: common stock equity (E), preferred stock equity (P), and debt (D).

R = The required rate of return (also known as the "cost") of the various components.

T = The corporate tax rate

Optimal cost of capital:

The relationship between the weighted average cost of capital and the relationship between the elements of an entity's capitalization is depicted in the graph below (the debt-to-equity ratio).



2. AUTOMOBILE INDUSTRY IN THE US

2.1. Introduction

The size of the domestic market and the use of mass production is the reason why the automotive industry in the United States began in the 1890s and quickly grew to become the world's largest. The US was the first country in the world to have a large market for vehicle production and sales, and it is considered a pioneer in the automotive industry and mass production process.

Throughout the twentieth century, particularly in the second half, global competitors emerged, mostly in European and Asian markets. Since Duryea's founding in 1895, at least 1900 other businesses have sprung up, creating over 3,000 different types of American automobiles. The combined effects of WW I (1917–1918) and the Great Depression (1929–1939) in the US substantially reduced the number of Significant producers. During the successor war all automobile manufacturers shifted their focus to the production of military equipment and armaments.

The remaining minor producers, on the other hand, vanished or merged into larger firms by the end of the decade. The industry was ruled by three main businesses centered in Metro Detroit: General Motors, Ford, and Chrysler. These "Big Three" succeeded, the United States had produced 3/4 of the world's automobiles (8.0 million out of 10.6 million.

In the initial time of 1970s, the companies were seriously harmed by the rapidly increasing oil prices and excessive competitiveness. As a result, a few companies had to file for bankruptcy and the federal government bailed them out.

After a few years, Chrysler merged with Fiat to form Fiat Chrysler, which is now part of the international Stellates business Tesla, since its inception in 2009, it has risen to become one of the world's most valuable enterprises., manufacturing almost a 1/4 of the world's totally electric passenger cars.

Before the 1980s, the Big Three (GM, Ford, and Chrysler) and AMC owned the majority of manufacturing plants. As a result of multiple foreign-owned car firms building facilities in the US, their market share has progressively declined. Toyota had 31,000 direct employees in the US in 2012, with a total payroll of \$2.1 billion,

compared to Ford's 80,000 employees in the US supplying 3,300 dealerships and Chrysler's 71,100 employees supplying 2,328 dealerships.

2.2. Ford Motors Capital Structure Analysis

a. Consolidated Balance Sheet:

CONSOLIDATED BALANCE SHEET - USD (\$) shares in Millions, \$ in Millions	Dec. 31, 2021	Dec. 31, 2020
Assets, Current [Abstract]		
Cash and cash equivalents	\$ 20,540	\$ 25,243
Marketable securities (Note 9)	29,053	24,718
Financing Receivable, after Allowance for Credit Loss, Current	32,543	42,401
Trade and other receivables, less allowances of \$84 and \$48	11,370	9,993
Inventories (Note 11)	12,065	10,808
Other Assets, Current	3,425	3,581
Total current assets	108,996	116,744
Assets, Noncurrent [Abstract]		
Non-current portion	51,256	55,277
Net investment in operating leases	26,361	27,951
Net property (Note 13)	37,139	37,083
Equity in net assets of affiliated companies (Note 14)	4,545	4,901
Deferred Income Tax Assets, Net	13,796	12,423
Other Assets, Noncurrent	14,942	12,882
Total assets	257,035	267,261
Liabilities, Current [Abstract]		
Payables	22,349	22,204
Other liabilities and deferred revenue (Note 16 and Note 25)	18,686	23,645
Total current liabilities	90,727	97,192
Liabilities, Noncurrent [Abstract]		
Other liabilities and deferred revenue (Note 16 and Note 25)	27,705	28,379
Deferred income taxes	1,581	538
Total liabilities	208,413	236,450
EQUITY		
Capital in excess of par value of stock	22,611	22,290
Retained earnings	35,769	18,243
Accumulated other comprehensive income/(loss) (Note 23)	(8,339)	(8,294)
Treasury stock	(1,563)	(1,590)
Total equity attributable to Ford Motor Company	48,519	30,690
Equity attributable to noncontrolling interests	103	121
Total equity	48,622	30,811
Total liabilities and equity	257,035	267,261
Common Stock		
EQUITY		
Common and Class B Stock	\$ 40	40
Common stock, par value (in dollars per share)	\$ 0.01	
Common Stock, shares issued (in shares)	4,050	
Common Stock, Shares Authorized (in shares)	6,000	
Class B Stock		
EQUITY		
Common and Class B Stock	\$ 1	1
Common stock, par value (in dollars per share)	\$ 0.01	
Common Stock, shares issued (in shares)	71	
Common Stock, Shares Authorized (in shares)	530	
Ford Credit		
Assets, Current [Abstract]		

Financing Receivable, after Allowance for Credit Loss, Current	\$ 32,543	42,401
Assets, Noncurrent [Abstract]		
Non-current portion	51,256	55,277
Operating Segments Ford Credit		
Assets, Current [Abstract]		
Cash and cash equivalents	10,963	14,349
Assets, Noncurrent [Abstract]		
Total assets	134,428	157,637
Liabilities, Current [Abstract]		
Total debt payable within one year	46,517	49,969
Liabilities, Noncurrent [Abstract]		
Long-term Debt and Lease Obligation	71,200	87,708
Operating Segments Company excluding Ford Credit		
Assets, Current [Abstract]		
Cash and cash equivalents	9,577	10,894
Liabilities, Current [Abstract]		
Total debt payable within one year	3,175	1,374
Liabilities, Noncurrent [Abstract]		
Long-term Debt and Lease Obligation	\$ 17,200	\$ 22,633

a. Consolidated Income Statement:

CONSOLIDATED INCOME STATEMENT - USD (\$) shares in Millions, \$ in Millions	12 Months Ended	
	Dec. 31, 2021	Dec. 31, 2020
Revenues		
Total revenues (Note 4)	\$ 136,341	\$ 127,144
Costs and expenses		
Cost of sales	114,651	112,752
Selling, administrative, and other expenses	11,915	10,193
Total costs and expenses	131,818	131,552
Operating income/(loss)	4,523	(4,408)
Interest Expense, Other	1,803	1,649
Other income/(loss), net (Note 5 and Note 22)	14,733	4,899
Equity in net income/(loss) of affiliated companies	327	42
Income/(Loss) before income taxes	17,780	(1,116)
Provision for/(Benefit from) income taxes (Note 7)	(130)	160
Net income/(loss)	17,910	(1,276)
Less: Income/(Loss) attributable to noncontrolling interests	(27)	3
Net income/(loss) attributable to Ford Motor Company	\$ 17,937	\$ (1,279)
Basic income		
Basic income (in dollars per share)	\$ 4.49	\$ (0.32)
Diluted income		
Diluted income (in dollars per share)	\$ 4.45	\$ (0.32)
Basic shares (average shares outstanding)	3,991	3,973
Diluted shares	4,034	3,973
Automotive		
Revenues		
Total revenues (Note 4)	\$ 126,150	\$ 115,894
Ford Credit		
Revenues		
Total revenues (Note 4)	10,073	11,203
Costs and expenses		
Ford Credit interest, operating, and other expenses	5,252	8,607
Mobility Segment [Member]		
Revenues		
Total revenues (Note 4)	\$ 118	\$ 47

b. Short Term Financing - Working Capital Management

To measure the working capital management, we would be considering the few key metrics and then analyzing the impact of the same.

To analyze the efficiency of the working capital management we would be analyzing few key ratios.

Current Ratio

Current Ratio	<u>Current Asset</u>	108,996.0	1.2
	Current Liabilities	90,727.0	

This ratio essentially shows the ability of a company to meet its current liabilities. Normally a ratio closer to 1 is considered as optimal, anything greater than that may be indicative of lost opportunity. Ford's ratio is closer to 1 which is a good sign of working capital management, it indicates that the company has sufficient liquidity to meet its current liability.

Accounts Payable Ratio

Accounts Receivable Turnover	<u>Sales (Net)</u>	136,341.0	12.8
	Average Accounts Receivable (net)	10,681.5	
Days Sales in Accounts Receivable	<u>Ending Accounts Receivable (net)</u>	11,370.0	30.4
	Sales (net) / 365	373.5	

These ratios are indicative of how well companies manage their accounts receivable and how efficient it is in collecting its Accounts Receivable. Having a 12.8 Accounts Receivable Turnover, means that a company on average gets back its accounts receivable in 30 days. Ford's Accounts receivable primarily consists of "contracts with customers for the sale of vehicles, parts, accessories, and services". These receivables are recorded in the books at the transaction amount, and they normally are outstanding for a month. Ford has a practice of evaluating its outstanding debt in every period to accurately calculate the allowance for doubtful debts.

Inventory Turnover Ratio

Inventory Turnover	<u>Cost of Goods Sold</u>	114,651.0	10.0
	Average Inventory	11,436.5	
Days in Inventory	<u>Ending Inventory</u>	12,065.0	38.4
	Cost of Goods Sold / 365	314.1	

Inventory Turnover ratio describes the efficiency of a company on how fast they are able to churn their inventory, more efficient the company means more faster they would be able to churn their inventory. Ford has an inventory turnover ratio of 10 it means that on average they are able to go through their inventory cycle in 38.4 days.

Ford calculated its inventory by choosing the lower of cost or the net realizable value, it is a prudent approach and normally results in accurate valuation. Further Ford, evaluates its cost of inventory by using FIFO – First in First Out.

Accounts Payable Ratio

Accounts Payable Turnover	<u>Cost of Goods Sold</u>	114,651.0	5.1
	Average Accounts Payable	22,276.5	
Days of Payables Outstanding	<u>Ending Accounts Payable</u>	22,349.0	71.1
	Cost of Goods Sold / 365	314.1	

Accounts Payable Ratios tells about how effectively, trade payables are managed by the company. Smaller the turnover ratio better it is for the company, as you get interest free loan. As it is observed, that the payable turnover ratio is 5.1, which means that on an average it will take 70+ Days for Ford to payback its vendor.

It's a thin line, longer the payback period better it is for the company. But it might come at a cost of ruining the relationship between its vendor.

c. Long Term Financing

Leasing

Particular	Amt/Percent	Amt/Percent
	2021	2020
Total Operating Lease Liabilities	1,393	1,314
Total Finance Lease Liabilities	565	414

Leasing is also a financing option that is often opted by companies, Ford lease distribution location, offices, dealership land, land, warehouse center, and equipment through the use of agreements with the period of contract going from one year and up to forty years as well. Most of Ford lease agreement has an option to extend the lease. Further Ford also provides an option to its dealers an option to sub leases a place from Ford, where Ford itself is a tenant, this helps in reducing the initial setup cost for small dealers. At the same time Ford reserve to terminate the head lease (original lease) in case the sublease is terminated.

Ford Classifies leases transactions which are similar to purchasing of asset as Finance Lease. The same is reported in Net Property, the remaining leases are classified as operating lease, and are reported as Other assets under non-current assets.

Ford calculates the value of its leases using the discount rate of its borrowing rate, although we can see in the above analysis that leases do not constitute a major portion of its assets. Hence leases does not play a crucial role in long term financing for Ford.

Debt and Commitments

Company excluding Ford Credit	Interest Rates					
			Average Contractual		Average Effective (a)	
	2020	2021	2020	2021	2020	2021
Debt payable within one year						
Short-term	613	286	4.0	0.4	4.0	0.4
Long-term payable within one year						
Public unsecured debt securities	180	86				
U.S. Department of Energy Advanced Technology Vehicles Manufacturing ("DOE ATVM") Incentive Program	148	953				
Delayed draw term loan	—	1,500				
Other debt	434	348				
Unamortized (discount)/premium	-1	2				
Total debt payable within one year	1,374	3,175				
Long-term debt payable after one year						
Public unsecured debt securities	18,877	13,643				
Convertible notes	—	2,300				
Delayed draw term loan	1,500	—				
DOE ATVM Incentive Program	1,064	—				
U.K. Export Finance Program	854	843				
Other debt	768	768				
Unamortized (discount)/premium	-242	-188				
Unamortized issuance costs	-188	-166				
Total long-term debt payable after one year	22,633	17,200	6.3	4.4	6.5	4.6
Total Company excluding Ford Credit	24,007	20,375				
Fair value of Company debt excluding Ford Credit (c)	27,794	24,044				

Debt for Ford mainly comprises of public unsecured debt securities, convertible notes, Delayed draw term loan, DOE ATVM Incentive Program and U.K Export Finance Program. Debt is issued by Ford directly by the use of underwriters, and securities dealers. These debts are purchased by both retail investors and institutional investors. Ford also provide Ford Credit facility for its customers, but it is type of indirect debt (asset back financing) hence for our analysis we won't be evaluating the same, as it collateral by customers cars and Ford act more as an intermediary between the customers and the banks.

As shown in the above calculation Debt to Equity ratio is 1.86 this is normally considering a healthy ratio. It ensures that financial leverage is maintained, further it means that for every \$1 invested by the owners of the company, it is able to raise \$1.86 from outside. It shows trust in the company and usually it has been observed that debt

is a cheaper source of funds in comparison to Equity hence having more debt than equity is generally consider a good sign.

d. Cost of Capital

Cost of Debt

Cost of Debt = Pretax Cost of Debt * (1 – Tax Rate)

Pretax Cost of Debt = 4.6% (Given in the Debt Schedule)

Tax Rate = 21.9% (Given in Note 7 of the Ford 10K)

Hence Cost of Debt = 4.6% *(1-21.9%)

Cost of Debt = 3.59%

Cost of Equity

Since there are no preference shares, we would be focusing on equity shares only.

We would be using CAPM – Capital Asset Pricing Model to calculate cost of equity.

$Re = \text{Risk Free Rate} + \text{Beta} [\text{Market Return} - \text{Risk Free Rate}]$

Risk Free Rate = 2.89% (US 10 Year Treasury Rate – As on 29th April 2022)

Beta = 1.10 (From Yahoo Finance)

Market Return = 13.03% (<https://www.stock-analysis-on.net/NYSE/Market-Risk-Premium>)

$Re = 2.89\% + 1.10 (13.03\% - 2.89\%)$

Re = 14.04%

Weighted Average Cost of Capital

$WACC = (\% \text{ of Debt}) * Rd + (\% \text{ of Equity}) * Re$

$= (90,696/139,318) * 3.59\% + (48,622/139,318) * 14.04\%$

$= 65.10\% * 3.59\% + 34.90\% * 14.04\%$

$= 7.24\%$

*Since we are not taking Ford Credit - liability and Asset, to calculate % of Debt and Equity we would take Equity/ (Liability + Equity) and Liability/ (Equity + Liability).

2.3. Tesla Inc. Capital Structure Analysis

a. Consolidated Balance Sheet:

Consolidated Balance Sheets - USD (\$) \$ in Millions		Dec. 31, 2021	Dec. 31, 2020
Current assets			
Cash and cash equivalents		\$ 17,576	\$ 19,384
Short-term marketable securities		131	
Accounts receivable, net		1,913	1,886
Inventory		5,757	4,101
Prepaid expenses and other current assets		1,723	1,346
Total current assets		27,100	26,717
Property, plant and equipment, net		18,884	12,747
Operating lease right-of-use assets		2,016	1,558
Digital assets, net		1,260	
Intangible assets, net		257	313
Goodwill		200	207
Other non-current assets		2,138	1,536
Total assets		62,131	52,148
Current liabilities			
Accounts payable		10,025	6,051
Accrued liabilities and other		5,719	3,855
Deferred revenue		1,447	1,458
Customer deposits		925	752
Current portion of debt and finance leases		1,589	2,132
Total current liabilities		19,705	14,248
Debt and finance leases, net of current portion		5,245	9,556
Deferred revenue, net of current portion		2,052	1,284
Other long-term liabilities		3,546	3,330
Total liabilities		30,548	28,418
Commitments and contingencies (Note 15)			
Redeemable noncontrolling interests in		568	604
Convertible senior notes (Note 11)			51
Stockholders' equity			
Preferred stock; \$0.001 par value; 100 shares authorized; no shares issued and outstanding			
Common stock; \$0.001 par value; 2,000 shares authorized; 1,033 and 960 shares issued and		1	1
Additional paid-in capital		29,803	27,260
Accumulated other comprehensive income		54	363
Retained earnings (accumulated deficit)		331	-5,399
Total stockholders' equity		30,189	22,225
Noncontrolling interests in subsidiaries		826	850
Total liabilities and equity		62,131	52,148
Operating Lease Vehicles [Member]			
Current assets			
Operating lease vehicles, net		4,511	3,091
Solar Energy Systems [Member]			
Current assets			
Solar energy systems, net	[1],[2]	\$ 5,765	\$ 5,979

b. Consolidated Income Statement:

Consolidated Statements of Operations - USD (\$) shares in Millions, \$ in Millions	12 Months Ended	
	Dec. 31, 2021	Dec. 31, 2020
Revenues		
Total revenues	\$ 53,823	\$ 31,536
Cost of revenues		
Total cost of revenues	40,217	24,906
Gross profit	13,606	6,630
Operating expenses		
Research and development	2,593	1,491
Selling, general and administrative	4,517	3,145
Restructuring and other	-27	0
Total operating expenses	7,083	4,636
Income (loss) from operations	6,523	1,994
Interest income	56	30
Interest expense	-371	-748
Other income (expense), net	135	-122
Income (loss) before income taxes	6,343	1,154
Provision for income taxes	699	292
Net income (loss)	5,644	862
Net income attributable to noncontrolling interests and redeemable noncontrolling interests in subsidiaries	125	141
Net income (loss) attributable to common stockholders	5,519	721
Less: Buy-out of noncontrolling interest	-5	31
Net income (loss) used in computing net income per share of common stock	\$ 5,524	\$ 690
Net income (loss) per share of common stock attributable to common stockholders		
Basic	\$ 5.60	\$ 0.74
Diluted	\$ 4.90	\$ 0.64
Weighted average shares used in computing net income (loss) per share of common stock		
Basic	986	933
Diluted	1,129	1,083
Automotive Sales [Member]		
Revenues		
Revenues	\$ 44,125	\$ 24,604
Automotive Regulatory Credits [Member]		
Revenues		
Revenues	1,465	1,580
Automotive Leasing [Member]		
Revenues		
Revenues	1,642	1,052
Automotive Revenues [Member]		
Revenues		
Revenues	47,232	27,236
Cost of revenues		
Cost of revenues	32,415	19,696
Automotive Leasing	978	563
Total cost of revenues	33,393	20,259
Energy Generation and Storage [Member]		
Revenues		
Revenues	2,789	1,994
Cost of revenues		
Cost of revenues	2,918	1,976
Services And Other [Member]		
Revenues		
Revenues	3,802	2,306
Cost of revenues		
Cost of revenues	\$ 3,906	\$ 2,671

c. Short Term Financing - Working Capital Management

Current Ratio

Current Ratio	Current Asset /	27,100	1.3
	Current Liabilities	19,705	

Accounts Receivable Turnover Ratio

Accounts Receivable Turnover	Sales (Net) /	58,823	37.6
	Average Accounts Receivable (net)	1564	
Days Sales in Accounts Receivable	Ending Accounts Receivable (net) /	1913	11.8
	Sales (net) / 365	161	

Inventory Turnover Ratio

Inventory Turnover Ratio	Cost of Goods Sold /	40,217	6.99
	Average Inventory	5753	

Accounts Payable Ratio

Accounts Payable Turnover	Cost of Goods Sold /	40,217	5.01
	Average Accounts Payable	8020	

Days of Payables Outstanding	Ending Accounts Payable /	10,025	91
	Cost of Goods Sold / 365	110	

In the case of short term financing the current ratio is close to 1 which is considered an ideal current ratio for a company and tesla's current ratio is 1.3 which is considerably good .

For automobile company an inventory turnover ratio of between 5-10 is considered ideal. And as we can see Tesla's Inventory Turnover ratio is 7, hence we can say that it's on the right track.

Accounts payable ratio shows the firm's liquidity and ability to pay its debts, so higher the better, means higher the ratio more frequently and fatly you'll pay off your creditors. In case of Tesla it's 5.09 which needs improvement

Accounts Receivables turnover ratio indicates company's ability to collect debts and their customers quality. In case of Tesla its 37.6 which indicates that the company is very efficient in collecting their debts.

a. Long Term Financing & Cost of Capital

Long Term Debt - \$9.56 Billion

Current Debt - \$2.13 Billion

Debt to Equity Ratio	Debt /	3112	1.003
	Equity	3102	

Cost Of Capital

WACC Calculation

Components	Value
Market Value of Equity	6,76,448
Market Value of Debt	10,220
Cost of Debt	4.1%
Cost of Equity	13.3%
Corporate Tax Rate	21.0%
WACC	13.2%

Cost of Equity Calculation

Treasury Yield	2.2%
Expected Return of Market	8.0%
Beta	1.93
Cost of Equity	13.3%

Market value of debt is sourced from Pg. 81(10K)

Cost of debt is sourced from Pg. 81(10K)

Treasury Yield -

<https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/textview.aspx?data=yield>

Expected Return of Market -

<https://www.investopedia.com/ask/answers/042415/what-average-annual-return-sp-500.asp>

To fund its research and development, Tesla will have to take out loans. Tesla's total liabilities were \$30.5 billion as of December 31, 2021. The company's debt increased by 7% between 2020 and 2021. The majority of this debt is due soon, with Tesla's accounts payable totaling more than \$10 billion by the end of 2020, an increase of more than 40% over the previous year. Tesla also disclosed \$5.7 billion in short-term liabilities, \$1400 Million in delayed revenue, and \$0.925 million in customer payments for undeliverable items

Leases

	December 31, 2021	December 31, 2020
Operating leases:		
Operating lease right-of-use assets	\$ 2,016	\$ 1,558
Accrued liabilities and other	\$ 368	\$ 286
Other long-term liabilities	1,671	1,254
Total operating lease liabilities	\$ 2,039	\$ 1,540
Finance leases:		
Solar energy systems, net	\$ 27	\$ 29
Property, plant and equipment, net	1,536	1,465
Total finance lease assets	\$ 1,563	\$ 1,494
Current portion of long-term debt and finance leases	\$ 501	\$ 374
Long-term debt and finance leases, net of current portion	991	1,094
Total finance lease liabilities	\$ 1,492	\$ 1,468

Tesla have a multitude of operational and financial leasing arrangements in place for our locations, production and storage facilities, retail and dealer locations, tools, automobile, and solar powered energy installations across the world. Tesla evaluate whether the particular contract contains a lease at the time of beginning, specially evaluating whether the underlying asset is made accessible for use by the lessor, and we record leases in our financial statements. Although Tesla do not include direct sales-type leases and manufacturing equipment classes incorporated in supply lease contracts, Tesla have appropriately chosen to write both of lease and additional component as a single figure, showing the lease obligation.

3. SOFTWARE INDUSTRY IN THE UNITED STATES

3.1. Introduction

Companies in the software industry develop, maintain, and publish software through a variety of business models, the most common of which are "license/maintenance based" (on-premises) or "Cloud based". The services in software, including as training, documenting, consultancy, and recovery of the data, are also included in the industry. In 1955, Computer Usage Company became the stepping stone for all the other companies to supply software related products and services.

The industry of the software, pick up the pace in 1960s, as soon as computers were mass-produced in large quantities. The demand for software was increasing day by day and was established by universities, government, and corporate customers. A few were given away for free to some special systems.

When DEC brought the minimal cost microcomputer to the market, it opened up the world of computers to a wider variety of platforms such as businesses and colleges all around the world, and it led it towards the path of new, world accepted programming languages and processes. Other manufacturers, such as IBM, quickly followed DEC's lead, resulting in the new innovations.

In the mid-1970s, Personal computer ("PC") were launched and the industry exploded, it brought the working man to new horizons. In the years that followed, it also produced a flourishing sector for games, programs, and utilities. DOS, Microsoft's original operating system, was the most widely used operating system at the time.

One more successful business model for hosted software emerged in the early twenty-first century, called software-as-a-service, or SaaS.

3.2. Cvent Holding Corporation Capital Structure Analysis

a. Consolidated Balance Sheet:

CONSOLIDATED BALANCE SHEETS - USD (\$) \$ in Thousands	Dec. 31, 2021	Dec. 31, 2020
Current assets:		
Cash and cash equivalents	126526.00	65265.00
Restricted cash	103.00	205.00
Short-term investments	538.00	
Accounts receivable, net of allowance of \$3.3 million and \$1.9 million, respectively	112251.00	141113.00
Capitalized commissions, net	25393.00	22000.00
Prepaid expenses and other current assets	20376.00	12415.00
Total current assets	285187.00	240998.00
Property and equipment, net	15334.00	21715.00
Capitalized software development costs, net	108851.00	124030.00
Intangible assets, net	221371.00	272416.00
Goodwill	1617880.00	1605628.00
Operating lease right-of-use assets	28370.00	38922.00
Capitalized commissions, net, non-current	22999.00	20427.00
Deferred tax assets, non-current	2403.00	2036.00
Other assets, non-current, net	3684.00	5479.00
Total assets	2306079.00	2331651.00
Current liabilities:		
Current portion of long-term debt		17920.00
Accounts payable	2675.00	4078.00
Accrued expenses and other current liabilities	79827.00	81939.00
Fees payable to customers	24982.00	16872.00
Operating lease liabilities, current	11290.00	15910.00
Deferred revenue	239843.00	207622.00
Total current liabilities	358617.00	344341.00
Deferred tax liabilities, non-current	16695.00	16950.00
Long-term debt, net	262302.00	753953.00
Operating lease liabilities, non-current	30809.00	40317.00
Other liabilities, non-current	8200.00	5239.00
Total liabilities	676623.00	1160800.00
Commitments and contingencies (Note 15)	0.00	0.00
Stockholders' equity:		
Common stock, \$0.0001 par value, 1,500,000,000 and 1,100,000 shares authorized at December 31, 2021 and 2020, respectively; 481,121,695 and 416,303,325 shares issued and outstanding as of December 31, 2021 and 2020, respectively	48.00	42.00
Additional paid-in capital	2483761.00	1936406.00
Accumulated other comprehensive loss	-2746.00	-69.00
Accumulated deficit	-851607.00	-765528.00
Total stockholders' equity	1629456.00	1170851.00
Total liabilities and stockholders' equity	2306079.00	2331651.00

b. Consolidated Income Statement

Consolidated Statements of Operations and Comprehensive Loss - USD (\$ \$ in Thousands)	12 Months Ended	
	Dec. 31, 2021	Dec. 31, 2020
Income Statement [Abstract]		
Revenue	\$ 5,18,811	\$ 4,98,700
Cost of revenue	1,91,448	1,76,250
Gross profit	3,27,363	3,22,450
Operating expenses:		
Sales and marketing	1,35,616	1,28,388
Research and development	96,627	87,866
General and administrative	88,206	80,564
Intangible asset amortization, exclusive of amounts included in cost of revenue	51,478	53,844
Total operating expenses	3,71,927	3,50,662
Loss from operations	-44,564	-28,212
Interest expense	-29,073	-35,557
Amortization of deferred financing costs and debt discount	-3,606	-3,798
Loss on extinguishment of debt	-7,159	
Loss on divestitures, net		-9,634
Other income/(expense), net	5,367	1,333
Loss before income taxes	-79,035	-75,868
Provision for/(benefit from) income taxes	7,044	7,865
Net loss	-86,079	-83,733
Other comprehensive income/(loss):		
Foreign currency translation gain/(loss)	-2,793	1,165
Comprehensive loss	\$ (88,872)	\$ (82,568)
Basic and Diluted net loss per common share	\$ (0.20)	\$ (0.20)
Basic and Diluted weighted-average common shares outstanding	42,06,92,510	41,61,87,054

c. Short Term - Working Capital Management:

Current Ratio

Current Ratio	Current Asset /	2,85,187	0.8
	Current Liabilities	3,58,617	

This ratio essentially shows the ability of a company to meet its current liabilities. Normally a ratio closer to 1 is considered as optimal, anything greater than that may be indicative of lost opportunity. In here, we can see that the ratio of Cvent is less than 1 and hence it is optimal enough to meet its current liabilities.

Accounts Receivable Turnover Ratio

Accounts Receivable Turnover	Sales (Net) /	5,18,811.0	4.1
	Average Accounts Receivable (net)	1,26,682.0	

Days Sales in Accounts Receivable	Ending Accounts Receivable (net) /	1,12,251	79.0
	Sales (net) / 365	1,421.4	

These ratios are indicative on how well companies manage its accounts receivable and how efficient it is collecting its Accounts Receivable. Cvent has a ratio 4.1 which indicates that the company takes 79 days to collect back its receivables. The ratio is also indicating that the company is converting its receivables into cash 4 times.

Inventory Turnover Ratio

Inventory Turnover ratio describes the efficiency of a company on how fast they are able to churn their inventory, more efficient the company means more faster they would be able to churn their inventory. Cvent is a software company which does not

have to store its inventory and sell it to check the efficiency. So, we would take that as a positive point as it contributes towards the efficiency. Cvent has no inventory cost.

Accounts Payable Ratio

Accounts Payable Turnover	Cost of Goods Sold /	1,91,448.0	56.7
	Average Accounts Payable	3,376.5	

Days of Payables Outstanding	Ending Accounts Payable /	2,675	1.9
	Cost of Goods Sold / 365	1,421.4	

Accounts Payable Ratios talks about how effectively, trade payables are managed by the company. The Ap ratio of Cvent is 56.7 which indicates that the company is paying off its payables on timelier basis and the average time the company takes to pay its credits is 1.9 or approximately 2.

d. Long Term Financing

Leasing

	As of December 31,	
	2021	2020
Assets:		
Operating lease right-of-use assets	\$ 28,370	\$ 38,922
Liabilities:		
Current		
Operating lease liabilities	11,290	15,910
Long-term		
Operating lease liabilities	30,809	40,317
	\$ 42,099	\$ 56,227

Components of Lease Expense

	Year Ended December 31,	
	2021	2020
Operating leases		
Operating lease cost	\$ 13,361	\$ 15,967
Variable lease cost	2,036	2,781
Short-term lease rent expense	276	567
Less: Sublease income	(668)	(1,054)
Net rent expense	\$ 15,005	\$ 18,261

Other Information Related to Leases

	Year Ended December 31,	
	2021	2020
Weighted-average remaining lease term – operating leases (in years)	3.75	4.36
Weighted-average discount rate – operating leases	5.9 %	6.0 %

	Year Ended December 31,	
	2021	2020
Operating cash flows - operating leases	\$ 15,120	\$ 16,480
Right-of-use assets obtained in exchange for operating lease liabilities	\$ 1,541	\$ 2,500

Summary of Future Minimum Payments

2022		13,470
2023		12,663
2024		11,082
2025		7,086
2026		2,001
Thereafter		503
Total		46,805
Less: present value discount		(4,706)
Operating lease liabilities	\$	<u>42,099</u>

The Cvent enters into non-cancellable operating lease agreements for office space with varying expiration periods.

Subleases

Certain of the Company's office premises are subleased under operating leases with varying expiration dates.

Debt

	As of December 31,	
	2021	2020
First Lien Principal amount	\$ 265,696	\$ 771,648
Revolving Credit Facility Principal Amount	—	13,400
Less: original issue discount	(438)	(1,702)
Less: unamortized deferred financing costs	(2,956)	(11,473)
Total principal amount and related unamortized debt issuance costs, net	<u>\$ 262,302</u>	<u>\$ 771,873</u>

As of December 31, 2021, the interest rate on outstanding first lien borrowings was 3.8 percent. Because of the short-term nature of interest rates, the carrying value of variable rate debt is close to fair value.

There were no outstanding revolving loans as of December 31, 2021

Debt Portion	= Total Liability - Cvent Credit = 676623 - 262,302	414321.00
---------------------	--	-----------

Debt to Equity	Debt	414321	0.2543
	Equity	1629456	

The above calculations of the table show the debt-to-equity ratio of Cvent is 0.2543 which is very strong and good, and the ratio means that the company has \$ 0.25 in debt for each & every dollar of the shareholder's equity.

Cost of Capital

Cost of Debt

Cost of Debt = Pretax Cost of Debt * (1 – Tax Rate)

Pretax Cost of Debt = 3.8% (Under the debt schedule)

Tax Rate = 8.9% (Given under note 10 of company's 10K Document)

Cost of Debt = 3.8%* (1-8.9%)

Cost of Debt = 3.46%

Cost of Equity

Since there are no preference shares, we would be focusing on equity shares only.

We would be using CAPM – Capital Asset Pricing Model to calculate cost of equity.

Re = Risk Free Rate + Beta [Market Return – Risk Free Rate]

Risk Free Rate = 2.89% (US 10 Year Treasury Rate – As on 29th April 2022)

Beta = 0.80 (Barrons.com)

Market Return = 13.03% (<https://www.stock-analysis-on.net/NYSE/Market-Risk-Premium>)

Re = 2.89% + 0.80 [13.30%-2.89%]

Re= 11.22%

Weighted Average Cost of Capital

WACC = (% of Debt) *Rd + (% of Equity) *Re

= (414327/2043777) *3.46% + (1629456/2043777) * 11.22%

= 20.27% * 3.46% + 79.72% *11.22%

= 70.13%+ 8.94%

= 9.6%

3.3. Adobe Inc. Capital Structure Analysis

a. Consolidated Balance Sheet:

Consolidated Balance Sheets - USD (\$) \$ in Millions	Dec. 31, 2021	Dec. 31, 2021
Current assets:		
Cash and cash equivalents	\$ 3,844	\$ 4,478
Short-term investments	1,954	1,514
Trade receivables, net of allowances for doubtful accounts of \$16 and \$21	1,878	1,398
Prepaid expenses and other current assets	993	756
Total current assets	8,669	8,146
Property, Plant and Equipment, Net	1,673	1,517
Operating Lease, Right-of-Use Asset, net	443	487
Goodwill	12,668	10,742
Other intangibles, net	1,820	1,359
Deferred income taxes	1,085	1,370
Other assets	883	663
Total assets	27,241	24,284
Current liabilities:		
Trade payables	312	306
Accrued expenses	1,736	1,422
Deferred revenue	4,733	3,629
Income taxes payable	54	63
Operating Lease, Liability, Current	97	92
Total current liabilities	6,932	5,512
Long-term liabilities:		
Debt	4,123	4,117
Deferred revenue	145	130
Income taxes payable	534	529
Deferred income taxes	5	10
Operating Lease, Liability, Noncurrent	453	499
Other liabilities	252	223
Total liabilities	12,444	11,020
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, \$0.0001 par value; 2 shares authorized; none issued	0	0
Common stock, \$0.0001 par value; 900 shares authorized; 601 shares issued; 475 and 479 shares outstanding, respectively	0	0
Additional paid-in-capital	8,428	7,357
Retained earnings	23,905	19,611
Accumulated other comprehensive income (loss)	-137	-158
Treasury stock, at cost (126 and 122 shares, respectively)	-17,399	-13,546
Total stockholders' equity	14,797	13,264
Total liabilities and stockholders' equity	\$ 27,241	\$ 24,284

b. Consolidated Income Statement:

CONSOLIDATED INCOME STATEMENT - USD (\$) shares in Millions, \$ in Millions	12 Months Ended	
	Dec. 31, 2021	Dec. 31, 2020
Revenue:		
Subscription	\$ 14,573	\$ 11,626
Product	555	507
Services and other	657	735
Total revenue	15,785	12,868
Cost of revenue:		
Subscription	1,374	1,108
Product	41	36
Services and other	450	578
Total cost of revenue	1,865	1,722
Gross profit	13,920	11,146
Operating expenses:		
Research and development	2,540	2,188
Sales and marketing	4,321	3,591
General and administrative	1,085	968
Amortization of intangibles	172	162
Total operating expenses	8,118	6,909
Operating income	5,802	4,237
Non-operating income (expense):		
Interest expense	-113	-116
Investment gains (losses), net	16	13
Other income (expense), net	0	42
Total non-operating income (expense), net	-97	-61
Income before income taxes	5,705	4,176
Provision for (benefit from) income taxes	883	-1,084
Net income	\$ 4,822	\$ 5,260
Basic net income per share	\$ 10.10	\$ 10.94
Shares used to compute basic net income per share	477.3	480.9
Diluted net income per share	\$ 10.02	\$ 10.83
Shares used to compute diluted net income per share	481	485.5

c. Short Term Financing – Working Capital Management

To measure the working capital management of Adobe Inc, we would be considering the few key metrics and then analysing the impact of the same.

To analyse the efficiency of the working capital management we would be analysing certain key ratios.

Current Ratio

The current ratio is a liquidity and capability proportion which is utilized to gauge a company's capacity to pay its transient liabilities, which are expected in one year or less.

Current Ratio	Current Asset /	8,669.0	1.3
	Current Liabilities	6,932.0	

Current ratio of under 1 demonstrates inadequacy of assets in the short race to meet liabilities and an exceptionally high current proportion shows unfortunate administration of assets and working capital on piece of the administration, since those overabundance assets could be contributed somewhere else to acquire a better yield or to finance activities.

The current ratio of Adobe Inc Current is 1.3, which indicates that the firm has sufficient short-term liquidity to meet its liabilities in a span of a year and defaults to repay its liabilities can be avoided. It ensures that current assets have been managed optimally.

Accounts Receivable Ratio

The receivable turnover ratio helps understand a company's ability to collect receivables, or the money owed by its customers. The ratio demonstrates how well a company manages and utilizes the credit it extends to customers, as well as how quickly that debt is collected.

Accounts Receivable Turnover	Sales (Net) /	15,785.0	9.6
	Average Accounts Receivable (net)	1,638.0	

Days Sales in Accounts Receivable	Ending Accounts Receivable (net) /	1,638.0	37.9
	Sales (net) / 365	43.2	

Receivable turnover ratio of Adobe Inc for the year 2021 is 9.6. It means that the company collects all of its receivables in 38 days, on average. Therefore, it displays efficiency on part of management while extending credit.

Inventory Turnover Ratio

Inventory Turnover	Cost of Goods Sold /	1,865.0	2.1
	Average Inventory	874.5	

Days in Inventory	Ending Inventory /	993.0	194.3
	Cost of Goods Sold / 365	5.1	

The number of times inventory is sold or used in a certain time period, usually a year, is depicted by the inventory turnover ratio. It's used to see if a business has enough inventory in relation to its sales volume.

An optimal inventory turnover ratio roughly ranges between 5 and 10 for most industries. However, for software companies like Adobe, where the real

inventory is very less and the most valuable asset is its human resource, due to which the company has a low inventory turnover ratio of 2.1.

Accounts Payable Ratio

The accounts payable turnover ratio is a simple metric of liquidity that measures how regularly a business pays its vendors. The number of times a company's accounts payable are paid off in an year is signified as account payable turnover.

Accounts Payable Turnover	Cost of Goods Sold /	1,865.0	6.0
	Average Accounts Payable	309.0	

Days of Payables Outstanding	Ending Accounts Payable /	312.0	61.1
	Cost of Goods Sold / 365	5.1	

In case of Adobe Inc, payable turnover ratio for the year 2021 is 6.0. It means that the company with an accounts payable turnover ratio of 6.0 pays all of its payables in 61 days, on average.

Cash Conversion Cycle

The Cash Conversion Cycle (CCC) is a benchmark that determines how long it takes for a company to convert its inventory into cash. The formula of cash conversion cycle dictates the number of days it takes for a company to turn its resources into cash.

Cash Conversion Cycle	Days Sales in AR + Days in Inventory - Days of Payables Outstanding	171.2
------------------------------	---	-------

In case of Adobe, the ratio indicates that the company is able to complete its inventory to sales process in 171 days roughly. In our opinion it is a moderate CCC ratio however, a lower CCC ratio is more desirable.

Long Term Financing

Leasing

The company leases majority of its facilities and data centres under operating leases that are non-cancellable and expire at different times between now and 2031.

They also have a land lease that is set to end in 2091.

There are no material variable payment provisions or any material restrictive covenants in Adobe's lease agreements.

Operating lease expense for both 2020 and 2021 was \$119 million

For the upcoming years, the estimated present value of the company's lease liability is as follows:

As of December 31, 2021, the maturities of lease liabilities under operating leases were as follows:	
Particulars	Operating Leases in million \$
2022	108
2023	87
2024	68
2025	65
2026	60
Thereafter	216
Total lease liabilities	604
Less: Imputed interest	54
Present value of lease liabilities	550

Debt

For Adobe Inc. debt majorly includes senior notes. A senior note is a type of bond that generally pays a lower interest rate than junior bonds because such notes take priority over other debts if the company declares bankruptcy or is pushed into liquidation. Hence such notes pose a smaller risk for the investor. However, all the company's senior notes are unsecured and not leveraged by an asset.

The carrying value of borrowings as of December 31, 2021 and December 31, 2020 were as follows:

(dollars in millions)	Issuance Date	Due Date	Effective Interest Rate	2021	2020
1.70% 2023 Notes	Feb-20	Feb-23	1.92%	\$ 500	\$ 500
1.90% 2025 Notes	Feb-20	Feb-25	2.07%	500	500
3.25% 2025 Notes	Jan-15	Feb-25	3.67%	1,000	1,000
2.15% 2027 Notes	Feb-20	Feb-27	2.26%	850	850
2.30% 2030 Notes	Feb-20	Feb-30	2.69%	1,300	1,300
Total debt outstanding, at par				\$ 4,150	\$ 4,150
Unamortized discount and debt issuance costs				-27	-33
Carrying value of long-term debt				\$ 4,123	\$ 4,117

In Feb 2020, the company issued \$500 million worth senior notes that are due to be redeemed by 2023. Another set of \$500 million senior notes were issued in Feb 2020 that are due Feb 2025. Furthermore, in the month of Feb 2020 itself, \$850 million worth notes were issued that are due 2027 and lastly \$ 1.3 billion was raised by the same means and these notes would be due in 2030. Overall, the company raised \$3.150 billion in the year 2020 all by floating senior notes. These collected funds are to be used for general corporate purposes and to repay debt instruments that are due to be redeemed in 2020.

Debt to Equity	Debt 4,123	0.278637562
	Equity 14797	

The debt equity ratio is a measure of how a company's assets are financed by debt and how much is financed by equity. The ideal ratio is 2:1, which is also known as risk, gearing, or leverage. For Adobe Inc Debt equity ratio 0.28, which indicates that the company does not rely on borrowed capital to finance its major operating activities.

The lower debt equity ratio of the company in turn improves the credit worthiness of the company and further strengthens its liquidity position.

d. Cost of Capital

Cost of Debt:

$$\text{Cost of Debt} = \text{Pre-tax Cost of Debt} * (1 - \text{Tax Rate})$$

$$\text{Pre-tax Cost of Debt} = 4.25\%$$

$$\text{Tax Rate} = 15\% \text{ (As per company notes shared in 10K filing)}$$

$$\text{Hence Cost of Debt} = 4.25\% * (1 - 0.15)$$

$$\text{Cost of Debt} = 3.612\%$$

Cost of Equity:

Since there are no preference shares, we would be focusing on equity shares only.

We would be using CAPM – Capital Asset Pricing Model to calculate cost of equity.

$$R_e = \text{Risk Free Rate} + \text{Beta} [\text{Market Return} - \text{Risk Free Rate}]$$

$$\text{Risk Free Rate} = 2.89\% \text{ (US 10 Year Treasury Rate – As on 29th April 2022)}$$

$$\text{Beta} = 1.07 \text{ (From Yahoo Finance)}$$

$$\text{Market Return} = 13.03\% \text{ (<https://www.stock-analysis-on.net/NYSE/Market-Risk-Premium>)}$$

$$R_e = 2.89\% + 1.07 (13.03\% - 2.89\%)$$

Re = 13.74%

Weighted Average Cost of Capital:

$$\text{WACC} = (\% \text{ of Debt}) * R_d + (\% \text{ of Equity}) * R_e$$

Particulars	\$ million / Percentages
Debt	\$ 4,123
Equity	\$ 14,797
Debt + Equity	\$ 18,920
Debt Percentage	21.79%
Equity Percentage	78.21%
Cost of Debt	3.61%
Cost of Equity	13.74%
WACC	11.53%

4. COMPARITIVE ANALYSIS

Automobile Industry (Asset Heavy)

Ford's current ratio is approaching one, which is a good sign of working capital management since it suggests the company has adequate cash to meet its current commitments. Tesla's current ratio is close to 1, which is regarded as an ideal current ratio for a company. Ford has a 12.8 rating. The bulk of Ford Accounts Receivable is made up of contracts with consumers for the sale of cars, parts, accessories, and services. The transaction value of these receivables is documented in the records, and they normally carry a month's worth of interest. Every period, Ford assesses its outstanding debt to set the required reserve for doubtful debts. It's 37.6 for Tesla, showing that the company is pretty strong at it. Ford has a 10 inventory turnover ratio, which implies they can move through their inventory cycle in 38.4 days on average. Ford valued their inventory by using the lower of cost or net realizable value; this is a cautious technique that usually yields accurate findings. Ford also uses FIFO – First in, First Out – to calculate its inventory costs. An inventory turnover ratio of 5-10 is considered optimum for a car firm. And, as can be seen, Tesla's Inventory Turnover Ratio is 7, indicating that it is on pace.

WACC implies the risk associated with company's operations. Tesla has a higher WACC (13.2%) as compared to Ford's(7.24%).This is possible because there is more anticipation around TESLA due to its entrance into new avenues of Electric Vehicle market.

SERVICE INDUSTRY (Asset Light)

The current ratio of Adobe Inc Current is 1.3, suggesting that the firm has enough short-term liquidity to meet its obligations within a year and that debt repayment defaults can be avoided. It ensures that existing assets are utilised to their utmost capacity. Cvent's current ratio is less than one, suggesting that its current liabilities are covered. The receivable turnover ratio for Adobe Inc in 2021 is 9.6. It means that the company collects all of its receivables in an average of 38 days. As a consequence, while granting loans, it exhibits management efficiency. Cvent's ratio is 4.1, suggesting that it takes 79 days for the company to recover its receivables.

The recommended inventory turnover ratio for most industries is between 5 and 10. Software companies, on the other hand, have a low inventory turnover ratio of 2.1

because their genuine inventory is modest and their most valuable asset is their human resource. Cvent is a software startup that doesn't need to keep or sell goods to figure out how efficient it is. As a result, we think this is a benefit since it increases efficiency. There are no stocking charges with Cvent. Adobe Inc's payable turnover ratio for the year 2021 is 6.0. It means that a company with a 6.0 accounts payable turnover ratio pays all of its bills in 61 days on average. Cvent, on the other hand, has a 56.7 ratio, showing that the company is paying off its payables more quickly, and the average time it takes to pay its credits is 1.9 weeks.

5. REGRESSION ANALYSIS OF FACTORS AFFECTING CAPITAL STRUCTURE

We would be analyzing top 20 US companies in terms of market capitalization, and then using regression we would be observing whether factors like Gross Margin, Return on Asset and Return on Equity have an effect on the capital structure of the companies.

We have taken the following data from the company's annual fillings, the following figures are in millions.

Company Name	Total Asset	Debt	Equity	Net Sales	Gross Profit	Net Income
Apple	351,002	287,912	63,090	365,817	152,836	94,680
Microsoft	333,779	191,791	141,988	168,088	115,856	61,271
Amazon	420,549	282,304	138,245	469,822	66,315	33,364
Alphabet Inc	359,268	107,633	251,635	257,637	146,698	76,033
Facebook	165,987	41,108	124,879	117,929	95,280	39,370
Tesla	62,131	31,116	31,015	53,823	13,606	5,519
Berkshire Hathway	958,784	443,854	514,930	354,636	111,686	89,795
Visa	82,896	45,307	37,589	24,105	19,135	12,311
Johnson & Johnson	182,018	107,995	74,023	93,775	63,920	20,878
Walmart	244,860	152,969	91,891	572,754	143,754	13,673
Mastercard	37,669	30,257	7,412	18,884	14,395	8,687
UnitedHealth Group	212,206	135,727	76,479	285,273	67,328	17,285
The Walt Disney Company	203,609	110,598	93,011	67,418	22,287	1,995
Procter & Gamble	119,307	72,653	46,654	76,118	39,010	14,306
Nvidia	44,187	17,575	26,612	26,914	17,475	9,752
Paypal Holdings	75,803	54,076	21,727	25,371	13,996	4,169
Intel	168,406	73,015	95,391	79,024	43,815	19,868
Comcast	275,905	177,896	98,009	116,385	77,935	14,159
Verizon Communications	366,596,000	283,396,000	83,200,000	133,613,000	77,312,000	22,065,000
Exxon Mobil	338,923,000	163,240,000	175,683,000	276,692,000	64,886,000	23,040,000

Ratios Calculated:

Debt to Equity	Gross Margin	Return on Asset	Return on Equity
Debt to Equity	Gross Profit/Net Sales	Net Income/Asset	Net Income/ Equity
4.563512443	42%	27%	150%
1.350754993	69%	18%	43%
2.042055771	14%	8%	24%
0.427734616	57%	21%	30%
0.329182649	81%	24%	32%
1.003256489	25%	9%	18%
0.861969588	31%	9%	17%
1.205326026	79%	15%	33%
1.458938438	68%	11%	28%
1.664678804	25%	6%	15%
4.082164058	76%	23%	117%
1.774696322	24%	8%	23%
1.189085162	33%	1%	2%
1.557272688	51%	12%	31%
0.660416354	65%	22%	37%
2.488884798	55%	5%	19%
0.765428604	55%	12%	21%
1.815098613	67%	5%	14%
3.406201923	58%	6%	27%
0.929173568	23%	7%	13%

5.1. Regression Analysis between Capital Structure and Return on Assets

We performed a regression analysis between Debt to Equity and Return on Asset, in our analysis we found out that there exists very low correlation between the two factors. As such it further shows that only 2% of the variation in Debt to Equity is explained by the Return on Asset.



SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.1472194
R Square	0.0216735
Adjusted R Square	-0.032678
Standard Error	1.1767154
Observations	20

ANOVA

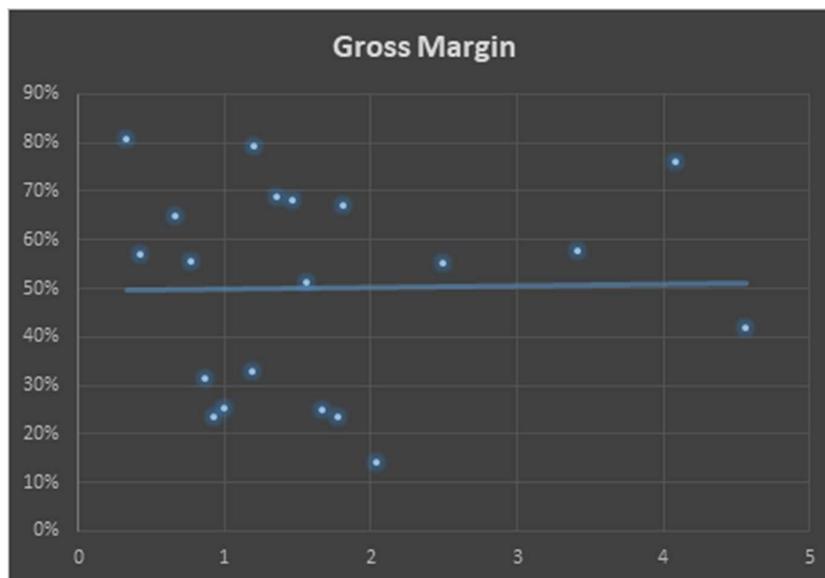
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.552155806	0.552155806	0.39876657	0.535664805
Residual	18	24.92386587	1.384659215		
Total	19	25.47602167			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>
Intercept	1.3958977	0.519542295	2.686783566	0.015068467	0.304379842
Return on Asset	2.2650195	3.586844675	0.631479667	0.535664805	-5.270661551

Regression Statistics	Interpretation	Ant	Result
Multiple R	Multiple R is the correlation between actual and predicted values of the dependent variable. It tells how fit the regression equation is to the data. It is also called the correlation coefficient.	0.147219391	There is low correlation between the two factors.
R Square	It represents the proportion of the variance for a dependent variable that's explained by an independent variable. It tells the reliability of found regression. It tells us how many observations are part of our line of regression or how close they are to the regression line.	0.021673549	It shows that only 2% of the variation in Debt to Equity is explained by the Return on Asset.
Adjusted R Square	This is contextual based and is useful in comparison, to analyze whether including an additional independent variable helps in the correlation or even the additional Independent variable is correlated or not.	-0.03267792	Negligible, it means that adding the particular variable will have no or netlabel effect on the factor.
Standard Error	It tells about how far a data point can go from the regression line. This like a +- range for the regression line. As seen in the bellow diagram, for X1 the range is smaller but for X2 the range is bigger.	1.176715435	Debt ranges from .4 to 4.5 hence having a standard deviation of 1.17 is slightly on the higher side.
Observations	Number of Observation	20	

5.2. Regression Analysis between Capital Structure and Gross Margin

We performed a regression analysis between Debt to Equity and Gross Margin, in our analysis we found out that there exist no correlation between the two factors. At the same time the standard deviation is comparatively high 1.18 for a range of 0.4 to 4.5.



SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.02047				
R Square	0.000419				
Adjusted R Square	-0.05511				
Standard Error	1.189429				
Observations	20				
<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.010674562	0.010674562	0.007545238	0.931739156
Residual	18	25.46534711	1.414741506		
Total	19	25.47602167			
	<i>Coefficient</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>
Intercept	1.622711	0.698256624	2.323946285	0.032034507	0.155728156
Gross Margin	0.11217	1.29133907	0.08686333	0.931739156	-2.600832702

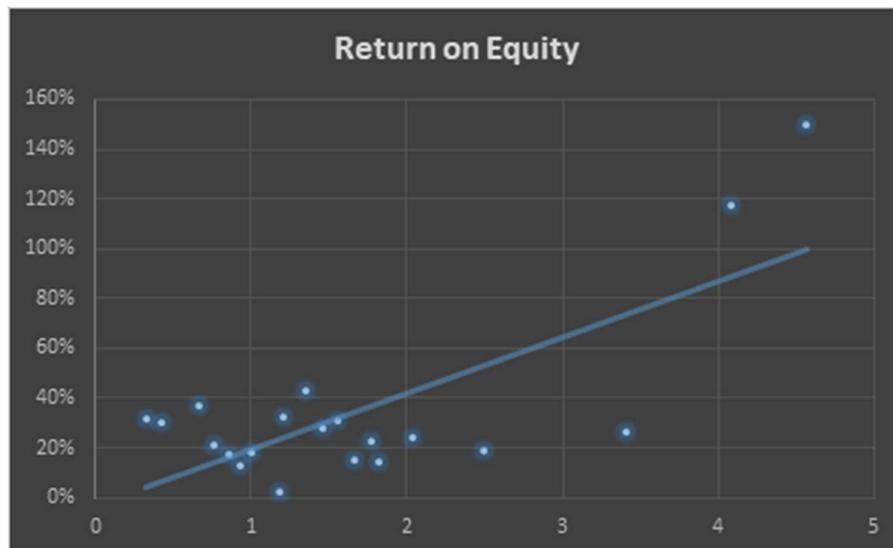
<i>Regression Statistics</i>	<i>Interpretation</i>	<i>Amt</i>	<i>Result</i>
Multiple R	Multiple R is the correlation between actual and predicted values of the dependent variable. It tells how fit the regression equation is to the data. It is also called the correlation coefficient.	0.020469594	No Correlation
R Square	It represents the proportion of the variance for a dependent variable that's explained by an independent variable. It tells the reliability of found regression. It tells us how many observations are part of our line of regression or how close they are to the regression line.	0.000419004	There is no to negligible the variation in Debt to Equity which is explained by Gross Margin.
Adjusted R Square	This is contextual based and is useful in comparison, to analyze whether including an additional independent variable helps in the correlation or even the additional Independent variable is correlated or not.	-0.055113273	Very low, it means there is no effect of this variable in the model.
Standard Error	It tells about how far a data point can go from the regression line. This like a +- range for the regression line.	1.189429067	Debt ranges from .4 to 4.5 hence having a standard deviation of 1.18 is slightly on the higher side.
Observations	Number of Observation	20	

5.3. Regression Analysis between Capital Structure and Return on Equity

During the analysis we found a direct correlation between return on equity and debt for equity, it is moderately high correlation with the Multiple R Score of 0.73. This analysis also goes with normal convention, as the company increases its Net Income its ROE increases.

With higher ROE, the shareholders want optimum utilization of their resources, hence they go towards cheaper capital options, as seen in our previous analysis debt tends to be a cheaper source of capital.

With debt there is an obligation to pay irrespective of profits in a particular period, hence companies prefer to go for debt after considering their financial leverage. To maintain optimal financial leverage, companies need to increase their net income. Once they are able to increase their net income then only, they can safely go for options like debt. This is consistent with our findings as well. Where there is an increase in debt to equity ratio with an increase in return on equity.



SUMMARY OUTPUT					
Regression Statistics					
Multiple R	0.736315				
R Square	0.54216				
Adjusted R Square	0.516725				
Standard Error	0.804982				
Observations	20				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	13.81209081	13.81209081	21.31508131	0.000214179
Residual	18	11.66393086	0.647996159		
Total	19	25.47602167			
Coefficients					
	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	
Intercept	0.846147	0.254805661	3.320754796	0.003802959	0.310820291
Return on Equity	2.401202	0.520098045	4.616825891	0.000214179	1.308516675

Regression Statistics	Interpretation	Ant	Result
Multiple R	Multiple R is the correlation between actual and predicted values of the dependent variable. It tells how fit the regression equation is to the data. It is also called the correlation coefficient.	0.736315441	There is moderate to high correlation between Debt to Equity and Return on Equity
R Square	It represents the proportion of the variance for a dependent variable that's explained by an independent variable. It tells the reliability of found regression. It tells us how many observations are part of our line of regression or how close they are to the regression line.	0.542160428	It means that 54.21% of the variation in Debt to Equity is explained by the changes in Return on Equity
Adjusted R Square	This is contextual based and is useful in comparison, to analyze whether including an additional independent variable helps in the correlation or even the additional Independent variable is correlated or not.	0.516724896	It is relatively on the higher side, it means that it has a significant contribution in evaluating the model determining Debt to Equity.
Standard Error	It tells about how far a data point can go from the regression line. This like a +- range for the regression line.	0.804982086	Standard error is slightly on the higher side, it defines how further points are from the regression line.
Observations	Number of Observation	20	

6. CONCLUSION

In our findings we have observed that asset heavy industries like ford tend to have a more conservative approach towards their capital structure and overall working capital management. We have observed that these asset heavy legacy companies tend to follow conventional wisdom when it comes to managing their capital structure. On the other hand, Asset light companies like software companies or service sector companies tend not follow conventional wisdom because in many cases it is not relevant for them. For most of the software/service companies working capital management is completely different from traditional legacy companies, mainly because of their less inventory, less accounts receivable and lack of accounts payable. Since these companies sell their software and services mostly over cloud they rarely have any inventory, while on the other hand asset heavy companies have to focus a lot of their energy on managing inventory and related stuff. Further software companies normally don't have any accounts receivable, because their products have low per unit value and are sold directly to the customer which pays the company instantly on the other hand automotive industry often give their products on leases or have an option to pay back in 30 days because of which accounts receivable management becomes a huge task.

Over long term financing we have observed, that asset heavy companies tend to rely more on debt, with a ratio closer to 4 is to 1, for every part of equity there are 4 parts of debt. On the other hand software companies tend to focus more on raising equity and financing their needs through equity financing only. Software and Service companies debt to equity ratio comes around on 0.27 debt part for every 1 part of equity. Because of which their weighted average cost of capital increase. But this is somewhat necessary for software companies as they are not in a position to have more debt because of their irregularity in business, hence these companies don't prefer to have a fix obligation in the form of interest.

During our regression analysis we have found a close link between capital structure and return on equity. We have seen as the return on equity increases, which is mainly because of increase in Net Income, then companies tend to focus more on moving toward cheaper source of financing, because they can manage the financial leverage and have some amount of certainty over their ability to pay for fixed interest charges.