



DELL TECHNOLOGIES FINANCIAL ANALYSIS

March 03, 2022

Project Report

Financial Analysis

Visual Reporting and Communication

By

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Date: 02/18/2022
Ticker: DELL

Current Price: \$ 58.9
Projected Price: \$ 65.1

Recommendation:
BUY / HOLD

Highlights Dell Technologies Inc

Valuation:

Year	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F
Annual sales growth	5.00%	4.00%	4.00%	3.00%	3.00%	3.00%
Cost of equity	8.89%	8.89%	8.89%	8.89%	8.89%	8.89%
Capital Structure (% debt)	84.14%	78.51%	72.51%	68.58%	62.68%	56.26%
WACC (discount rate)	4.27%	4.58%	4.91%	5.12%	5.45%	5.80%
Profit Margin Forecast	3.06%	2.27%	2.32%	2.44%	3.31%	4.31%
Net Income Forecast	\$3,247,995,350.00	\$2,511,494,637.90	\$2,663,359,740.95	\$2,886,920,346.59	\$4,041,086,135.60	\$5,418,007,866.69
Free Cash Flow	-\$4,317,703,150.00	\$874,380,003.90	\$4,215,497,397.43	\$1,030,570,748.31	\$5,643,617,069.53	\$5,591,333,379.20
Terminal Value						\$150,038,638,612.02
Enterprise Value	-\$4,317,703,150.00	\$836,088,437.05	\$3,830,193,303.28	\$887,077,835.97	\$4,564,423,052.64	\$117,392,880,316.81

	DCF Model	Relative Valuation
Estimated Price	\$68.98	\$61.27
Weights	50%	50%
Target Price	\$65.13	

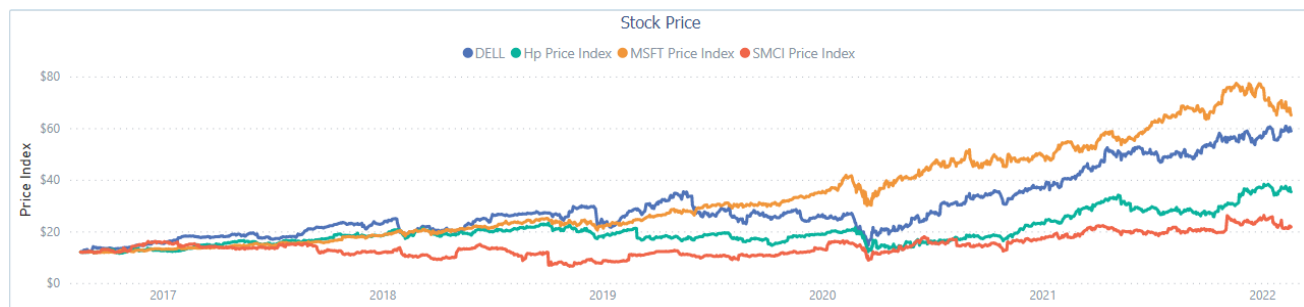
To evaluate Dell, I used the DCF model and relative valuation model to generate an expected stock price considering cash flows 6 years from now. I forecast the Annual Sales Growth Rate of Dell would decrease slightly from 5% in 2022 to 3% in 2027. The Net Income increase slightly to \$5 billion in 2027.

My relative valuation model, Dell was weighted against averages for HP, IBM, Super Micro Computer Inc, and Microsoft. The relative price shows that Dell stock price is underestimated.

Financial Analysis:

Current ratio, Quick Ratio are less than 1, and Capital Structure is more than 1 show that Dell has problem with liabilities. However, Operating Cash Flows are positive in recent years, Revenue, Net Income, Profit Margin, earning per Share have increased over years, that shows the Dell ability to generate cash to operate, and ability to generate profit in the future.

Stock Price Movement:



The stock price of Dell increases significantly from 2016 to 2022, from \$12 to more than \$50, nearly 5 times. The performance of Dell in Share Movement is a little bit poorer than MSFT, however Dell Movement performed much better than that of HP and SMCI.

Conclusion:

Although ISS Score shows a risk in governance in Dell, and Dell now is under debt burden. The financial performance of Dell is improving over recent years, Sale Growth Rate increase, Long-term debt decrease. Average projected price is \$65. Therefore, Dell is a potential investment, my recommendation is to **HOLD or BUY**.

Business Overview

Dell Technologies (formerly known as DELL computer) is one of the largest tech companies in the world, with over 165,000 employees across the globe. Founded by Michael Dell, who currently is CEO and Chairman of DELL, in 1984. Dell is headquartered in Round Rock, Texas, the US. The company focuses today on sales of personal computers, network servers, data storage solutions, and software.

Dell Technologies Inc owns five brands that include Dell, Dell EMC, Virtustream, Secureworks, and VMware.

- DELL: Dell makes and sells desktops, laptops, powerful workstations, and rugged devices made for specialized environments, as well as monitors, docking and endpoint security solutions and services.
- Dell EMC offers products that allow organizations to modernize, automate, and transform their data center using industry-leading converged infrastructure, servers, storage, and data protection technologies.
- Virtustream offers cloud solutions for business enterprises.
- Secureworks creates data-driven security solutions for business organizations that detect and prevent breaches and cyber-attacks.
- VMware offers digital solutions, including app modernization, digital cloud, digital workspace, virtual cloud networking, intrinsic security, etc.

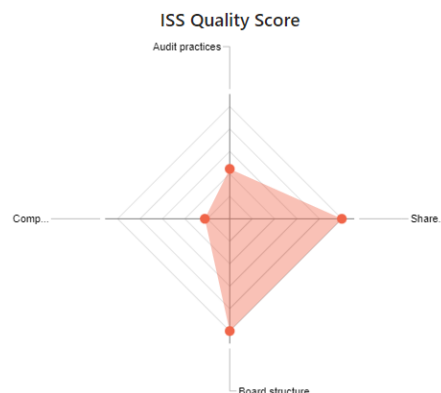
Management and Governance

Management

Dell has a great executive team with experienced managers who keep Dell generate returns for investors in the long term. Dell achieved high rank in several lists:

- 76th in Global 500 – 2021
- 75th in 100 Best Large Workplaces for Millennials – 2021
- 28th in Fortune 500 – 2021
- 2nd in Industry of World's Most Admired Companies – 2022

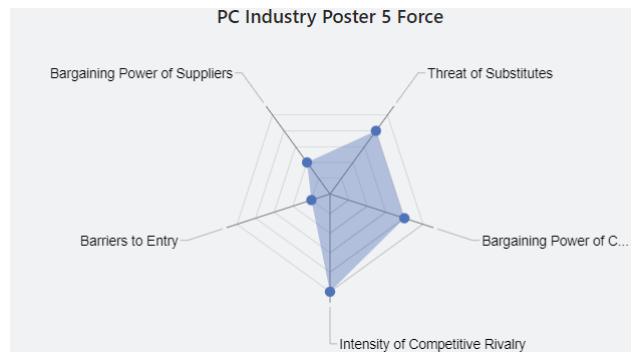
ISS Governance Quality Score



- Board Structure: 10. This shows a high risk in the Board of Directors of Dell. It is not totally integrity when the CEO, Michael Dell, is also the chairman. Decisions of turning into private company in 2013 and becoming public company again in 2016 made investors confused and be careful when investing Dell. This is a complicated case.
- Shareholder Right: 10. With the same reason above, ISS is warning about high risk with shareholder rights.
- Audit Practice: 5. Dell has principles for audit practice and audit committee.
- Compensation: 3. The risk of compensation in Dell corporate governance is quite low.
- Total ISS quality score:10. This indicates that there are high risks in governance of Dell.

Industry Overview and Competitive Positioning

Poster's Five Force of PC Industry



- **Bargaining Power of Supplier: Moderate.** The dealing force of providers in the Personal Computing industry is low a direct result of their more modest size and huge numbers. While the quantity of providers is high and each brand has a few choices as far as unrefined substance providers, not many of them are enormous enough in size and most don't hold any critical clout.
- **Bargaining Power of Buyer: High Impact.** The consumers are well-informed and empowered. They do research and makes purchasing decisions after careful analysis of feedback from a variety of sources. Aside from that, when it comes to making a purchase, consumers have a variety of possibilities. As a result of all of this, DELL only have minimal bargaining power. To attract customers, every brand is putting in a strong effort in terms of quality and price.
- **Threats of Substitutes: High Impact.** Now, Customers with a basic demand have many choices instead of personal computers, they can buy tablets, even smartphones can help customers to solve daily simple tasks.
- **Threat of new entrants: Low.** It's difficult for new players to come into the PC Industry. The first thing is the large investment to produce goods on large scale. Another difficulty is how to convince customers to buy new pc brands instead of long-time famous brands, this required huge investment for advertising.
- **Intensity of Competitive Rivalries: Strong Impact.** There are many big tech competitive companies in pc Industry. This is a tough marketing battle between giants.

Main DELL's Competitors:

- **Personal Computer:** Apple, HP, Lenovo, Asus, Acer, Microsoft, ...
- **Storage Service, Cloud-computing:** Amazon, Microsoft, IBM, Oracle, HPE, ...

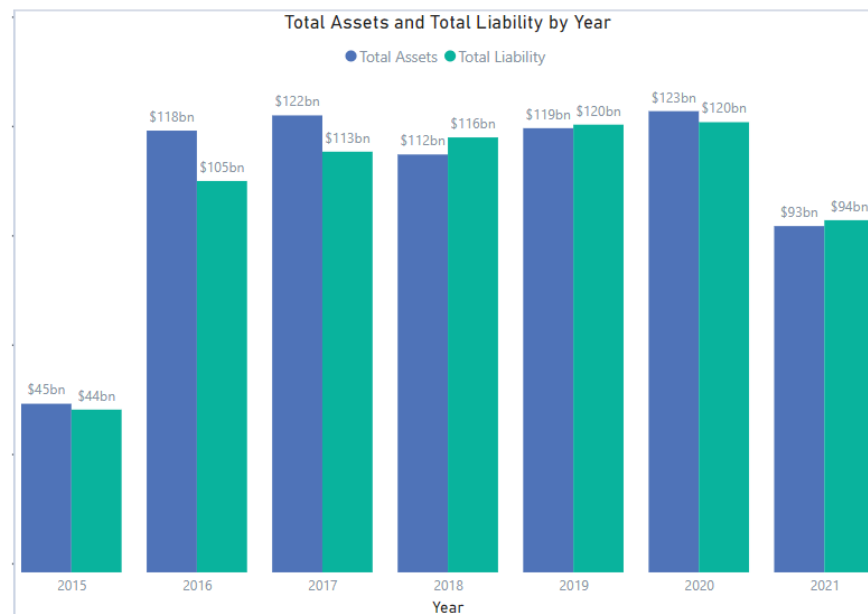
Financial Overview

Dell acquired a software giant EMC in 2015, the debt of the acquisition still had a strong impact on Dell's operation until now. However, financial performance of Dell has improved through the period from 2015 to 2021, growth rate increases, liabilities decrease over recent years.

Problems of Liabilities



- Because of acquisition in 2015, the Total Liabilities increased more than double from 2015 to 2016, with \$ 44 billion in 2015 to \$ 105 billion in 2016.
- Short-term debt increased quite quickly from \$ 25 billion in 2015 to \$ 52 billion to 2019, then increase slightly to \$ 56 billion in 2021
- From 2016 to 2021, Long-term debt decreased significantly from \$ 67 billion in 2016 to \$ 38 billion in 2021. The strong decrease in the Total Liabilities from 2020 to 2021 shows the efforts of Dell to pay down debts.

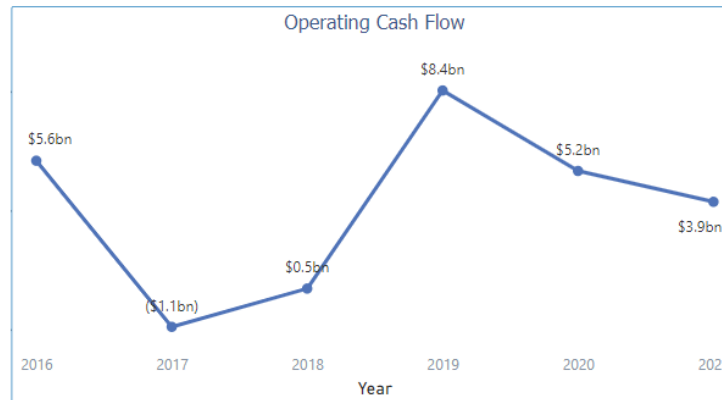


- The liabilities of Dell are always in high level when comparing with assets, the liabilities were equal or even higher than assets.

Raise in Revenue and Profits

- Total Revenue shows a significant increase, it double from \$ 51 billion in 2015 to \$ 101 billion in 2021
- During the period, Profit Margin increase slightly. From 2015 to 2018, Profit margins were negative because of the high indirect costs that made gross profit negatively. In recent years, Dell control indirect costs more effectively, therefore the net income increase and profit margin as well.

Operating Cash Flow



- Although there were strong impacts of debt that Dell borrowed to buy EMC in 2015, the operating cash flow of Dell were almost positive. Except 2017, when Dell needs additional financing (\$1.1 billion) to operate, other years from 2016 to 2021, the OCF was positive, meaning cash is available to grow operations.

Fundamental Financial Ratios

- From 2015 to 2021, trend of Current Ratio and Quick Ratio decreased relatively. Current Ratio and Quick Ratio are less than 1 indicate that Dell has problems with paying short-term debts, and Dell must deal with these issues for next several years.
- From 2015 to 2021, ROA increased from -2.4% to 6%. This shows an improvement of efficiency in using assets to generate profit.
- From 2015 to 2018, the negative ROE caused by negative Net Income. In 2019, 2021 negative ROE caused by negative Equity. In 2019 and 2021, ROE of Dell was -488% and -352%, this means Dell has issues with debts.
- Earnings Per Share increased through years, which indicates that Dell performs better over year, and could generate profit through year.

Industry Comparison

To understand how well Dell performed in the period from 2015 to 2021, I compare several indicators of Dell with the average of some main similar competitors. Companies that I choose to compare are HP, Lenovo, Asus, Acer, Super Micro Computer Inc, IBM, Microsoft. Based on these comparison ratios, I made assumptions to forecast the future growth of Dell.

Sales Growth Rate

- Sales Growth Rate of Dell increased significantly from -6% in 2015 to 27% in 2017, then dropped strongly to 1.7% in 2019, then increased slightly to 7.4% in 2021. In the same period, the industry shows a constant increase in Sales Growth Rate. Dell's main competitor, HP, shows a strong fluctuation in Sales Growth Rate in this period.
- The Average Growth Rate of Dell and the Industry are 9.9% and 2.2% respectively.

- Because of the wide range in Sales Growth Rate, it's difficult to forecast an accurate growth rate in the future, so I choose the next 6 years sales growth rate of Dell would be 3% to 4%, a little bit higher than the average of the industry.

Cost of Goods Sold / Sales Ratio (COGS/ Sales)

- The direct cost of Dell and Industry are consistent, they are lower than that of HP. The average percentage of cost of goods sold of Dell is 76%, while that of the industry and HP are 71% and 81% respectively.
- The cost of goods sold ratio is quite stable within years, so the Dell ratio cost of goods sold would be decrease slightly to the average of the industry.

R&D / Sales Ratio

- The ratio of R&D cost of Dell is relatively increased from 2.1% in 2015 to 5.6% in 2020 while the average of R&D ratio is quite stable around 5.6%, while the ratio of R&D cost of HP is significant lower. In 2021, the percentage of R&D cost of Dell decreased significantly.
- However, in next 6 years, R&D cost of Dell is predicted to increase because average of main competitors in cloud-computing, Microsoft, IBM is more than 10%, so Dell must invest more in R&D to become competitive. Thus, I would set the rate of R&D/Sale slightly increase from 2.5% in 2021 to 7% in 2027.

Selling General & Administration / Sales Ratio (SGA/Ratio)

- The ratio of cost of general administration of Dell is significantly higher than that of the industry and HP, nearly double. From 2015 to 2017, SGA/Sale of Dell increase strongly from 15.4% to 24%, then slightly decrease to 20% in 2020, while in the same period, that metric of the industry and HP are kept at 12% and 9% respectively. This indicates that Dell does not control administration cost effectively. The SGA/sale of Dell decrease significantly to 14.5% in 2021, which shows an improvement in managing indirect cost.
- In recent years, the ratio of SGA of Dell has decreased, so I expect Dell would keep the SGA ratio at 15% in next 6 years.

EBIT/TA Ratio

- The ratio of EBIT/TA of Dell decreased from -1.14% in 2015 to -2.73% in 2017 then increased to 5% in 2021, while that of the industry was significantly higher than that of Dell, EBIT/TA ratio of industry was kept above 6.5% within this period.

Gross Margin

- Dell Gross margin increased from 16% in 2015 to 31% in 2020 then decreased significantly to 21% in last years, the average of Dell is 24%, while that of the industry remained about 27% during the same period.

Valuation

To evaluate Dell, I used the DCF model and relative valuation model to generate an expected stock price considering cash flows 6 years from now. I took income statements and balance sheets from 2015-to 2021 and divided each item out to see its percentage of that year's revenue. I computed several financial ratios such as ROA, ROE, RD/revenue, current ratio, cash ratio, COGS/sales, etc. Along with these ratios for Dell I also compare these Dell's ratio with the average of the industry to watch how well Dell perform and estimate these ratios would be in the next 6 years.

Discounted Cash Flow Model (DCF model)

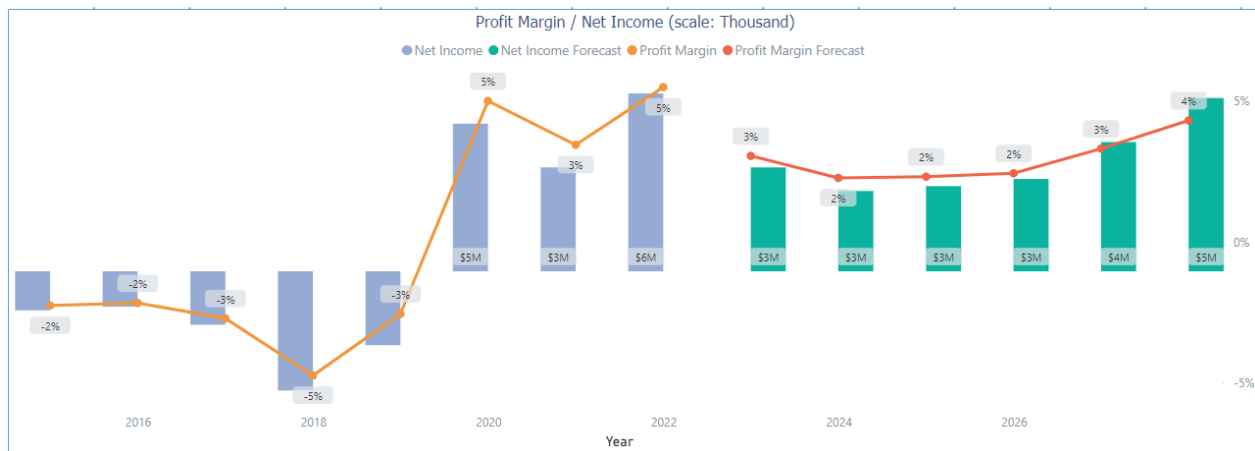
A discounted cash flow analysis was used to estimate the intrinsic value of SSS's share price due to the predictability of cash flows in relation to growth and profitability.

- Risk Free Rate: I set 2% of Risk-Free Rate for next 6 years.

- Market Risk Premium: I set 6.5% for next 6 years.
- Interest rate on debt: I use 4% (average interest rate on debt of Dell in last 7 years)
- Annual Sale Growth would decrease slightly from 7.4% in 2021 to 3% in 2027, a little bit higher than the average of the industry.
- Beta would be 1.06 (calculated from regression between return of Dell stock price and S&P500)
- Cost of Equity would be 8.89% (Beta x Market Risk Premium + Risk Free Rate)
- Capital Structure would decrease significantly from 104% in 2021 to 56% in 2027
- Weighted Average Cost of Capital (WACC) would increase slightly to 5.8% in 2027
- Perpetual Cash Flow Growth would be 2% which I expect GDP would be 2% in next 6 years.
- COGS/Sales would decrease slightly from 78% in 2021 to 71% in 2027, that I expect Dell would cut its direct cost to be equal with the average of the industry.
- R&D/Sales: I predict Dell would spent more on R&D to develop cloud-computing product, that makes R&D/Sale increase from 2.5% in 2021 to 7% in 2027.
- SGA/Sales: Dell would keep SGA cost at 15% in next 6 years.
- Depreciation/Fixed Assets: I set at 1.5% as the average of last 3 years.
- Tax rate for next 6 years would be set 15% that is equal the average tax rate of last 7 years.
- Cash/Sale is set at 15%, that is nearly equal to the average of last 7 years.
- Account Receivable/Sales is set at 18%, that is nearly equal to the average of last 7 years.
- Other Assets/ Sales is set at 68%, that is nearly equal to the average of last 7 years.
- Fixed Assets/ Sales would increase from 14% in 2021 to 20% in 2022, nearly equal to the average of the industry.
- Account Payable would decrease to 25%.

	2019	2020	2021	2022	2023	2024	2025	2026	2027
External Factors									
Risk Free Rate			1.49%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Market risk premium			7.75%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Interest rate on debt (cost of debt)			4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Annual sales growth			7.40%	5.00%	4.00%	4.00%	3.00%	3.00%	3.00%
Cost of equity			9.71%	8.890%	8.89%	8.89%	8.89%	8.89%	8.89%
Capital Structure (% debt)			104.33%	84.14%	78.51%	72.51%	68.58%	62.68%	56.26%
WACC (discount rate)			3.13%	4.27%	4.58%	4.91%	5.12%	5.45%	5.80%
Perpetual CF growth			2.00%						
Perpetual discount			5.80%						
Payout and financing									
Debt portion to fin operations			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Payout ratio	0	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Parameter Estimates									
	2019	2020	2021	2022	2023	2024	2025	2026	2027
COGS/Sales			78.37%	75.00%	75.00%	74.00%	73.00%	72.00%	71.00%
RD/Sales			2.25%	4.00%	5.00%	6.00%	7.00%	7.00%	7.00%
SGA/Sales			14.48%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Depreciation/Fixed Assets			1.67%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Tax rate			15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Cash/Sales			16.56%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
AR/Sales			18.00%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%
Other Assets/Sales			41.79%	68.00%	68.00%	68.00%	68.00%	68.00%	68.00%
Fixed Assets/Sales			14.24%	15.00%	18.00%	18.00%	19.00%	19.00%	20.00%
AP, Acr Exp etc/Sales			35.36%	27.00%	27.00%	27.00%	25.00%	25.00%	25.00%
Beta	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Number of shares (Scale: Thousands)	763,890.00								

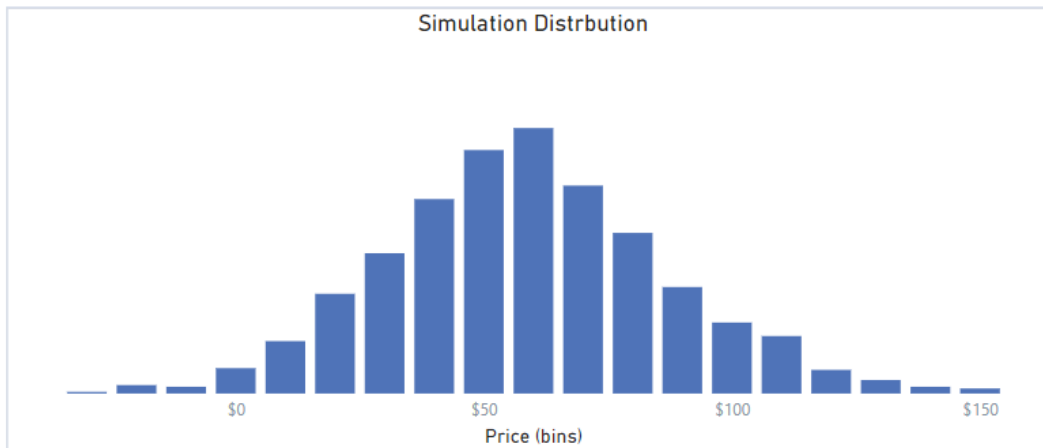
Cash flow (Scale: Thousands)	2019	2020	2021	2022	2023	2024	2025	2026	2027	Terminate Value
			0	0	1	2	3	4	5	
Operating CF	\$ 8,379,000.00	\$ 5,160,000.00	\$ 3,923,089.20	\$ 6,028,034.31	\$ 5,350,874.84	\$ 5,580,702.41	\$ 5,733,141.74	\$ 6,944,886.39	\$ 8,196,902.43	
Net CAPEX	#VALUE!	\$ 738,000.00	\$ (770,910.80)	\$ 1,996,326.46	\$ 4,221,478.39	\$ 1,099,987.91	\$ 2,128,197.03	\$ 1,017,168.77	\$ 2,312,945.48	
Net NWC	#VALUE!	\$ 5,023,000.00	\$ (621,000.00)	\$ 8,349,411.00	\$ 255,016.44	\$ 265,217.10	\$ 2,574,373.96	\$ 284,100.55	\$ 292,623.57	
Free cash flow	#VALUE!	\$ (601,000.00)	\$ 5,315,000.00	\$ (4,317,703.15)	\$ 874,380.00	\$ 4,215,497.40	\$ 1,030,570.75	\$ 5,643,617.07	\$ 5,591,333.38	\$ 150,038,638.61
Enterprise Value	\$ 123,192,959.80			\$ (4,317,703.15)	\$ 836,088.44	\$ 3,830,193.30	\$ 887,077.84	\$ 4,564,423.05	\$ 117,392,880.32	
EV/share	\$ 161.27									
Net Debt	\$ 70,501,000.00									
Equity Value	\$ 52,691,959.80									
Proj Stock Price	\$ 68.98									



- The Net Income is forecasted to increase from \$3.2 billion in 2022 to \$5.4 billion in 2027.
- Profit Margin is forecasted to increase slightly around 3% and reach 4% in 2027.
- The Enterprise Value is projected to be \$ 123 billion.
- Enterprise Value / Share is projected to be \$ 167
- Stock Projected Price is \$ 68.98

Monte Carlo Simulation

To evaluate the value of company in uncertain scenarios of growth rate, I used Monte Carlo Simulation. The growth rate would be selected randomly with assumption that growth rate is a normal distribution with mean is the average of grown rate from 2019 to 2021, and standard deviation of these growth rate in this period. The range of selection sale growth rate belong to N (3.78%, 3.15%)



Pred. Stock Price Summary		
Average	\$	63.18
Std.dev	\$	29.15
min	\$	(24.48)
max	\$	187.51

The projected price of Dell using simulation with randomly selected growth rate is \$63.18, it is nearly with my estimation.

Relative Value Model

My other model was the relative evaluation model which shows how Dell should be priced if it were an average performer looking at several metrics like P/E ratio, net income, EBITDA, sales, and book value of equity. Dell was weighted against averages for HP, IBM, Super Micro Computer Inc, and Microsoft. Those ratios were based on Dell's projected market cap.

	DELL	HP	SMCI	IBM	MSFT
Scale: Thousands					
Market Cap	\$ 44,993,122.53	\$ 39,537,822.09	\$ 1,980,794.17	\$ 111,001,451.49	\$ 2,164,945,617.37
Shares outstanding	763,890.00	\$ 1,092,205.00	\$ 50,582.08	\$ 892,653.42	\$ 7,519,000.00
NET INCOME (2021-prev)	\$ 5,563,000.00				
NET INCOME (last)	\$ 3,247,995.35	\$ 6,503,000.00	\$ 111,865.00	\$ 5,590,000.00	\$ 61,271,000.00
EBITDA	\$ 6,601,209.96	\$ 5,302,213.00	\$ 143,023.00	\$ 7,277,000.00	\$ 69,425,000.00
SALES	\$ 106,256,850.00	\$ 63,487,000.00	\$ 3,557,422.00	\$ 73,620,000.00	\$ 168,088,000.00
BOOK VALUE (EQUITY)	\$ 12,111,381.89	\$ (1,650,000.00)	\$ 1,096,225.00	\$ 20,597,000.00	\$ 141,988,000.00

						Average
P/E (forward or last earnings)	13.85	6.08	17.71	19.86	35.33	19.74
EBITDA multiplier	6.82	7.46	13.85	15.25	31.18	16.94
Sales multiplier	0.42	0.62	0.56	1.51	12.88	3.89
Book Value multiplier	3.71	-23.96	1.81	5.39	15.25	7.48

	Market Cap Based on AVG	Price per share
P/E (forward or last earnings)	\$ 64,130,064.19	\$ 83.95
EBITDA multiplier	\$ 111,798,123.54	\$ 20.10
Sales multiplier	\$ 413,529,693.99	\$ 127.32
Book Value multiplier	\$ 90,607,315.87	\$ 13.73

Average Price	\$ 61.27
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We see that for P/E price per share it was \$83.9, EBITDA multiplier per share at \$20.1, Sales multiplier per share at \$127.3 and a book value multiplier per share at \$ 13.72. I averaged these to see what Dell's projected stock price should be if it were an average performer. It came out to be around \$61.27 per share. This backs up my analysis of my DCF model showing that Dell is quite undervalued.

Weight Projected Price

I calculated the average of projected price by DCF model and Relative Value model to come out the final projected price.

Final Projected Price = 50% (DCF Model) + 50% (Relative Value Model) = 50% x 68.98 + 50% x 61.27 = \$65.16.

APPENDIX

Business Problem

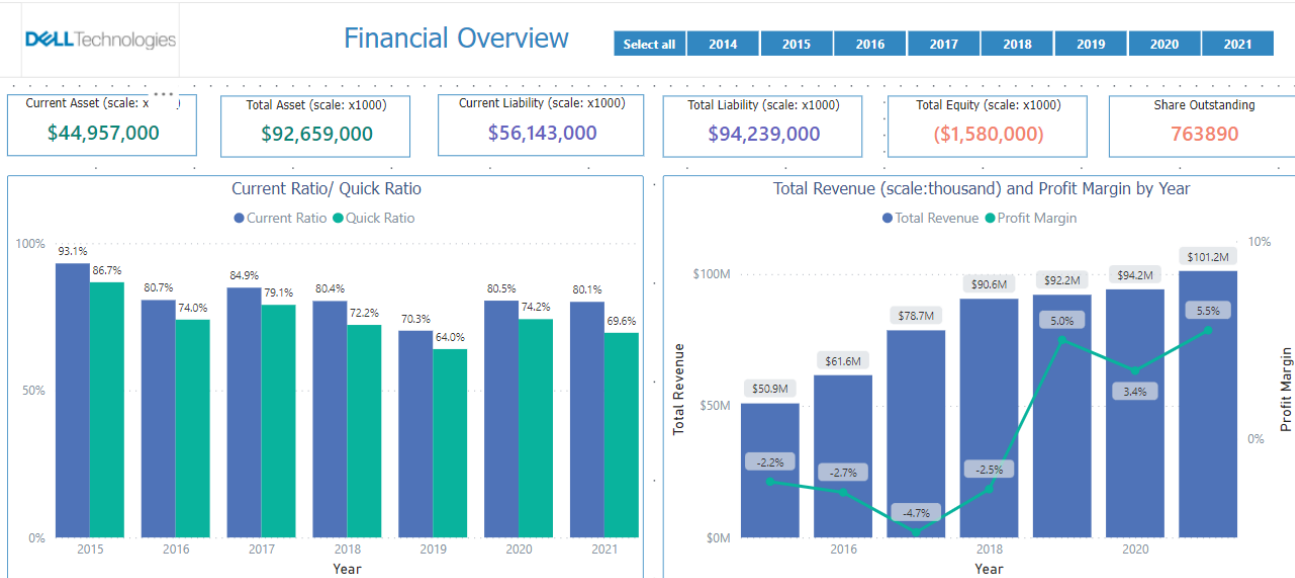
Based on Dell financial announcements (Balance Sheet, Income Statement), do financial analysis to suggest investors to buy, hold or sell Dell stocks.

Data Collection

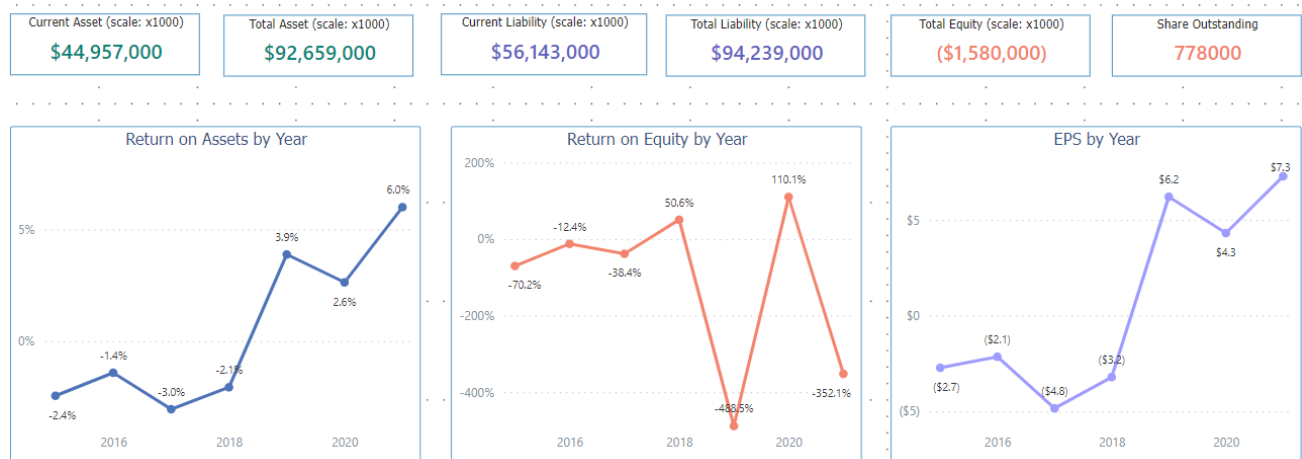
Dell standardized Balance Sheet and Income Statement from 2015 to 2021 are downloaded from Mergent website. Dell's Balance Sheet and Income Statement for FY22 is taken from the Yahoo Finance.

Balance Sheet and Income Statement data of competitors (HP, Lenovo, Acer, IBM, SMCI, MSFT) are collected from the Mergent website in standardized form.

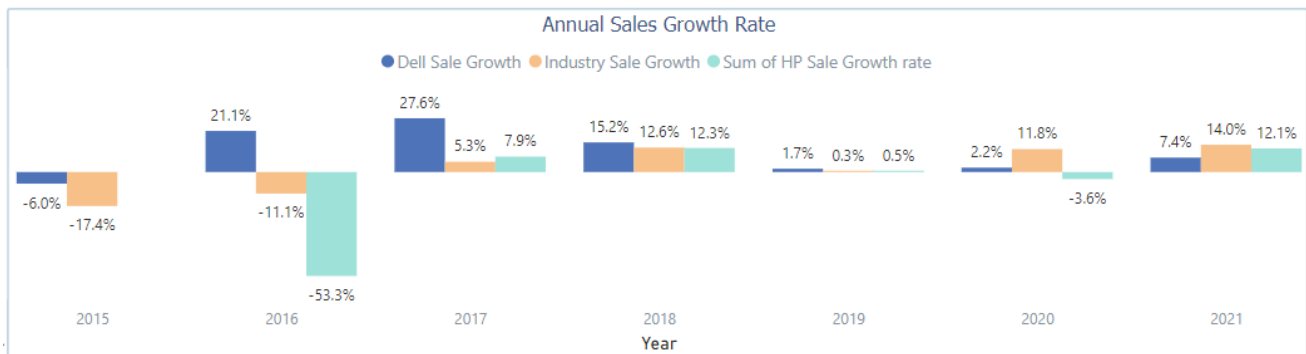
Visualization



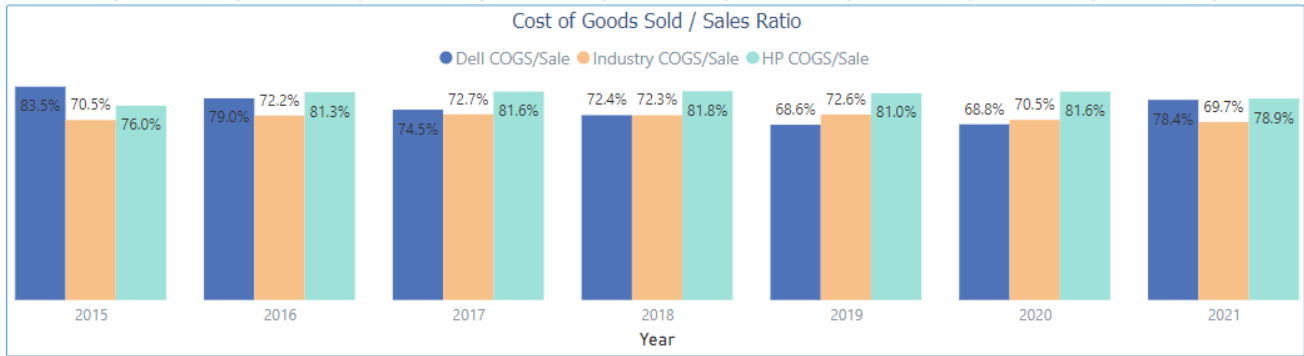
- The Dashboard shows basic financial information of Dell through year from 2014 to 2021.
- The year slicer helps to choose specific year(s) to show information.
- Information Cards show Current Assets, Total Assets, Current Liability, Total Liability, Total Equity, and Number of share outstanding. These cards are set to show data in current year, but we can easily show another year just by selecting year we want in the slicer. Asset, Liability and Equity are shown in dollar, share outstanding is shown in neutral number.
- The left bar chart shows Current Ratio and Quick ratio of Dell from 2015 to 2021. We could see the decreased trend in these ratios over years. This shows the debt problem of Dell. These ratios are presented in percentage.
- The combination line and bar chart show the total revenue and profit margin of Dell in this period. We can see the increase in both total revenue and profit margins. This shows that Dell is performing well in generating profit. The revenue bar chart is presented in dollar, profit line chart is presented percentage.



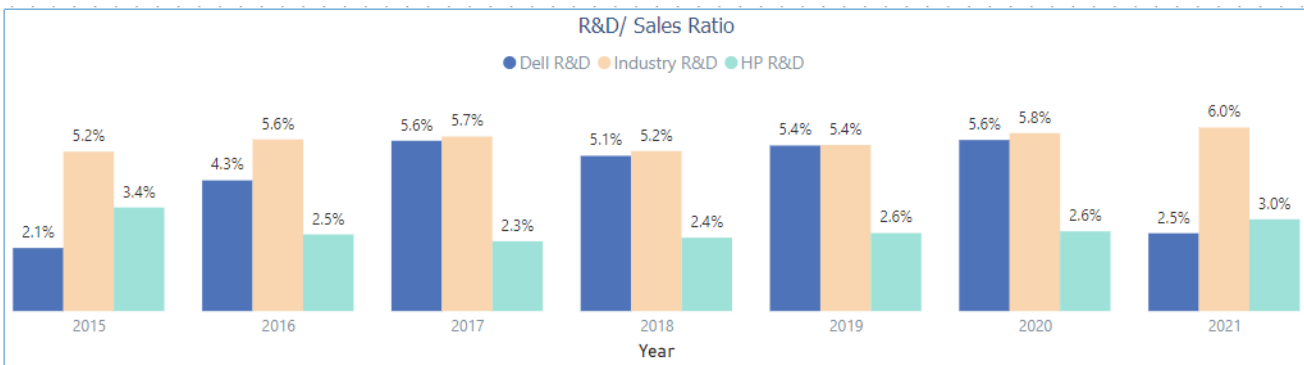
- The Dashboard shows basic financial information of Dell through year from 2014 to 2021, similarly with the above dashboard.
- First line chart shows the Return on Assets through years. The general increase trend indicates that the efficiency of using assets to generate revenue through years. ROA is presented in percentage.
- The middle line chart shows return on Equity within this period. Negative values show the problems of Dells' liabilities. ROE is presented in percentage.
- Final line chart shows the increase in Earning Per Share from 2015 to 2021. EPS is presented in dollar.



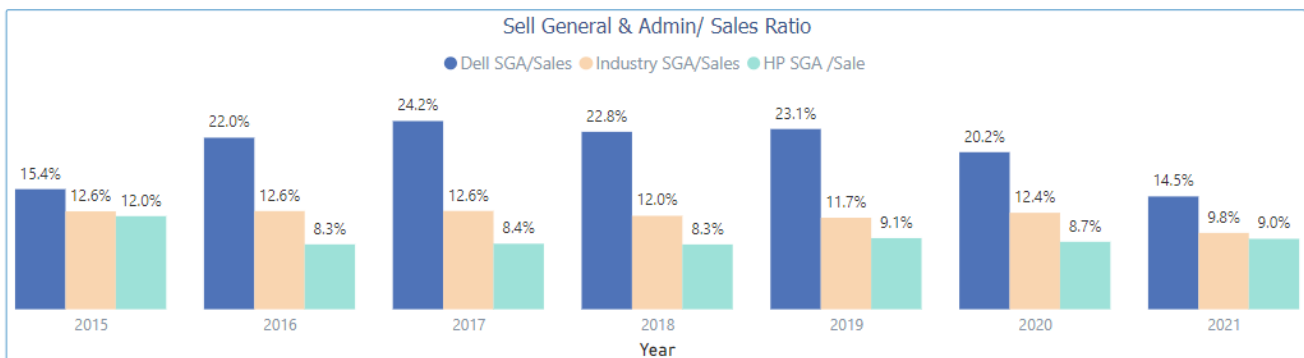
- This bar chart compares Annual Sale Growth rates between Dell, average of industry and main competitor HP. Sales Growth Rate of Dell increased significantly from 2015 to 2017, then dropped strongly to 2019, then increased slightly from 2019 to 2021. In the same period, the industry shows a constant increase in Sales Growth Rate. Dell's main competitor, HP, shows a strong fluctuation in Sales Growth Rate in this period.
- Annual Sales Growth Rate is presented in percentage,



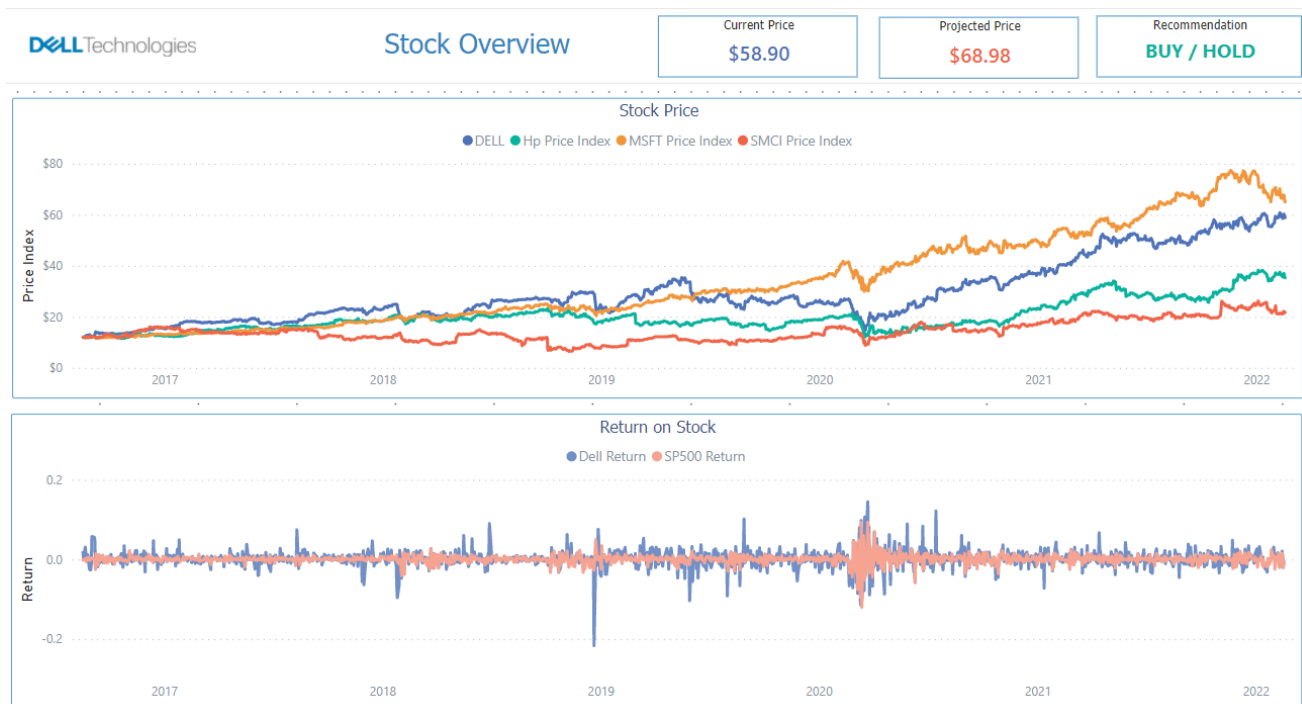
- The direct cost of Dell and Industry are consistent, they are lower than that of HP. The average percentage of cost of goods sold of Dell is 76%, while that of the industry and HP are 71% and 81% respectively.
- COGS/Sale ratio is presented in percentage.



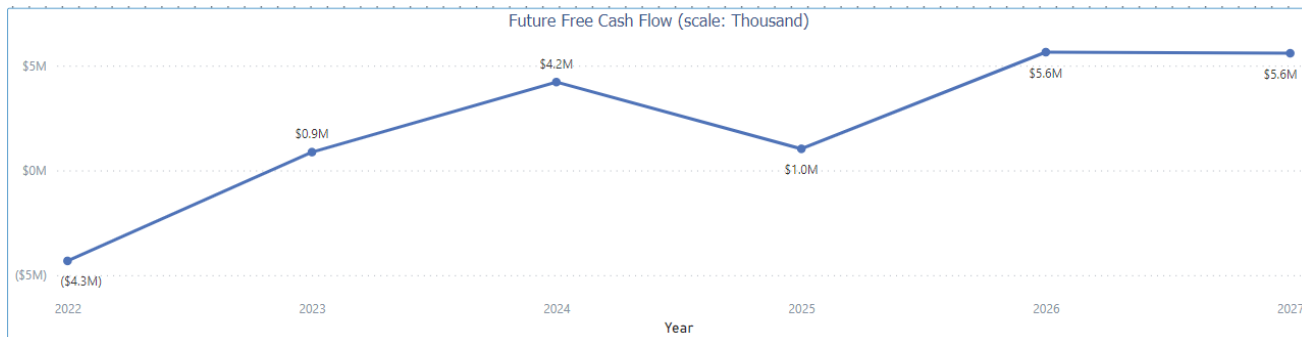
- The ratio of R&D cost of Dell is relatively increased from 2015 to 2020 and reach the average of the industry around 5.5%, while the ratio of R&D cost of HP is significant lower. In 2021, the percentage of R&D cost of Dell decreased significantly, R&D/Sale is shown in percentage



- The ratio of cost of general administration of Dell is significantly higher than that of the industry and HP, nearly double. This indicates that Dell does not control administration cost effectively. This ratio is shown in percentage.



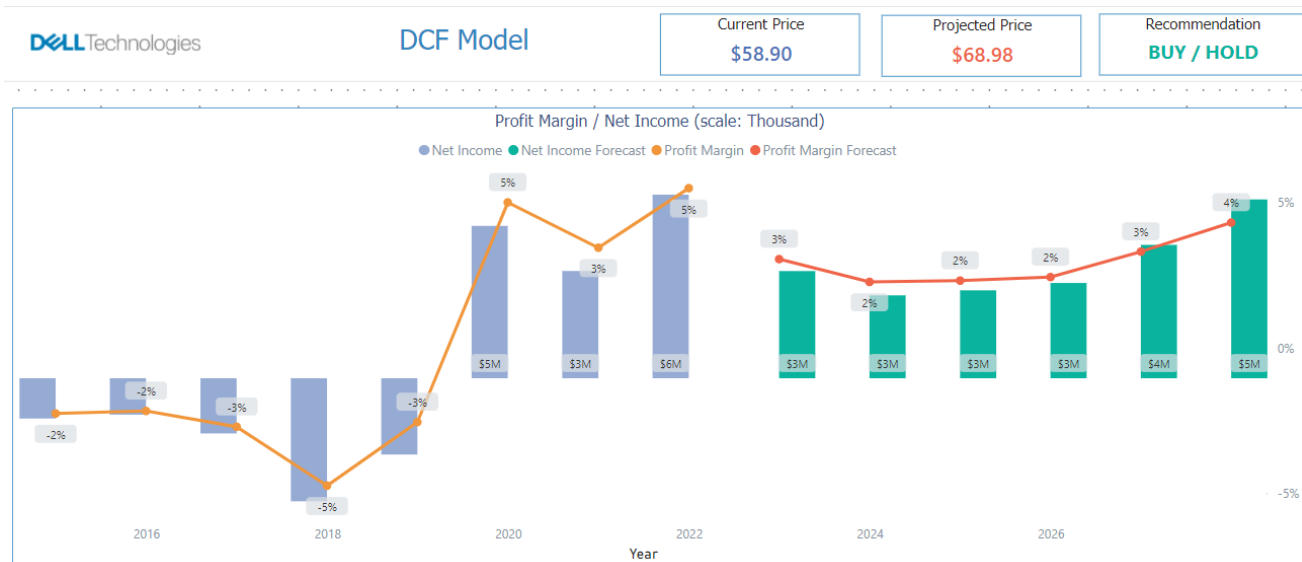
- This dashboard shows Dell stock overview, how stock price and return of Dell were over time and my suggestion.
- The first information card shows the current stock price at Feb 18th, 2022, is \$58.9. The second information card is the projected price calculated from the financial model, that is \$68.98. Third card is my recommendation is to buy or hold Dell's stock.
- The Stock Price line chart show how Dell stock price was and comparing with other competitors in the period from 2016 to 2022. I do some simple calculation to scale stock price of others into the same start point with Dell. We could see that Dell perform well in the period. The price increase nearly 5 times from \$12 in 2016 to more than \$50 in 2022.
- The return of stock line chart shows the return of Dell stock and return of SP500 in the period from 2016 to Feb 2022. The return of Dell is better than that of SP500, but the variance of Dell return is higher than that of SP500 return.



- This line chart shows the forecasted free cash flow of Dell in next 6 years. From 2022 to 2027, Free cash flow of Dell is forecast to increase significantly from -\$4.3 billion to \$5.6 billion.

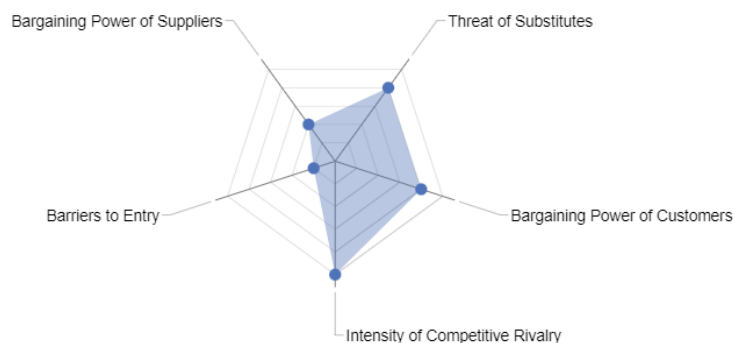
Year	Risk Free Rate	Market risk premium	Annual sales growth	Interest rate on debt	Capital Structure (% debt)	Cost of equity	WACC (discount rate)	Net Income Forecast	Profit Margin Forecast	Free Cash Flow	Terminal Value	Enterprise Value
2022	2.00%	6.50%	5.00%	4.00%	84.14%	8.89%	4.27%	\$3,247,995.35	3.06%	(\$4,317,703.15)		(\$4,317,703.15)
2023	2.00%	6.50%	4.00%	4.00%	78.51%	8.89%	4.58%	\$2,511,494.64	2.27%	\$874,380.00		\$836,088.44
2024	2.00%	6.50%	4.00%	4.00%	72.51%	8.89%	4.91%	\$2,663,359.74	2.32%	\$4,215,497.40		\$3,830,193.30
2025	2.00%	6.50%	3.00%	4.00%	68.58%	8.89%	5.12%	\$2,886,920.35	2.44%	\$1,030,570.75		\$887,077.84
2026	2.00%	6.50%	3.00%	4.00%	62.68%	8.89%	5.45%	\$4,041,086.14	3.31%	\$5,643,617.07		\$4,564,423.05
2027	2.00%	6.50%	3.00%	4.00%	56.26%	8.89%	5.80%	\$5,418,007.87	4.31%	\$5,591,333.38	\$150,038,638.61	\$117,392,880.32

- This table is used to summarize the fundamental information of my DCF model, this information includes Risk Free Rate, Market Risk Premium, Annual Sales Growth, Capital Structure, Cost of Equity, WACC, Net Income Forecast, Profit Margin Forecast, Future Free Cash Flow, Terminal Value, and Enterprise Value.

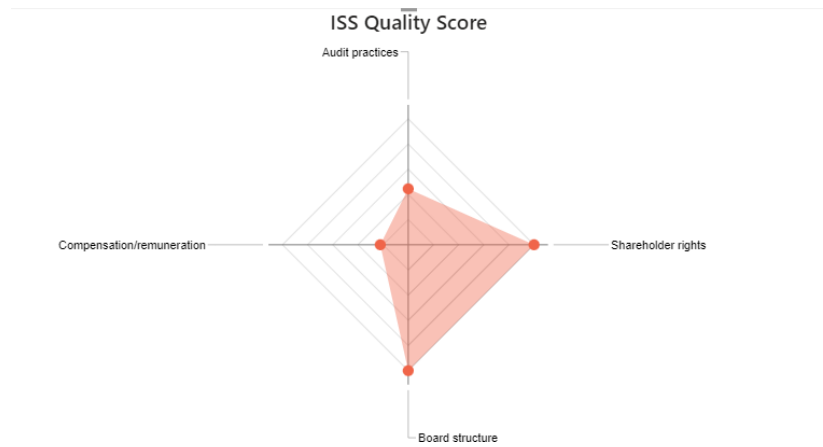


- This dashboard compares the history of profit margin, net income and the forecasted profit margin and net income for the next 6 year. Net Income bar chart is present in dollar and Profit Margin line chart is present in percentage.
- Information Cards show the current price and estimated price, then give my suggestion.

PC Industry Poster 5 Force



- This radar chart shows the Poster's five force scores for PC industry. Barriers to entry has lowest threat to Dell, Bargaining Power of Supplier has a moderate threat to Dell, Threat of Substitutes and Bargaining of Buyers have high impact on Dell, and Intensity of Competitors has strong threat to Dell.



- This radar chart shows the Poster's five force ISS governance quality cores for Dell. Dell has low risk with Compensation of Governance, moderate risk with Audit Practice, and high risk with Shareholder Rights and Board Structure.