

Financial Analysis - Apple Inc

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1 Introduction

The investing strategy is based on a multi-step analysis that increasingly looks more closely into the company. There will be 5 different phases all together:

1. Phase 1: First Impression
2. Phase 2: Management
3. Phase 3: Moat
4. Phase 4: Deep Dive (Ratio Analysis)
5. Phase 5: Intrinsic Value

2 Phase 1: First Impression

2.1 The Company

Apple Inc. designs, manufactures, and markets smartphones, personal computers, tablets, wearables, and accessories worldwide. It also sells various related services. In addition, the company offers iPhone, a line of smartphones; Mac, a line of personal computers; iPad, a line of multi-purpose tablets; AirPods Max, an over-ear wireless headphone; and wearables, home, and accessories comprising AirPods, Apple TV, Apple Watch, Beats products, HomePod, and iPod touch. Further, it provides AppleCare support services; cloud services store services; and operates various platforms, including the App Store that allow customers to discover and download applications and digital content, such as books, music, video, games, and podcasts. Additionally, the company offers various services, such as Apple Arcade, a game subscription service; Apple Music, which offers users a curated listening experience with on-demand radio stations; Apple News+, a subscription news and magazine service; Apple TV+, which offers exclusive original content; Apple Card, a co-branded credit card; and Apple Pay, a cashless payment service, as well as licenses its intellectual property. The company serves consumers, and small and mid-sized businesses; and the education, enterprise, and government markets. It distributes third-party applications for its products through the App Store. The company also sells its products through its retail and online stores, and direct sales force; and third-party cellular network carriers, wholesalers, retailers, and resellers. Apple Inc. was incorporated in 1977 and is headquartered in Cupertino, California.

2.2 General Information

2.2.1 General Company Information

General Company Information	
Company Name	Apple Inc
Ticker Symbol	AAPL
ISIN	US0378331005
Address	One Apple Park Way, Cupertino, CA, United States, 95014
Sector	Technology
Industry	Consumer Electronics
Employees	154000
Fiscal Year Ends	September
IPO	1980-12-12

2.2.2 General Stock Information

General Stock Information	
Currency	USD
Market Capitalization	2226921668608.0
Dividend Share	0.88
Dividend Yield (in %)	0.0067

2.3 Stock Categories

2.3.1 Definition

Peter Lynch characterizes stocks into 6 different categories:

1. Slow Growers/Sluggards: Slow growers are those stocks that have a slow growth rate i.e. a low upward slope of earnings and revenue growth. The growth is usually between 2-5% CAGR and lower than the industry average. These sluggards may once were fast growers, but couldn't maintain their growth rate as they grew bigger and can be characterized by the size and generosity of their dividend.

the only reason to buy these stocks are dividends. These stocks generally give a decent dividend (about 2-4%) and are a good asset during the recession as it's very unlikely for their stock to crash too hard.

2. Stalwarts: These stocks have an average growth rate as that of industry and are usually mid to large companies. They have an earnings growth rate better than the Sluggards and can be typically between the 8-12 percent CAGR range.

investors can get an adequate return from these stocks if they hold these stocks for a long time. They generally end up being two-baggers to four-baggers i.e. they

can give you 2-4 times returns in long run. Peter Lynch advised that it is good to have a few stalwarts in your portfolio.

3. Fast Growers: The fast growers are everyone's first choice. These stocks are generally aggressive companies and they grow at an impressive rate of 15-25% per year. They are fast-growth stocks and grow at a comparatively faster rate compared to the industry average and competitors. However, Peter Lynch advises that one should be open-eyed when they own a fast grower. There is a great likelihood for the fast growers to get hammered if they run out of steam or if their growth is not sustainable.
4. Cyclical: The Cyclical are those stocks that grow at a very fast pace during their favorable economic cycle. They can be distinguished from the fast growers as the cyclical keeps on expanding and contracting and again repeating the same cycle. On the other hand, the fast growers keep on growing consistently. The cyclical companies tend to flourish when coming out of a recession into a vigorous economy.

Generally, Automobiles, Metals, Tourism, etc are examples of the cyclical industry. The stock charts of these companies tend to be cyclical and go up & down over different phases of time.

Peter Lynch advises the investors to own the cyclical only on the right part of the cycle i.e. when they are expanding. If bought at the wrong phase, it may even take them years before they perform. Timing is everything while investing in cyclical stocks and investors need to be able to detect the early signs that the industry is picking up or falling down.

5. Turnarounds: The turnarounds are characterized as potential fatalities that have been badly hammered by the market for one or more of a variety of reasons but can make up the lost ground under the correct circumstances.

Holding turnarounds can be very profitable if the management is able to turn the company as these stocks can be bought at a very low valuation by the investors. However, if the management fails to bring back the company on track, it can be very troublesome for the investors.

6. Asset Plays: The asset plays are those stocks whose assets are overlooked by the market and are undervalued. These assets may be properties, equipment, or other real assets that the company is holding but which is not valued by the investors when there has been a general market downturn. The real value may be worth more than the market capitalization of the company.

Many of the Public sector units are key asset plays because of the real estate

property they are holding.

Peter Lynch understands the worth of the asset plays. He suggests owning a few of these stocks in your portfolio as they are most likely to add a lot of value to your portfolio. However, the biggest significant factor while picking these stocks is to carefully estimate the right worth of the assets. If you are able to do it, you can pick valuable gems.

2.3.2 Characterization

2.4 Shareholder Structure

General Shareholder Information	
Shares Outstanding	16185199616
Shares Floating	16168348412
Float-to-Outstanding Ratio	0.999
Owned by Institutions (in %)	59.598
Owned by Insiders (in %)	0.073
Owned by Public (in %)	40.329

2.4.1 Institutions

Institutions			
Name	Total Shares (%)	Change (%)	Total Assets (%)
Vanguard Group Inc	7.7927	-0.4005	5.0848
BlackRock Inc	6.3009	-0.625	4.6097
Berkshire Hathaway Inc	5.4812	0	47.5985
State Street Corporation	3.9117	1.7603	5.3315
FMR Inc	2.1761	0.4524	4.6181
Geode Capital Management, LLC	1.6333	1.7149	5.6383
T. Rowe Price Associates, Inc.	1.3787	18.3876	3.5658
Northern Trust Corp	1.1793	-2.276	5.5526
Bank of New York Mellon Corp	0.894	-3.1364	4.6362
Morgan Stanley - Brokerage Accounts	0.8184	3.2604	2.9043

2.4.2 Funds

Funds			
Name	Total Shares (%)	Change (%)	Total Assets (%)
Vanguard Total Stock Mkt Idx Inv	2.7653	-0.1923	5.9285
Vanguard 500 Index Investor	2.095	0.1071	7.0394
SPDR00ae S&P 500 ETF Trust	1.0241	0.7717	6.9922
Fidelity00ae 500 Index	0.9951	0.9024	7.0471
Invesco QQQ Trust	0.8659	0.3336	12.8951
iShares Core S&P 500 ETF	0.8004	-0.0212	6.9775
Vanguard Growth Index Investor	0.764	-0.2289	12.7252
Vanguard Institutional Index I	0.7176	-0.3185	7.0487
Vanguard Information Technology ETF	0.4663	0.856	22.7698
State St S&P 50000ae Indx SL Cl III	0.436	-0.1385	6.9099

2.4.3 Insider Trading

Insider Trading					
Name		Date	Amount	Price	Acquired or Disposed
Katherine Adams	L	2022-05-04	25000	161.72	D
Deirdre O'Brien		2022-04-18	8000	164.91	D
Deirdre O'Brien		2022-04-04	29198	177.77	D
Jeffrey Williams	E.	2022-04-04	105901	177.75	D
Katherine Adams	L	2022-02-03	25000	174.78	D
Arthur Levinson	D	2022-02-01	1986	173.29	D
Chris Kondo		2021-11-12	9005	150	D
Katherine Adams	L	2021-11-01	25000	148.68	D
Luca Maestri		2021-10-19	165829	148.62	D
Deirdre O'Brien		2021-10-18	18247	146.35	D

2.5 Circle of Competence

2.6 Meaning

2.7 Moat

2.8 Management

Officers	
Title	Name
CEO & Director	Mr. Timothy D. Cook
CFO & Sr. VP	Mr. Luca Maestri
Chief Operating Officer	Mr. Jeffrey E. Williams
Sr. VP, Gen. Counsel & Sec.	Ms. Katherine L. Adams
Sr. VP of People & Retail	Ms. Deirdre O'Brien
Sr. Director of Corp. Accounting	Mr. Chris Kondo
Chief Technology Officer	Mr. James Wilson
Chief Information Officer	Ms. Mary Demby
Sr. Director of Investor Relations & Treasury	Ms. Nancy Paxton
Sr. VP of Worldwide Marketing	Mr. Greg Joswiak

2.9 Competition

2.10 Future

2.11 Invert the story

2.12 Analyst Ratings

Analyst Ratings	
Rating	4.3333
Target Price	169.88
Strong Buy	28
Buy	7
Hold	8
Sell	1
Strong Sell	1

2.13 First Decision

3 Phase 2: Management

3.1 Rule 1: Low Debt

Here, we want to find out if the debt is manageable.

3.1.1 Rule 1.1: Debt-to-Equity (D/E) Ratio

The Debt-to-Equity Ratio (D/E) should be $D/E = \frac{\text{Long Term Debt} + \text{Notes Payable}}{\text{Equity}} \leq 0.5$. This means that the company can pay back all the money it owes (i.e. Long Term Debt and Notes Payable) with less than half of its equity.

Debt-to-Equity (D/E)			
Year	2010	2011	2012
Long Term Debt	0.0	0.0	0.0
Notes Payable	None	None	None
Equity	47791000000.0	76615000000.0	118210000000.0
D/E	0.0	0.0	0.0
Year	2013	2014	2015
Long Term Debt	16960000000.0	28987000000.0	53463000000.0
Notes Payable	None	6308000000.0	10999000000.0
Equity	123549000000.0	111547000000.0	119355000000.0
D/E	0.1373	0.3164	0.5401
Year	2016	2017	2018
Long Term Debt	75427000000.0	97207000000.0	93735000000.0
Notes Payable	11605000000.0	18473000000.0	20748000000.0
Equity	128249000000.0	134047000000.0	107147000000.0
D/E	0.6786	0.863	1.0685
Year	2019	2020	2021
Long Term Debt	91807000000.0	98667000000.0	109106000000.0
Notes Payable	16240000000.0	13769000000.0	15613000000.0
Equity	90488000000.0	65339000000.0	63090000000.0
D/E	1.194	1.7208	1.9768

3.1.2 Rule 1.2: Debt-to-FCF (D/FCF) Ratio

The Debt-to-FCF ratio (D/FCF) should be $D/FCF = \frac{\text{Long Term Debt} + \text{Notes Payable}}{\text{FCF}} \leq 3$. This means that simply by operating the business we are able to pay our debtors in under 3 years.

Debt-to-FCF (D/FCF)			
Year	2010	2011	2012
Long Term Debt	0.0	0.0	0.0
Notes Payable	None	None	None
FCF	16474000000.0	30077000000.0	41454000000.0
D/FCF	0.0	0.0	0.0

Year	2013	2014	2015
Long Term Debt	16960000000.0	28987000000.0	53463000000.0
Notes Payable	None	6308000000.0	10999000000.0
FCF	44590000000.0	49900000000.0	69778000000.0
D/FCF	0.3804	0.7073	0.9238
Year	2016	2017	2018
Long Term Debt	75427000000.0	97207000000.0	93735000000.0
Notes Payable	11605000000.0	18473000000.0	20748000000.0
FCF	52276000000.0	50803000000.0	64121000000.0
D/FCF	1.6649	2.277	1.7854
Year	2019	2020	2021
Long Term Debt	91807000000.0	98667000000.0	109106000000.0
Notes Payable	16240000000.0	13769000000.0	15613000000.0
FCF	58896000000.0	73365000000.0	92953000000.0
D/FCF	1.8345	1.5326	1.3417

3.1.3 Rule 1.3: Liabilities-to-Equity (L/E) Ratio

The Liabilities-to-Equity (L/E) should be $L/E = \frac{\text{liabilities}}{\text{equity}} \leq 0.8$. This means that the company can pay all its liabilities with less than 80% of its equities.

Liabilities-to-Equity (L/E)			
Year	2010	2011	2012
Liabilities	27392000000.0	39756000000.0	57854000000.0
Equity	47791000000.0	76615000000.0	118210000000.0
L/E	0.5732	0.5189	0.4894
Year	2013	2014	2015
Liabilities	83451000000.0	120292000000.0	171124000000.0
Equity	123549000000.0	111547000000.0	119355000000.0
L/E	0.6754	1.0784	1.4337
Year	2016	2017	2018
Liabilities	193437000000.0	241272000000.0	258578000000.0
Equity	128249000000.0	134047000000.0	107147000000.0
L/E	1.5083	1.7999	2.4133
Year	2019	2020	2021
Liabilities	248028000000.0	258549000000.0	287912000000.0
Equity	90488000000.0	65339000000.0	63090000000.0
L/E	2.741	3.957	4.5635

3.2 Rule 2: High Current Ratio

The Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$ should be between 1.5 and 2.5.

Current Ratio			
Year	2010	2011	2012
Current Assets	41678000000.0	44988000000.0	57653000000.0
Current Liabilities	20722000000.0	27970000000.0	38542000000.0
Current Ratio	2.0113	1.6084	1.4958
Year	2013	2014	2015
Current Assets	73286000000.0	68531000000.0	89378000000.0
Current Liabilities	43658000000.0	63448000000.0	80610000000.0
Current Ratio	1.6786	1.0801	1.1088
Year	2016	2017	2018
Current Assets	106869000000.0	128645000000.0	131339000000.0
Current Liabilities	79006000000.0	100814000000.0	116866000000.0
Current Ratio	1.3527	1.2761	1.1238
Year	2019	2020	2021
Current Assets	162819000000.0	143713000000.0	134836000000.0
Current Liabilities	105718000000.0	105392000000.0	125481000000.0
Current Ratio	1.5401	1.3636	1.0746

3.3 Rule 3: Strong and consistent Return on Equity (ROE)

The Return on Equity $ROE = \frac{\text{Net Income}}{\text{Equity}}$ should be consistently above 8% over the last years.

Return-on-Equity (ROE)			
Year	2010	2011	2012
Net Income	14013000000.0	25922000000.0	41733000000.0
Equity	47791000000.0	76615000000.0	118210000000.0
ROE	0.2932	0.3383	0.353
Year	2013	2014	2015
Net Income	37037000000.0	39510000000.0	53394000000.0
Equity	123549000000.0	111547000000.0	119355000000.0
ROE	0.2998	0.3542	0.4474
Year	2016	2017	2018
Net Income	45687000000.0	48351000000.0	59531000000.0
Equity	128249000000.0	134047000000.0	107147000000.0
ROE	0.3562	0.3607	0.5556

Year	2019	2020	2021
Net Income	55256000000.0	57411000000.0	94680000000.0
Equity	90488000000.0	65339000000.0	63090000000.0
ROE	0.6106	0.8787	1.5007

3.4 Character Traits

3.5 Red Flags

4 Phase 3: Moat

If a company has a moat this shows in the Big 5 Numbers:

1. Return on Invested Capital (ROIC): $ROIC = \frac{\text{Net Income}}{\text{Total Assets}}$
2. Equity growth rate
3. Earnings-Per-Share (EPS) growth rate: $EPS = \frac{\text{Earnings}}{\text{Shares}}$
4. Sales/Revenue growth rate
5. Free Cash Flow (FCF) growth rate: $FCF = \text{Operating Cash Flow} + \text{CAPEX}$

All of these numbers must be consistently $\geq 10\%$ over the last 10 years. Then check the 9-/5-/3-/1-year growth rate to an understanding of the direction the company is going:

- Return after n years = $\left(\frac{\text{Current Value}}{\text{Initial Value n years ago}}\right)^{\frac{1}{n}} - 1$

4.1 Return-on-Invested-Capital (ROIC)

The Return-On-Invested-Capital (ROIC) is defined as: $ROIC = \frac{\text{Net Income}}{\text{Invested Capital}} = \frac{\text{Net Income}}{\text{Debt} + \text{Equity}}$.

Return-on-Invested-Capital (ROIC)			
Year	2010	2011	2012
Net Income	14013000000.0	25922000000.0	41733000000.0
Invested Capital	47791000000.0	76615000000.0	118210000000.0
ROIC	0.2932	0.3383	0.353
Year	2013	2014	2015
Net Income	37037000000.0	39510000000.0	53394000000.0
Invested Capital	140509000000.0	146842000000.0	183817000000.0
ROIC	0.2636	0.2691	0.2905
Year	2016	2017	2018
Net Income	45687000000.0	48351000000.0	59531000000.0
Invested Capital	215281000000.0	249727000000.0	221630000000.0
ROIC	0.2122	0.1936	0.2686

Year	2019	2020	2021
Net Income	55256000000.0	57411000000.0	94680000000.0
Invested Capital	198535000000.0	177775000000.0	187809000000.0
ROIC	0.2783	0.3229	0.5041

4.2 Equity Growth Rate

The Equity Growth Rates are:

Equity Growth Rates			
Year	2010	2011	2012
Equity	47791000000.0	76615000000.0	118210000000.0
Equity Growth Rate	0.7171	0.6031	0.5429
Year	2013	2014	2015
Equity	123549000000.0	111547000000.0	119355000000.0
Equity Growth Rate	0.0452	-0.0971	0.07
Year	2016	2017	2018
Equity	128249000000.0	134047000000.0	107147000000.0
Equity Growth Rate	0.0745	0.0452	-0.2007
Year	2019	2020	2021
Equity	90488000000.0	65339000000.0	63090000000.0
Equity Growth Rate	-0.1555	-0.2779	-0.0344
n-year Equity Growth Rate			
n		Growth Rate	
1-year		-0.0344	
3-year		-0.1618	
5-year		-0.1323	
9-year		-0.0674	

4.3 Earnings-Per-Share (EPS) Growth Rate

Earnings-Per-Share (EPS) is described as $EPS = \frac{\text{Earnings}}{\text{Shares}}$. The EPS Growth Rate is given as:

Earnings-per-Share (EPS) Growth Rate			
Year	2010	2011	2012
Earnings	14013000000.0	25922000000.0	41733000000.0
Shares	25891936000.0	26226060000.0	26469940000.0
EPS	0.5412	0.9884	1.5766
EPS Growth Rate	1.4096	0.8263	0.5951
Year	2013	2014	2015
Earnings	37037000000.0	39510000000.0	53394000000.0
Shares	26086536000.0	24490652000.0	23172276000.0
EPS	1.4198	1.6133	2.3042
EPS Growth Rate	-0.0995	0.1363	0.4283
Year	2016	2017	2018
Earnings	45687000000.0	48351000000.0	59531000000.0
Shares	22001124000.0	21006768000.0	20000436000.0
EPS	2.0766	2.3017	2.9765
EPS Growth Rate	-0.0988	0.1084	0.2932
Year	2019	2020	2021
Earnings	55256000000.0	57411000000.0	94680000000.0
Shares	18595652000.0	17528214000.0	16864919000.0
EPS	2.9714	3.2753	5.614
EPS Growth Rate	-0.0017	0.1023	0.714
n-year EPS Growth Rate			
n	Growth Rate		
1-year	0.714		
3-year	0.2355		
5-year	0.2201		
9-year	0.1516		

4.4 Sales/Revenue Growth Rate

The Sales/Revenue Growth Rate is given as:

Sales/Revenue Growth Rate			
Year	2010	2011	2012
Sales/Revenue	65225000000.0	108249000000.0	156508000000.0
Sales/Revenue Growth Rate	0.7852	0.6596	0.4458
Year	2013	2014	2015
Sales/Revenue	170910000000.0	182795000000.0	233715000000.0
Sales/Revenue Growth Rate	0.092	0.0695	0.2786

Year	2016	2017	2018
Sales/Revenue	215639000000.0	229234000000.0	265595000000.0
Sales/Revenue Growth Rate	-0.0773	0.063	0.1586
Year	2019	2020	2021
Sales/Revenue	260174000000.0	274515000000.0	365817000000.0
Sales/Revenue Growth Rate	-0.0204	0.0551	0.3326
n-year Sales/Revenue Growth Rate			
n	Growth Rate		
1-year	0.3326		
3-year	0.1126		
5-year	0.1115		
9-year	0.0989		

4.5 Free Cash Flow (FCF) Growth Rate

Free Cash Flow (FCF) is described as $FCF = \text{Operating Cash Flow} + \text{CAPEX}$. The FCF Growth Rate is given as:

Free-Cash-Flow (FCF) Growth Rate			
Year	2010	2011	2012
Operating Cash Flow	18595000000.0	37529000000.0	50856000000.0
CAPEX	2121000000.0	7452000000.0	9402000000.0
FCF	16474000000.0	30077000000.0	41454000000.0
FCF Growth Rate	0.8415	0.8257	0.3783
Year	2013	2014	2015
Operating Cash Flow	53666000000.0	59713000000.0	81266000000.0
CAPEX	9076000000.0	9813000000.0	11488000000.0
FCF	44590000000.0	49900000000.0	69778000000.0
FCF Growth Rate	0.0757	0.1191	0.3984
Year	2016	2017	2018
Operating Cash Flow	65824000000.0	63598000000.0	77434000000.0
CAPEX	13548000000.0	12795000000.0	13313000000.0
FCF	52276000000.0	50803000000.0	64121000000.0
FCF Growth Rate	-0.2508	-0.0282	0.2621

Year	2019	2020	2021
Operating Cash Flow	69391000000.0	80674000000.0	104038000000.0
CAPEX	10495000000.0	7309000000.0	11085000000.0
FCF	58896000000.0	73365000000.0	92953000000.0
FCF Growth Rate	-0.0815	0.2457	0.267
n-year FCF Growth Rate			
n	Growth Rate		
1-year	0.267		
3-year	0.1318		
5-year	0.122		
9-year	0.0939		

5 Phase 4: Deep-Dive (Ratio Analysis)

5.1 Income Statement - Ratio Analysis

5.1.1 Gross-Profit Margin Ratio (GPMR)

The Gross-Profit Margin Ratio (GPMR) is calculated as $GPMR = \frac{\text{Gross Profit}}{\text{Revenue}}$.

Meaning: If a company's GPMR is $0.70 = 70\%$, this tells us that every time the company sells its products for 100\$, it makes 70\$ in gross profit.

Gross Profit Margin Ratio (GPMR)			
Year	2010	2011	2012
Gross Profit	25684000000.0	37529000000.0	50856000000.0
Revenue	65225000000.0	108249000000.0	156508000000.0
GPMR	0.3938	0.4048	0.4387
Year	2013	2014	2015
Gross Profit	64304000000.0	59713000000.0	81266000000.0
Revenue	170910000000.0	182795000000.0	233715000000.0
GPMR	0.3762	0.3859	0.4006
Year	2016	2017	2018
Gross Profit	84263000000.0	63598000000.0	77434000000.0
Revenue	215639000000.0	229234000000.0	265595000000.0
GPMR	0.3908	0.3847	0.3834
Year	2019	2020	2021
Gross Profit	98392000000.0	80674000000.0	104038000000.0
Revenue	260174000000.0	274515000000.0	365817000000.0
GPMR	0.3782	0.3823	0.4178

5.1.2 EBITDA Margin Ratio (EBITDA Margin)

Earnings before interest, taxes, depreciation, and amortization (EBITDA) is calculated as $EBITDA = \text{Earnings before interest and tax} + \text{depreciation} + \text{amortization}$. EBITDA is an earnings measure that focuses on the essentials of a business: its operating profitability and cash flows.

The EBITDA Margin Ratio is calculated as $EBITDA \text{ Margin} = \frac{EBITDA}{\text{Revenue}}$. It is a performance metric that measures a company's profitability from operations. That makes it easy to compare the relative profitability of two or more companies of different sizes in the same industry. Calculating a company's EBITDA margin is helpful when gauging the effectiveness of a company's cost-cutting efforts. The higher a company's EBITDA margin is, the lower its operating expenses are in relation to total revenue.

Meaning: If a company's EBITDA margin is $0.60 = 60\%$, this tells us that every time the company sells its products for 100\$, it makes 60\$ in EBITDA.

EBITDA Margin			
Year	2010	2011	2012
EBITDA	19567000000.0	36019000000.0	59040000000.0
Revenue	65225000000.0	108249000000.0	156508000000.0
EBITDA Margin	0.3	0.3327	0.3772
Year	2013	2014	2015
EBITDA	57048000000.0	61813000000.0	84505000000.0
Revenue	170910000000.0	182795000000.0	233715000000.0
EBITDA Margin	0.3338	0.3382	0.3616
Year	2016	2017	2018
EBITDA	73333000000.0	76569000000.0	87046000000.0
Revenue	215639000000.0	229234000000.0	265595000000.0
EBITDA Margin	0.3401	0.334	0.3277
Year	2019	2020	2021
EBITDA	81860000000.0	81020000000.0	123136000000.0
Revenue	260174000000.0	274515000000.0	365817000000.0
EBITDA Margin	0.3146	0.2951	0.3366

5.1.3 Operating Margin Ratio (OMR)

The Operating Margin Ratio (OMR) is calculated as $OMR = \frac{\text{Income from Operations}}{\text{Revenue}}$.

Meaning: If a company's OMR is $0.50 = 50\%$, this tells us that every time the company sells its products for 100\$, it makes 50\$ in operating profit.

Operating Margin Ratio (OMR)			
Year	2010	2011	2012
Operating Income	18385000000.0	33790000000.0	55241000000.0
Revenue	65225000000.0	108249000000.0	156508000000.0
OMR	0.2819	0.3122	0.353
Year	2013	2014	2015
Operating Income	48999000000.0	52503000000.0	71230000000.0
Revenue	170910000000.0	182795000000.0	233715000000.0
OMR	0.2867	0.2872	0.3048
Year	2016	2017	2018
Operating Income	60024000000.0	61344000000.0	70898000000.0
Revenue	215639000000.0	229234000000.0	265595000000.0
OMR	0.2784	0.2676	0.2669
Year	2019	2020	2021
Operating Income	63930000000.0	66288000000.0	108949000000.0
Revenue	260174000000.0	274515000000.0	365817000000.0
OMR	0.2457	0.2415	0.2978

5.1.4 Net Income Margin Ratio (NIMR)

The Net Income Margin Ratio (NIMR) is calculated as $\text{NIMR} = \frac{\text{Net Income}}{\text{Revenue}}$.

Meaning: If a company's NIMR is 0.30 = 30%, this tells us that every time the company sells its products for 100\$, it makes 30\$ in profit.

Net Income Margin Ratio (NIMR)			
Year	2010	2011	2012
Net Income	14013000000.0	25922000000.0	41733000000.0
Revenue	65225000000.0	108249000000.0	156508000000.0
NIMR	0.2148	0.2395	0.2667
Year	2013	2014	2015
Net Income	37037000000.0	39510000000.0	53394000000.0
Revenue	170910000000.0	182795000000.0	233715000000.0
NIMR	0.2167	0.2161	0.2285
Year	2016	2017	2018
Net Income	45687000000.0	48351000000.0	59531000000.0
Revenue	215639000000.0	229234000000.0	265595000000.0
NIMR	0.2119	0.2109	0.2241
Year	2019	2020	2021
Net Income	55256000000.0	57411000000.0	94680000000.0
Revenue	260174000000.0	274515000000.0	365817000000.0
NIMR	0.2124	0.2091	0.2588

5.1.5 Interest Coverage Ratio (ICR)

The Interest Coverage is defined as $ICR = \frac{\text{Income from Operations}}{\text{Interest Expense}} \geq 5$. This is a very important ratio for minimizing your risk. If a company cannot pay for its interest expenses, it is heading for trouble fast.

Meaning: If a company's ICR is 30, this tells us that the company would be able to pay the interest expenses as much as 30 times from the operating income.

Interest Coverage Ratio (ICR)			
Year	2010	2011	2012
Operating Income	18385000000.0	33790000000.0	55241000000.0
Interest Expense	0.0	0.0	0.0
ICR	-	-	-
Year	2013	2014	2015
Operating Income	48999000000.0	52503000000.0	71230000000.0
Interest Expense	136000000.0	384000000.0	733000000.0
ICR	360.2868	136.7266	97.176
Year	2016	2017	2018
Operating Income	60024000000.0	61344000000.0	70898000000.0
Interest Expense	1456000000.0	2323000000.0	3240000000.0
ICR	41.2253	26.4072	21.8821
Year	2019	2020	2021
Operating Income	63930000000.0	66288000000.0	108949000000.0
Interest Expense	3576000000.0	2873000000.0	2645000000.0
ICR	17.8775	23.0727	41.1905

5.2 Balance Sheet - Ratio Analysis

5.2.1 Profitability Ratios

Return-on-Equity (ROE) The Return-on-Equity (ROE) is given as $ROE = \frac{\text{Net Income}}{\text{Equity}} \geq 8\%$ for the last years.

- Net Income is found on the Income Statement.
- Equity is found on the liability column of the Balance Sheet.

Meaning: If a company's ROE is $0.15 = 15\%$, this tells us that the company has made a return of 15\$ for every 100\$ the company has retained from previous earnings or initial investments.

Return-on-Equity (ROE)			
Year	2010	2011	2012
Net Income	14013000000.0	25922000000.0	41733000000.0
Equity	47791000000.0	76615000000.0	118210000000.0
ROE	0.2932	0.3383	0.353
Year	2013	2014	2015
Net Income	37037000000.0	39510000000.0	53394000000.0
Equity	123549000000.0	111547000000.0	119355000000.0
ROE	0.2998	0.3542	0.4474
Year	2016	2017	2018
Net Income	45687000000.0	48351000000.0	59531000000.0
Equity	128249000000.0	134047000000.0	107147000000.0
ROE	0.3562	0.3607	0.5556
Year	2019	2020	2021
Net Income	55256000000.0	94680000000.0	94680000000.0
Equity	90488000000.0	63090000000.0	63090000000.0
ROE	0.6106	1.5007	1.5007

Return-on-Assets (ROA) The Return-on-Assets (ROA) is defined as $ROA = \frac{\text{Net Income}}{\text{Total Assets}} \geq 6\%$ for the last years.

- Net Income is found on the Income Statement.
- Total Assets is found on the asset column of the Balance Sheet.

Meaning: This ratio isn't that important to calculate if the company has very little debt, e.g. a debt/equity ratio of 0.5 or less. It is important for a company with a lot of debt. The ROA will always be lower than the ROE if the company has debt.

Return-on-Assets (ROA)			
Year	2010	2011	2012
Net Income	14013000000.0	25922000000.0	41733000000.0
Total Assets	75183000000.0	116371000000.0	176064000000.0
ROA	0.1864	0.2228	0.237
Year	2013	2014	2015
Net Income	37037000000.0	39510000000.0	53394000000.0
Total Assets	207000000000.0	231839000000.0	290479000000.0
ROA	0.1789	0.1704	0.1838
Year	2016	2017	2018
Net Income	45687000000.0	48351000000.0	59531000000.0
Total Assets	321686000000.0	375319000000.0	365725000000.0
ROA	0.142	0.1288	0.1628

Year	2019	2020	2021
Net Income	55256000000.0	57411000000.0	94680000000.0
Total Assets	338516000000.0	323888000000.0	351002000000.0
ROA	0.1632	0.1773	0.2697

5.2.2 Liquidity Ratios

Current Ratio (CR) The Current Ratio (CR) is defined as $CR = \frac{\text{Current Assets}}{\text{Current Liabilities}}$ should be between 1.5 and 5.

- Current Assets is found on the asset column of the Balance Sheet.
- Current Liabilities is found on the liability column of the Balance Sheet.

Meaning: This key ratio compares the company's expectation for cash inflow (current assets) and cash outflow (current liabilities) during the next twelve months. This number should be greater than 1 because if we do not get more money in than out within the next twelve months, we will be forced to take on debt or relinquish more equity, i.e. selling more stock to raise money. A current ratio of above 5 may also indicate bad money management, as cash could be put to better use elsewhere.

Current Ratio (CR)			
Year	2010	2011	2012
Current Assets	41678000000.0	44988000000.0	57653000000.0
Current Liabilities	20722000000.0	27970000000.0	38542000000.0
CR	2.0113	1.6084	1.4958
Year	2013	2013	2014
Current Assets	73286000000.0	73286000000.0	68531000000.0
Current Liabilities	43658000000.0	43658000000.0	63448000000.0
CR	1.6786	1.6786	1.0801
Year	2016	2017	2018
Current Assets	106869000000.0	128645000000.0	131339000000.0
Current Liabilities	79006000000.0	100814000000.0	116866000000.0
CR	1.3527	1.2761	1.1238
Year	2019	2020	2021
Current Assets	162819000000.0	143713000000.0	134836000000.0
Current Liabilities	105718000000.0	105392000000.0	125481000000.0
CR	1.5401	1.3636	1.0746

Acid Test Ratio (ATR) The Acid Test Ratio (ATR) is defined as $ATR = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} > 1.5$.

- Current Assets is found on the asset column of the Balance Sheet.

- Inventory is found on the asset column of the Balance Sheet.
- Current Liabilities is found on the liability column of the Balance Sheet.

Meaning: This key ratio is also called the *skeptic liquidity measure*. It is quite conservative as we do not include the inventory. The question is: Assuming that we do not sell anything from our inventory, do we still expect to receive more in than we need to pay out during the next twelve months? The key ratio is for the conservative investor. The less you know about the company, the more you should prefer this key ratio over the current ratio.

Acid Test Ratio (ATR)			
Year	2010	2011	2012
Current Assets	41678000000.0	44988000000.0	57653000000.0
Inventory	1051000000.0	776000000.0	791000000.0
Current Liabilities	20722000000.0	27970000000.0	38542000000.0
ATR	1.9606	1.5807	1.4753
Year	2013	2014	2015
Current Assets	73286000000.0	68531000000.0	89378000000.0
Inventory	1764000000.0	2111000000.0	2349000000.0
Current Liabilities	43658000000.0	63448000000.0	80610000000.0
ATR	1.6382	1.0468	1.0796
Year	2016	2017	2018
Current Assets	106869000000.0	128645000000.0	131339000000.0
Inventory	2132000000.0	4855000000.0	3956000000.0
Current Liabilities	79006000000.0	100814000000.0	116866000000.0
ATR	1.3257	1.2279	1.09
Year	2019	2020	2021
Current Assets	162819000000.0	143713000000.0	134836000000.0
Inventory	4106000000.0	4061000000.0	6580000000.0
Current Liabilities	105718000000.0	105392000000.0	125481000000.0
ATR	1.5013	1.3251	1.0221

5.2.3 Efficiency Ratios

Inventory Turnover Ratio (ITR) The Inventory Turnover Ratio (ITR) is defined as $ITR = \frac{\text{Cost of Revenue}}{\text{Inventory}} > 4$.

- Cost of Revenue is found on the Income Statement.
- Inventory is found on the asset column of the Balance Sheet.

Meaning: The higher the number, the more efficient the company is in turning the inventory into sales.

Inventory Turnover Ratio (ITR)			
Year	2010	2011	2012
Cost of Revenue	39541000000.0	64431000000.0	87846000000.0
Inventory	1051000000.0	776000000.0	791000000.0
ITR	37.6223	83.0296	111.0569
Year	2013	2014	2015
Cost of Revenue	106606000000.0	112258000000.0	140089000000.0
Inventory	1764000000.0	2111000000.0	2349000000.0
ITR	60.4342	53.1776	59.6377
Year	2016	2017	2018
Cost of Revenue	131376000000.0	141048000000.0	163756000000.0
Inventory	2132000000.0	4855000000.0	3956000000.0
ITR	61.621	29.0521	41.3943
Year	2019	2020	2021
Cost of Revenue	161782000000.0	169559000000.0	212981000000.0
Inventory	4106000000.0	4061000000.0	6580000000.0
ITR	39.4014	41.753	32.3679

Accounts Receivable Turnover Ratio (ARR) The Accounts Receivable Turnover Ratio (ARR) is defined as $ARR = \frac{\text{Turnover}}{\text{Accounts Receivables}}$ should be between 5 and 7.

- Turnover is actually the revenues of the business found on the Income Statement.
- Accounts receivable is found on the asset column of the Balance Sheet.

Meaning: Suppose the turnover ratio is 3.41. This means if the company makes a sale, it typically takes $\frac{365}{3.41} = 107$ days for them to receive payment from their customer. A higher ratio means the company gets their money a lot faster from vendors.

Accounts Receivable Ratio (ARR)			
Year	2010	2011	2012
Turnover	65225000000.0	108249000000.0	156508000000.0
Accounts Receivables	9924000000.0	11717000000.0	18692000000.0
ARR	6.5725	9.2386	8.373
Year	2013	2014	2015
Turnover	170910000000.0	182795000000.0	233715000000.0
Accounts Receivables	20641000000.0	27219000000.0	30343000000.0
ARR	8.2801	6.7157	7.7024

Year	2016	2017	2018
Turnover	215639000000.0	229234000000.0	265595000000.0
Accounts Receiv-ables	29299000000.0	35673000000.0	48995000000.0
ARR	7.3599	6.426	5.4209
Year	2019	2020	2021
Turnover	260174000000.0	274515000000.0	365817000000.0
Accounts Receiv-ables	45804000000.0	37445000000.0	51506000000.0
ARR	5.6802	7.3312	7.1024

Accounts Payable Turnover Ratio (APR) The Accounts Payable Ratio (APR) is defined as $APR = \frac{\text{Cost of Revenue}}{\text{Accounts Payable}}$ should be between 2 and 6.

- Cost of Revenue is found on the Income Statement.
- Accounts Payable is found on the liability column of the Balance Sheet.

Meaning: This key ratio looks at how a company handles its credit obligations. Suppose the turnover ratio is 2.45. This means it typically takes the company $\frac{365}{2.45} = 149$ days to repay their suppliers. We want a high accounts payable turnover ratio. A ratio of between 2 and 6 is typically a sign of an efficient company that is satisfying bargaining power and at the same time having no problem paying its obligations to suppliers.

Accounts Payable Ratio (APR)			
Year	2010	2011	2012
Cost of Revenue	39541000000.0	64431000000.0	87846000000.0
Accounts Payable	12015000000.0	14632000000.0	21175000000.0
APR	3.291	4.4034	111.0569
Year	2013	2014	2015
Cost of Revenue	106606000000.0	112258000000.0	140089000000.0
Accounts Payable	22367000000.0	30196000000.0	35490000000.0
APR	4.7662	3.7176	59.6377
Year	2016	2017	2018
Cost of Revenue	131376000000.0	141048000000.0	163756000000.0
Accounts Payable	37294000000.0	49049000000.0	55888000000.0
APR	3.5227	2.8757	41.3943
Year	2019	2020	2021
Cost of Revenue	161782000000.0	169559000000.0	212981000000.0
Accounts Payable	46236000000.0	42296000000.0	54763000000.0
APR	3.499	4.0089	32.3679

5.2.4 Solvency Ratios

Debt-to-Equity Ratio (D/E) The Debt-to-Equity Ratio (D/E) is defined as $D/E = \frac{\text{Long Term Debt} + \text{Notes Payable}}{\text{Equity}} < 0.5$.

- Long-Term Debt is found on the liability column of the Balance Sheet.
- Notes Payable is found on the liability column of the Balance Sheet.
- Equity is found on the liability column of the Balance Sheet.

Meaning: There is nothing wrong with a little debt. Debt can sometimes make things go a little faster. Too much debt, on the other hand, can undermine the very existence of a business. Thus, this key ratio should be as as low as possible. This key ratio comprises of the interest-bearing debt, i.e. the debt we should pay interest on. This is why this key ratio is composed of long-term debt and notes payable. This is debt that you typically have acquired from the bank. It is the most expensive debt to obtain.

Suppose the D/E-ratio is $0.20 = 20\%$. This means that every time the shareholders own 100\$ in equity, they also owe 20\$ in debt that the company is paying interest on. This key ratio should definitely be below 0.5.

Debt-to-Equity (D/E)			
Year	2010	2011	2012
Long Term Debt	0.0	0.0	0.0
Notes Payable	None	None	None
Equity	47791000000.0	76615000000.0	118210000000.0
D/E	0.0	0.0	0.0
Year	2013	2014	2015
Long Term Debt	16960000000.0	28987000000.0	53463000000.0
Notes Payable	None	6308000000.0	10999000000.0
Equity	123549000000.0	111547000000.0	119355000000.0
D/E	0.1373	0.3164	0.5401
Year	2016	2017	2018
Long Term Debt	75427000000.0	97207000000.0	93735000000.0
Notes Payable	11605000000.0	18473000000.0	20748000000.0
Equity	128249000000.0	134047000000.0	107147000000.0
D/E	0.6786	0.863	1.0685
Year	2019	2020	2021
Long Term Debt	91807000000.0	98667000000.0	109106000000.0
Notes Payable	16240000000.0	13769000000.0	15613000000.0
Equity	90488000000.0	65339000000.0	63090000000.0
D/E	1.194	1.7208	1.9768

Liabilities-to-Equity Ratio (L/E) The Liabilities-to-Equity (L/E) Ratio is defined as $L/E = \frac{\text{Total Liabilities}}{\text{Equity}} < 0.8$.

- Total Liabilities is found on the liability column of the Balance Sheet.
- Equity is found on the liability column of the Balance Sheet.

Meaning: Suppose the L/E ratio is $0.47 = 47\%$. This means that every time the shareholder has 100\$ in equity, the company would have to pay out 47\$ at some point in the future. This key ratio includes all liabilities, meaning the interest-bearing debt, which is the most expensive, and interest-free liabilities such as accounts payable. It is for more conservative investors and should be below 0.8 to be considered low-risk.

Liabilities-to-Equity (L/E)			
Year	2010	2011	2012
Liabilities	27392000000.0	39756000000.0	57854000000.0
Equity	47791000000.0	76615000000.0	118210000000.0
L/E	0.5732	0.5189	0.4894
Year	2013	2014	2015
Liabilities	83451000000.0	120292000000.0	171124000000.0
Equity	123549000000.0	111547000000.0	119355000000.0
L/E	0.6754	1.0784	1.4337
Year	2016	2017	2018
Liabilities	193437000000.0	241272000000.0	258578000000.0
Equity	128249000000.0	134047000000.0	107147000000.0
L/E	1.5083	1.7999	2.4133
Year	2019	2020	2021
Liabilities	248028000000.0	258549000000.0	287912000000.0
Equity	90488000000.0	65339000000.0	63090000000.0
L/E	2.741	3.957	4.5635

5.3 Cash Flow Statement - Ratio Analysis

5.3.1 FCF-to-Revenue Ratio (FCFR)

The FCF-to-Revenue Ratio (FCFR) is defined as $FCFR = \frac{FCF}{Revenue} \geq 5\%$ for the last years.

Meaning: If a company has a FCFR of $0.13 = 13\%$, this tells us that every time the company sells its products for 100\$, 13\$ will be available as cash for the shareholders. This key ratio measures how much cash will go directly to the owners. This means that as much as 13\$ from 100\$ of sales could be paid directly to the shareholders as dividends.

FCF-to-Revenue Ratio (FCFR)			
Year	2010	2011	2012
FCF	16474000000.0	30077000000.0	41454000000.0
Revenue	65225000000.0	108249000000.0	156508000000.0
FCFR	0.2526	0.2779	0.2649

Year	2013	2014	2015
FCF	44590000000.0	49900000000.0	69778000000.0
Revenue	170910000000.0	182795000000.0	233715000000.0
FCFR	0.2609	0.273	0.2986
Year	2016	2017	2018
FCF	52276000000.0	50803000000.0	64121000000.0
Revenue	215639000000.0	229234000000.0	265595000000.0
FCFR	0.2424	0.2216	0.2414
Year	2019	2020	2021
FCF	58896000000.0	73365000000.0	92953000000.0
Revenue	260174000000.0	274515000000.0	365817000000.0
FCFR	0.2264	0.2673	0.2541

5.3.2 Investing-Cash-Flow-to-Operating-Cash-Flow Ratio (ICFOCF)

The Investing-Cash-Flow-to-Operating-Cash-Flow Ratio (ICFOCF) is defined as $ICFOCF = \frac{\text{Investing Cash Flow}}{\text{Operating Cash Flow}}$.

Meaning: If a company has a ICFOCF of 0.53 = 53%, this tells us every time the company makes 100\$ in cash from its operations, 53\$ in cash are spent on maintaining and investing in the company's growth. All this cash will only be used for new equipment, so the investor would not get this cash out for himself. Thus, if we have 2 companies that are equally valuable, we should prefer the one with the lower ICFOCF key ratio. If the investing cash flow is negative, this means that the company is investing, if the investing cash flow is positive, this means that the company sold a formerly held asset which results in an inflow of cash.

ICF-to-OCF Ratio (ICFOCF)			
Year	2010	2011	2012
ICF	-13854000000.0	-40419000000.0	-48227000000.0
OCF	18595000000.0	37529000000.0	50856000000.0
ICFOCF	-0.745	-1.077	-0.9483
Year	2013	2014	2015
ICF	-33774000000.0	-22579000000.0	-56274000000.0
OCF	53666000000.0	59713000000.0	81266000000.0
ICFOCF	-0.6293	-0.3781	-0.6925
Year	2016	2017	2018
ICF	-45977000000.0	-46446000000.0	16066000000.0
OCF	65824000000.0	63598000000.0	77434000000.0
ICFOCF	-0.6985	-0.7303	0.2075

Year	2019	2020	2021
ICF	45896000000.0	-4289000000.0	-14545000000.0
OCF	69391000000.0	80674000000.0	104038000000.0
ICFOCF	0.6614	-0.0532	-0.1398

6 Phase 5: Intrinsic Value

6.1 Rule 1: Low Price-to-Earnings (P/E) ratio

The P/E ratio should be $P/E = \frac{\text{Market Price per Share}}{\text{Earnings Per Share (EPS)}} < 15$. This guarantees a return of at least $\frac{1}{15} = 6.67\%$.

Price-to-Earnings Ratio (P/E)	
Market Price Per Share	161.84
Earnings	94680000000.0
Shares	16864919000.0
EPS	5.614
P/E	28.8279

6.2 Rule 2: Low Price-to-Book (P/B) ratio

The P/B ratio should be $P/B = \frac{\text{Market Price per Share}}{\text{Book Value per Share (BVPS)}} < 1.5$. The BVPS is defined as $BVPS = \frac{\text{Equity}}{\text{Shares}}$.

Price-to-Book Ratio (P/B)	
Market Price Per Share	161.84
Equity	63090000000.0
Shares	16864919000.0
BVPS	3.7409
P/B	43.2623

6.3 Rule 3: Sum-of-the-Parts (SOTP) Valuation Method

The sum-of-the-parts valuation (SOTP) is a process of valuing a company by determining what its aggregate divisions would be worth if they were spun off or acquired by another company. It is also known as breakup value analysis.

The valuation provides a range of values for a company's equity by aggregating the standalone value of each of its business units and arriving at a single total enterprise value (TEV). The equity value is then derived by adjusting the company's net debt and other non-operating assets and expenses.

The formula for SOTP is as follows: $SOTP = N_1 + N_2 + \dots + ND - NL + NA$ with:

- N_1 : value of first segment

- N_2 : value of second segment
- ND : net debt
- NL : nonoperating liabilities
- NA : nonoperating assets

More information can be found at:

- <https://www.investopedia.com/terms/s/sumofpartsvaluation.asp>
- <https://www.investopedia.com/terms/b/breakup-value.asp>

6.4 Rule 4: DCF Valuation Method

Discounted Cash Flow (DCF) Analysis Description:

1. Determine the current (base year) free cash flow: $BYFCF = \text{Operating Cash Flow} + \text{CAPEX}$.
2. Estimate the free cash flow for the next 10 years: $FCF_n = BYFCF \cdot (1 + GR)^n$.
3. Estimate the discount factor for the next 10 years: $DF_n = (1 + DR)^n$.
4. Calculate the discounted value of FCF for the next 10 years: $DFCF_n = \frac{FCF_n}{DF_n}$.
5. Calculate the discounted perpetuity free cash flow (beyond 10 years): $DPCF = \frac{BYFCF \cdot (1+GR)^{11} \cdot (1+LGR)}{DR-LGR} \cdot \frac{1}{(1+DR)^{11}}$. The long-term growth rate (LGR) should be at 3%.
6. Calculate the intrinsic value: $\text{Intrinsic Value} = (\sum_{i=1}^n DFCF_n) + DPCF$.
7. Calculate the Intrinsic Value Per Share = $\frac{\text{Intrinsic Value}}{\text{Common Shares Outstanding}}$.
8. Buy at a Wide Margin of Safety (MOS): $MOS = 0.5 * \text{Intrinsic Value Per Share}$. The Margin of Safety should be 50% lower than the intrinsic value. If the market price goes below half of the intrinsic value per share, this is a buy signal.

Discounted Cash Flow (DCF) Analysis Calculation:

- Base Year Free Cash Flow (BYFCF): 92953000000.0
- Long-Term Growth Rate (LGR): 0.03
- Historical Growth Rate (GR): 0.1268
- Discount Rate (DR): The higher the DR, the more risk there is to the company.

- 10% discount rate: if low risk of investment

DCF Low Risk Estimates		
Growth Rates	Intrinsic Value Per Share	Margin Of Safety (MOS)
-15%	22.07	11.04
-10%	30.39	15.2
-5%	43.02	21.51
0%	62.29	31.14
5%	91.67	45.84
10%	136.22	68.11
15%	203.2	101.6
Historical Growth Rate	168.75	84.38

- 15% discount rate: if medium risk of investment

DCF Medium Risk Estimates		
Growth Rates	Intrinsic Value Per Share	Margin Of Safety (MOS)
-15%	16.56	8.28
-10%	21.32	10.66
-5%	28.09	14.04
0%	37.83	18.91
5%	51.96	25.98
10%	72.53	36.27
15%	102.42	51.21
Historical Growth Rate	87.16	43.58

- 20% discount rate: if high risk of investment

DCF High Risk Estimates		
Growth Rates	Intrinsic Value Per Share	Margin Of Safety (MOS)
-15%	13.71	6.86
-10%	17.01	8.51
-5%	21.48	10.74
0%	27.6	13.8
5%	36.12	18.06
10%	48.05	24.02
15%	64.85	32.42
Historical Growth Rate	56.34	28.17

7 Conclusion