Valuation of HP Inc. and Dell Technologies Inc.

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COURSE CODE: MBA 524 (001)
DATE: April 5th, 2021

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1. Industry Analysis:

1.1. About the Sector - Information Technology

Information Technology (IT) is the use of computer systems to store, manipulate, transmit and retrieve data or information. It is also called as subset of information and communications technology (ICT). IT systems are used to build communications networks for companies, safeguarding their information and data, creating and administering databases, and doing a range of other activities to accelerate sure the efficiency and security of businesses. In short, it is a computer system – including all software's, hardware's and peripheral equipment's.

The IT sector makes up for $13.6 Trillion (as on 5th April 2021)[1]of the S&P500 Index and is the largest weighted sector. The four major industry groups within the IT sector are software ($4.53 T), semiconductors & semiconductors equipment's ($3.31 T), technology hardware, storage & peripherals ($2.36 T) and IT Services ($2.84 T). In 2020, the Information Technology Sector, as measured by the technology Select Sector SPDR ETF (XLK), has dramatically outperformed the broader market with a total return of 39.9%, compared to S&P 500's total, return of 14% as of Nov 4th 2020 (Johnston, n.d.).

The outlook of growth for the IT industry looks promising for 2021 and the coming years, all thanks to advancement in technology sector such as IoT (Internet of Things), Virtual Reality, Blockchain, 3D Printing, Machine Learning, Artificial Intelligence, Robotics, and 5G deployments. In general, the IT sector looks promising for the next 5 years (with the average growth between 5% to 7%) with technologies waiting to find wide use.

1.1.1. Positives for the sector:

- In 2020 despite the pandemic of covid-19, the IT sector has seen growth and was less impacted, compared to other industries like Tourism, Aviation, Retail, Restaurant. In 2021 and next 5 years, the expectation is great as new technologies enter into the market, like Self-Driving cars, Internet of things, Deep Learning, Machine Learning and 5G deployment.
- As many people has moved to work from home, demand for personal computers and desktop has increased. This resulted in growth as well as demand from the enterprise services companies to support the new infrastructure of work from home culture.
- The long-term growth of the IT sector looks in good shape as the electric cars, home robots (vacuums, lawn mowers, kitchen appliances, just to name few) requires technology and services (hardware and software) which can be fulfilled by the IT service providers.

1.1.2. Negatives for the sector:

- As people depend more and more on technology, it has reduced the human opportunities and moreover, it is removing human intervention in many places, which creates conflicts.
- Due to the fact of the enormous development of new technologies every day, there are technologies that become obsolete very fast, some products may become obsolete quite

[1] https://eresearch.fidelity.com/eresearch/markets_sectors/sectors/sectors_in_market.jhtml

faster, and some products may even lose their price. For instance, every year new laptops and phone models are launched in the market which makes prior model obsolete.

- Semiconductor prices are rising amid low supply and hoarding. This is because the pandemic has forced many manufacturing units to stop down which resulted in lower production and higher demand of semiconductors. This indeed resulted in the increase of the semiconductor prices.

*1.1.3. **Risks for the sector:***

- Continued high unemployment could weigh on consumer technology revenues: As the Covid-19 pandemic has affected the employment, many people might not be able to buy new software or hardware, so the consumer sector might be affected. In the corporate sector, things look better as new technologies appear, many companies are planning to upgrade their software, to the new technologies, and to be able to do that, these companies also need to upgrade their hardware. The profits, many are not the same as in past years, but the growth might still occur.
- Potential antitrust suits in the U.S. and Europe. Lawsuits and fee-penalties are occurring all over the world, especially in Europe and the U.S. where the laws are stricter about intellectual property. Due to these lawsuits, many companies would not be able to sell their products until the lawsuit has been finished or in other cases, some companies will not be able to use certain technologies until the lawsuit has been resolved. In other cases, the companies will have to share their profits if the lawsuit is not in their favor. These scenarios might cause the stock price loss or trust in the company to be affected.
- Reversal of the 2017 corporate tax cuts that had greatly benefited the sector. The 2017 tax cut reduced the income tax rate corporate from 35% to 21%, this was a great motivation for many companies to bring back their cash from overseas and put in the US as investment or as buying-back stocks. If this benefit is reversed (i.e., income tax is put back to 35%) then it will be harder for companies to make profit and grow in long term.

1.2. Porter's Five Competitive Forces in Information Technology (IT)

- ***Bargain Power of Buyers ~ Medium Force:*** The IT market is worldwide market, and in the U.S. specifically, the IT market is segmented for personal and corporate customers. Individual customers are sensitive to price, but for corporate customers, the IT products and services are necessary to the success of businesses, so they are willing to spend money to get good products. There are typically many interactions between buyers and IT companies because of the need for training to use products, constantly upgraded technology and an abundance of advertising (Bauer, 2013)

  Big corporations can buy large amount of hardware and software, so their bargain power is better than medium and small companies. In the personal computer segment, the bargain power of the customer is mostly observed when the IT companies offer pre-built computers or pre-built software packages (those are the cheapest) and computers ala-carte, where the buyer buys what he wants and of course pays higher price than the pre-built or pre-packaged.

- ***Bargain Power of Suppliers ~ Weak Force:*** New companies find it difficult (not impossible) to enter this industry as a supplier because of the existing relationship between current suppliers and IT firms. In addition, it is very difficult to earn a reputation in a market that is already well dominated by the big brand-names. The way for a new supplier to enter the market is either by partnership with a well-known company or by acquiring a whole company. As an example, Lenovo acquired IBM in order to start getting recognized, in time the "IBM" had been reduced and the Lenovo took place. In summary the bargain power of supplier is weak in the wide market, the new supplier may get into the market by partnership or just getting into very narrow niche of the market

- ***Threat of new entrants ~ Weak Force:*** Any newcomers in this industry can expect a strong retaliation from existing players ((Bauer, 2013). Unless a new entrant comes with a new idea, the threat of new entrants should not affect greatly the already established brand names of the IT world. That doesn't mean that the current IT players should not innovate, on the other hand innovation new products offer keep them competitive with the rest of the companies

- ***Threat of substitutes ~ Weak Force:*** There are not much threat of a substitute, especially in the consumer segment. Unless a new provider comes with a new idea, not much of threat of substitutes. In the corporate segment the threat of substitute is higher as there are currently a moving to everything cloud-virtual.

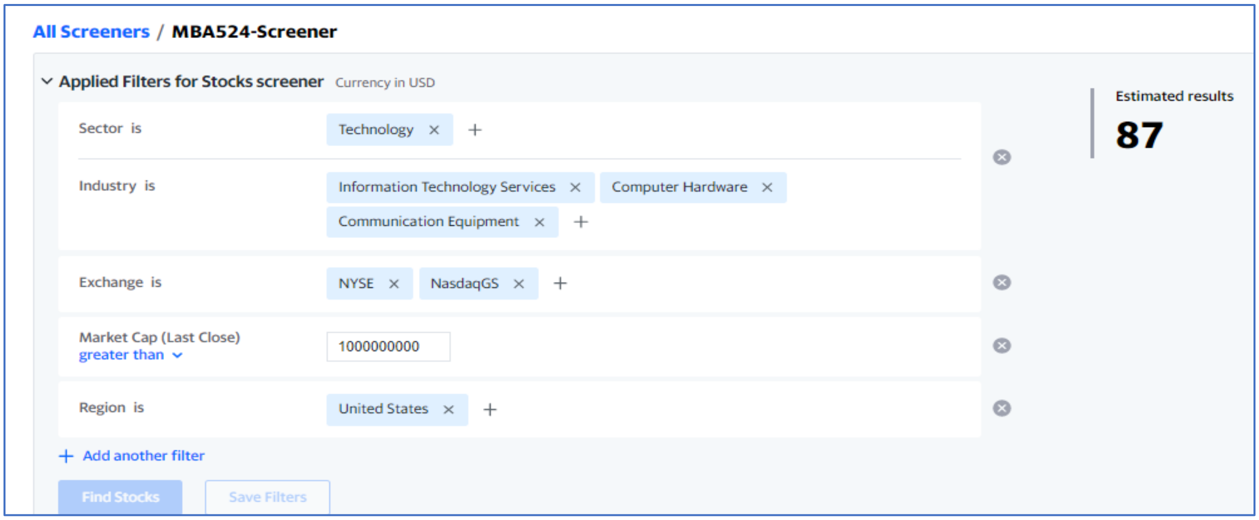
- ***Rivalry Among Existing Players ~ Medium Force:*** The IT market in hardware and software is highly competitive, and the market share is unevenly distributed among existing players, who are often in various kind of legal and advertising battles with one another for intellectual property. In the personal segment, most of the rivalry goes to the big-brand names that are fighting to increase its market-share. In the corporate sector, the rivalry is mostly motivated by the type of products and services that can offer to the corporations.

2. Stock Screen and Alternative Stock Selection:

2.1. Stock Screening

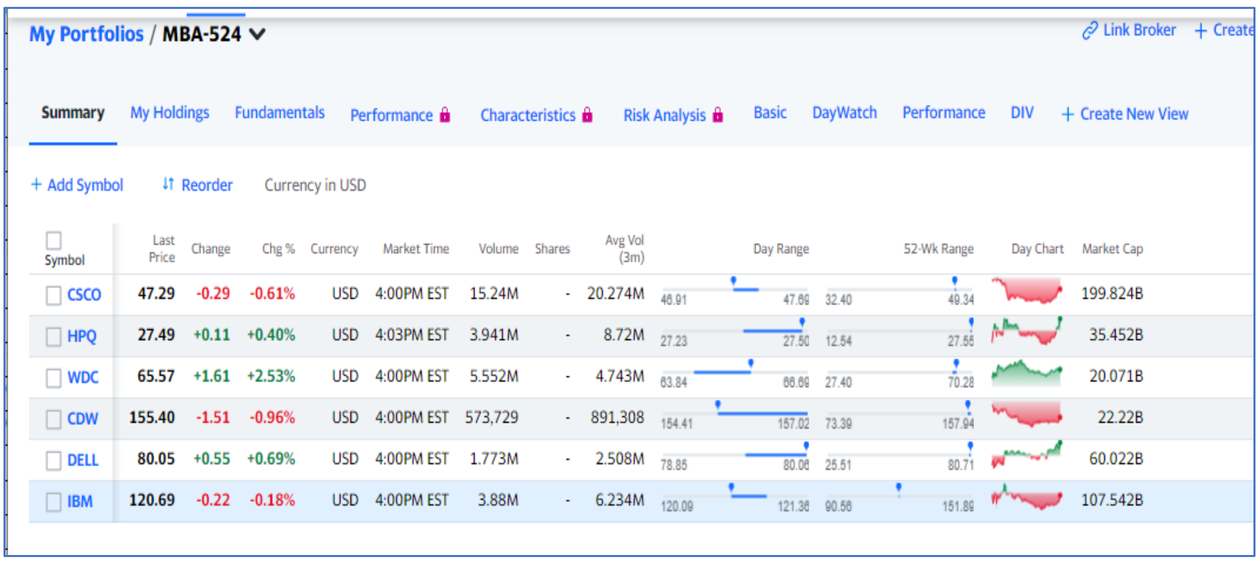
A. For stock screening, we have used Yahoo Screening Tool with the below conditions:

Sector: Technology
Industry: Information Technology, Computer Hardware, Communication Equipment
Exchange: NYSE, NasdaqGS
Market CAP: Greater than 1B
Region: United States



2.2. Stocks Selected:

After applying the filter, the following companies were chosen.



Symbol	Last Price	Change	Chg %	Currency	Market Time	Volume	Shares	Avg Vol (3m)	Day Range		52-Wk Range		Day Chart	Market Cap
CSCO	47.29	-0.29	-0.61%	USD	4:00PM EST	15.24M	-	20.274M	46.91	47.69	32.40	49.34		199.824B
HPQ	27.49	+0.11	+0.40%	USD	4:03PM EST	3.941M	-	8.72M	27.23	27.50	12.54	27.55		35.452B
WDC	65.57	+1.61	+2.53%	USD	4:00PM EST	5.552M	-	4.743M	63.84	66.69	27.40	70.28		20.071B
CDW	155.40	-1.51	-0.96%	USD	4:00PM EST	573,729	-	891,308	154.41	157.02	73.39	157.94		22.22B
DELL	80.05	+0.55	+0.69%	USD	4:00PM EST	1.773M	-	2.508M	78.85	80.06	25.51	80.71		60.022B
IBM	120.69	-0.22	-0.18%	USD	4:00PM EST	3.88M	-	6.234M	120.09	121.36	90.56	151.89		107.542B

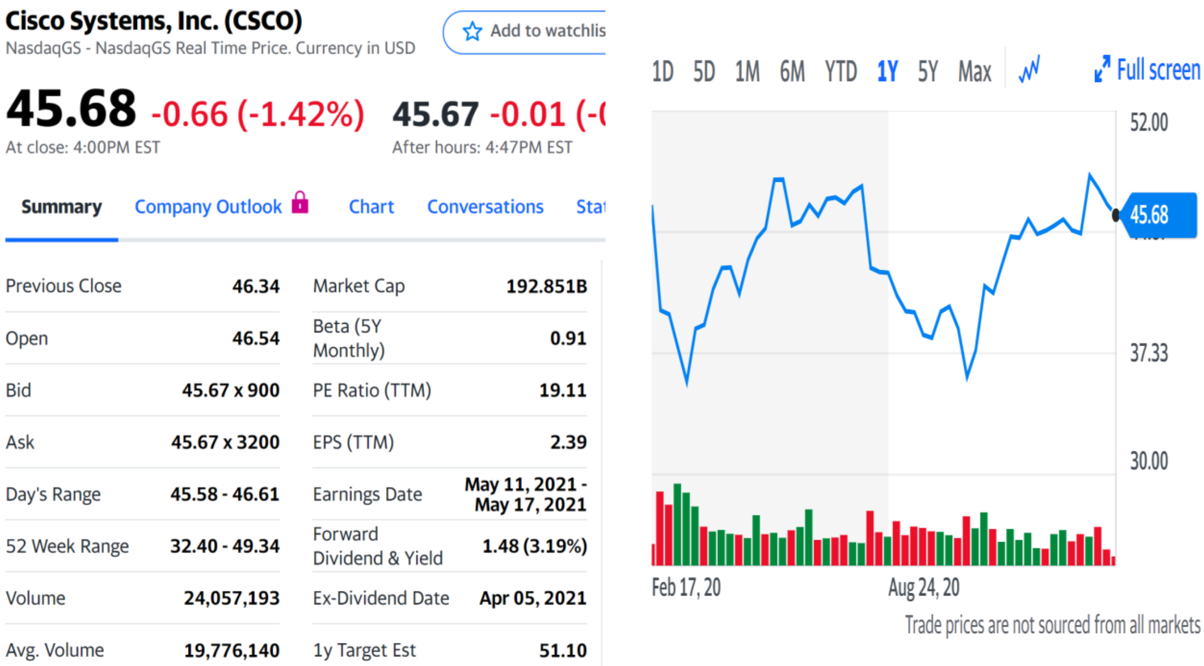
2.3. Snapshot Descriptions

2.3.1. Cisco Systems, Inc. (CSCO)

About

Cisco Systems, Inc., is involved in designing and dealing in a range of technologies across networking, security, collaboration, applications and the cloud. It operates through three geographic segments: Americas; Europe, Middle East, and Africa; and Asia Pacific, Japan, and China. Its product and technologies include: infrastructure platforms, application, security, and other products. Its operations are briefly described here:

Services	Description
Infrastructure Platforms:	Provides networking capabilities, transfer and storage of data through Switches, Router and Data centers.
Application:	Offers software related services by utilizing networking platforms
Security:	Threat management and security products
Other Products:	Diversified by providing internet and cloud intelligence platforms



Analysis

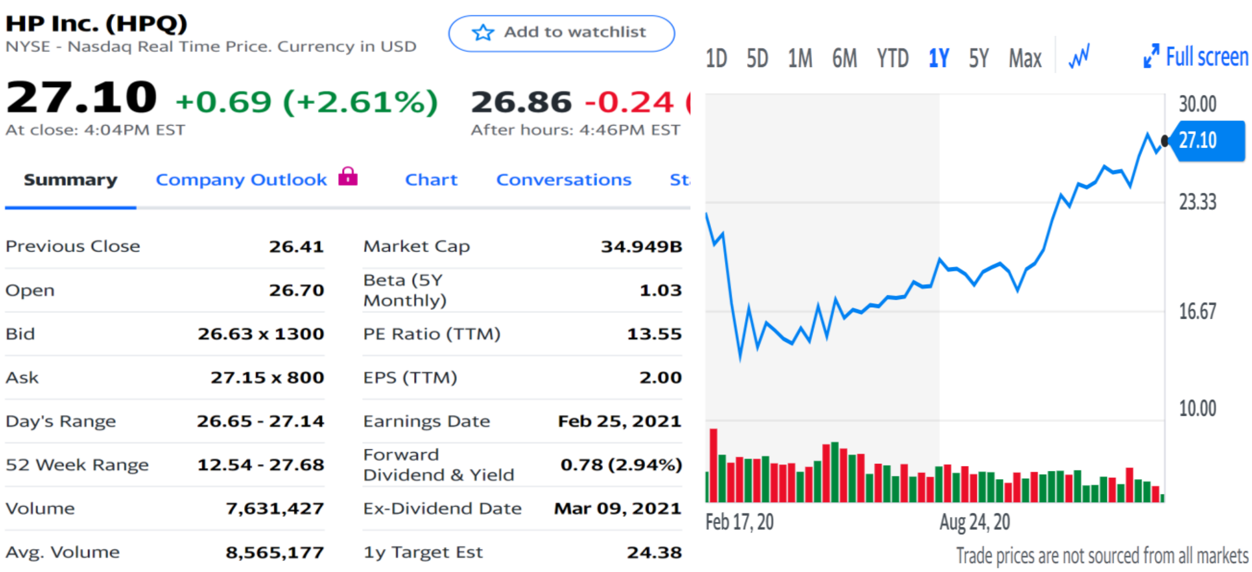
During March 2020, major sell-off was triggered by the coronavirus pandemic but this recession period has a negative effect on company's overall performance. As Cisco utilizes its communication solutions such as WebEx and Jabber for remote workers to communicate from anywhere which helps in increasing its revenues by offering online services. A part of this growth is due to the expansion of free WebEx offerings to support the quick implementation of work-from-home policies. Moreover, Duo Security and Umbrella will drive its future security business as this new work from home policies will boost the demand of cloud – based security for many new companies shifting online. On the other hand, the lack of investment in the underlying business and difficult competitive environment in networking and computer hardware translates into a stagnating operating picture for owners. From the past, it has been observed that much of Cisco's revenues come from acquisitions and market in 5G network might open-up new revenues options with slightly slower pace(investors.com,2021).

2.3.2. HP Inc. (HPQ)

About

HP Inc. is a provider of products, technologies, software, solutions and services to individual consumers, small- and medium-sized businesses, and enterprises. The Company provides personal computing and other access devices, imaging and printing products, and related technologies, solutions and services. Its major segments are listed below:

Services	Descriptions
Personal system:	Personal Computers, workstations, Commercial tablets and mobility devices, retail point-of-sale systems and other accessories for commercial & consumer market
Printing:	consumer and commercial printer hardware, supplies, media and scanning solutions
Corporate Investments segment:	operations of HP Labs and business incubation centers



Analysis

During last year, HP Inc.'s business was boosted in Q2 (of 2020) due to workers buying computer equipment to furnish their home offices during the Great Lockdown. These sales patterns were observed in the consumer market segment for the shorter duration. Conversely, investors expected to have drop in revenue from commercial market as companies and individuals cut back on expenses linked to non-essentials and same has been observed in the sales of printers.

The personal systems segment holds more than half of the total revenue, so it's likely that the company will not achieve another significant top-line hit post-pandemic. Also, the pandemic has increased the adoption of digital documents, which has brought down the demand for printers in the market. Recently, HP has unveiled new devices and solutions designed to power hybrid work environments and growing personal creative studios. HP's ability to invest in the research and development might be valuable to company's future development.

2.3.2. Western Digital Corporation (WDC)

About

Western Digital Corporation is an American based organization which creates, develops, and sells storage devices, cloud storage services and data center systems to different equipment manufacturers, wholesalers, resellers, and retailers. The company was established by Alvin B. Phillips in 1970 and is headquartered in San Jose, California. It operates in the United States, Europe, China, the Middle East, Hong Kong, Africa and a few parts of Asia. The organization sells all the above products under the SanDisk, G-Technology and WD brands.

Services	Description
1. Data center devices and solutions	This category includes enterprise solid state drives, hard disk drives, data center systems and software solutions.
2. Client devices	The client devices offer embedded products, wafers, solid state drives and hard drives for mobile, gaming and desktop.
3. Client solutions	The client solutions include flash content solutions, removable products and hard drive content solutions.

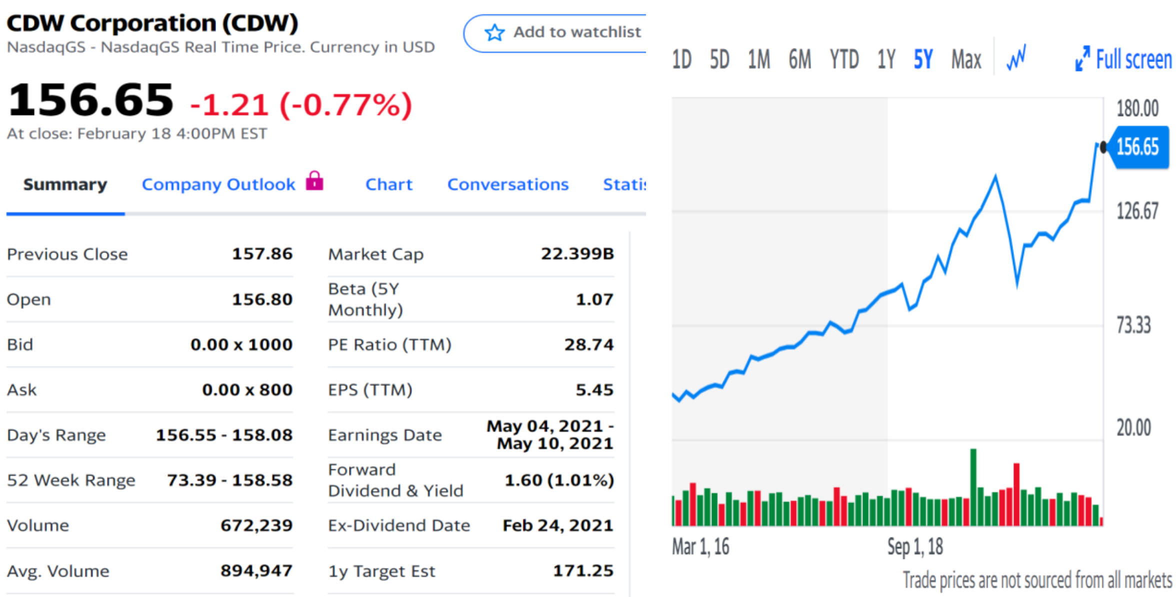
Analysis

Over the last few years, the stock price of WDC has faced a downtrend. The main reason is that half of WDC's revenue is generated from flash memory devices which is squeezed by the global supply and the other half is coming from HDDs, which are facing competition from multiple markets and macro challenges. Currently, WDC is working on latest technologies which includes artificial intelligence, data centers and 5G networks applications that might improve the current growth life cycle of the company, however, WDC might take time to materialize the above technologies. (The Motley Fool). Moreover, the uncertain economic conditions have prompted the company to slow down on its growth and spending, which resulted in reduced demand of Western Digital Corporation.

2.3.3. CDW Corporation (CDW)

About

CDW Corporation is a fortune 500 company which was founded by Michael Krasny. in 1984 and is headquartered in Lincolnshire, Illinois. The company offers different hardware, software and information technology (IT) solutions to meet the demands of clients working in the education, business, government and healthcare domain. Few of the many services offered by CDW are Cyber Security, Analytics, IT Asset Management, Networking & Servers, Web Development, Electronic equipment, Networking Services etc. The company operates in the United States, United Kingdom and Canada.



CDW Corporation (CDW)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

Add to watchlist

156.65 -1.21 (-0.77%)

At close: February 18 4:00PM EST

Summary | Company Outlook | Chart | Conversations | Stati

Previous Close	157.86	Market Cap	22.399B
Open	156.80	Beta (5Y Monthly)	1.07
Bid	0.00 x 1000	PE Ratio (TTM)	28.74
Ask	0.00 x 800	EPS (TTM)	5.45
Day's Range	156.55 - 158.08	Earnings Date	May 04, 2021 - May 10, 2021
52 Week Range	73.39 - 158.58	Forward Dividend & Yield	1.60 (1.01%)
Volume	672,239	Ex-Dividend Date	Feb 24, 2021
Avg. Volume	894,947	1y Target Est	171.25

Analysis

In the last 5 years, the stock price of CDW Corp. has shown an uptrend. This is because the success of CDW's is not tied up with only one technology, but the company offers a wide range of products and services. Though, CDW is subjected to disruption risk still due to its technology agnostic nature, and innovation approach, the company has made stable and strong growth over the years. Moreover, it's leading the market by partnering with digital companies. During the pandemic, the price of CDW Corp. fell but the higher sales growth to government and education customers helped the company to offset the weakness faced by the corporate, small businesses, and healthcare clients. As information technology has become an integral part of businesses across different industries and with the boom in digital revolution, CDW's products and service offering will remain in high demand in the near future.

2.3.4. Dell Technologies Inc. (DELL)

About

Dell was founded in 1984.It a leading technology company with business spreaded across the world. It is involved in the development, production, distribution, and servicing of a variety of electronic devices, such as PCs, monitors, storage devices, and servers & networking equipment. The company also provides cloud and security services for its customers. It is headquartered in Round Rock, Texas, USA, and has over 150K employees worldwide. Dell operates in 3 segments namely Infrastructure Solutions Group (“ISG”),Client Solutions Group (“CSG”) and VMware. The Client Solutions group tops the company’s segments rankings with over $45 billion in revenue contribution. The Infrastructure Solution group holds second place. While the VMware segment ranks last in, the segment is the fastest-growing in the company with over 50% growth in the past three years.

Dell Technologies Inc. (DELL)
NYSE - NYSE Delayed Price. Currency in USD

Add to watchlist

80.77 +1.08 (+1.36%) **80.77** 0.00 (0
At close: 4:00PM EST After hours: 5:47PM EST

Summary Company Outlook Chart Conversations Sta

Previous Close	79.69	Market Cap	60.562B
Open	80.66	Beta (5Y Monthly)	0.91
Bid	80.95 x 1000	PE Ratio (TTM)	25.42
Ask	81.77 x 800	EPS (TTM)	3.18
Day's Range	80.04 - 81.32	Earnings Date	Feb 25, 2021
52 Week Range	25.51 - 81.32	Forward Dividend & Yield	N/A (N/A)
Volume	1,515,382	Ex-Dividend Date	N/A
Avg. Volume	2,553,475	1y Target Est	81.48

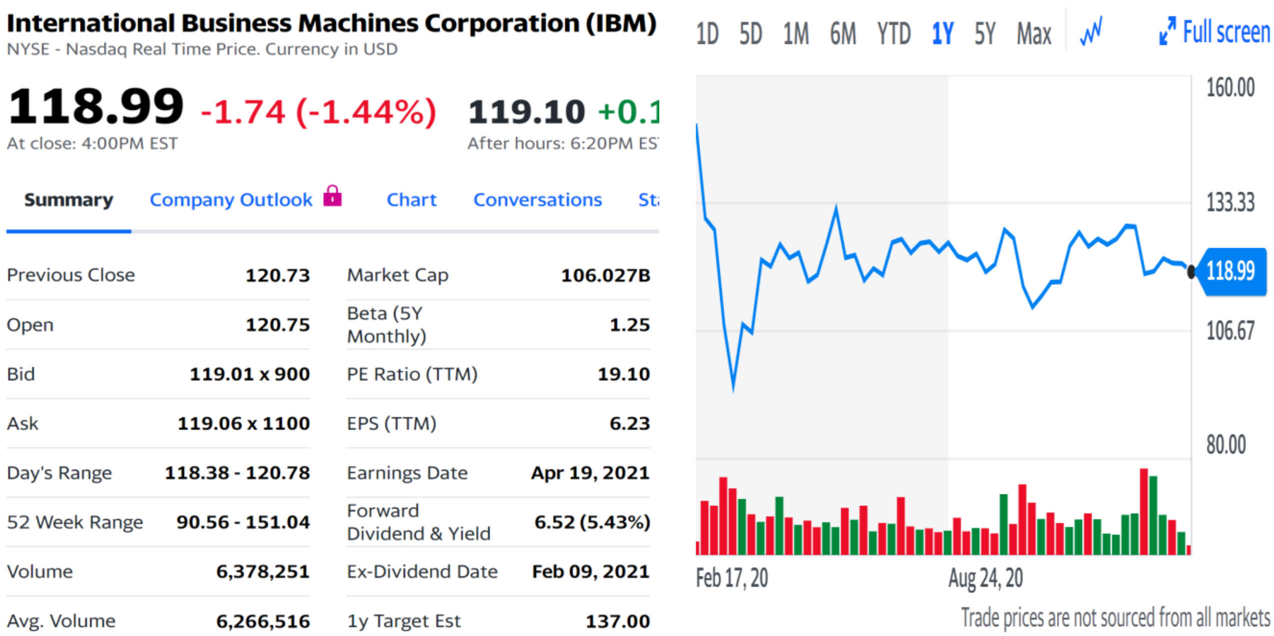
Analysis

Shares of Dell Technologies rose 40% last year. It had a surprisingly good year amid COVID, which was partly due to this year's laptop-buying binge, but also due to its scheduled rejig. Back in July, Dell announced that it will spin off its stake in VMware in an effort to unlock value. Even when PCs have been a mature business for years, Dell's client solutions group rose 8% last quarter. Dell's spinoff will happen in September of 2021, when such a move would become tax-free for shareholders. Dell appears to be one of the few value stocks in the tech world right now, even after its big 2020 run.

2.3.5. International Business Machines Corporation (IBM)

About

International Business Machines Corporation provides integrated solutions and services worldwide. Its Cloud & Cognitive Software segment offers software for vertical and domain-specific solutions in health, financial services, and Internet of Things (IoT), weather, and security software and services application areas; and customer information control system and storage, and analytics and integration software solutions. Its Global Financing segment provides lease, instalment payment, loan financing, short-term working capital financing, and remanufacturing and remarketing services. The company was formerly known as Computing-Tabulating-Recording Co. The company was founded in 1911 and is headquartered in Armonk, New York.



Previous Close	120.73	Market Cap	106.027B
Open	120.75	Beta (5Y Monthly)	1.25
Bid	119.01 x 900	PE Ratio (TTM)	19.10
Ask	119.06 x 1100	EPS (TTM)	6.23
Day's Range	118.38 - 120.78	Earnings Date	Apr 19, 2021
52 Week Range	90.56 - 151.04	Forward Dividend & Yield	6.52 (5.43%)
Volume	6,378,251	Ex-Dividend Date	Feb 09, 2021
Avg. Volume	6,266,516	1y Target Est	137.00

Analysis

IBM's revenue declined 23% year over year in 2020 and its stock value fell by 25%. Company struggled due to the poor performance of its on-site software and hardware segments. Although the losses were offset by the rising revenue at its cloud business. Going into the future, IBM's is expected to split into two companies, which is again expected to occur by the end of 2021. That split would break the company's slow-growth and ill managed IT services segment into a new company. Also, future oriented, IBM would allocate more of its resources toward the expansion of its higher-growth hybrid cloud and AI business. IBM's stock price could see a steady growth if the rejig goes as per the plan.

2.4. Alternative Stock

As an alternative stock, we have considered **Dell**. Dell’s sales have been strong throughout the pandemic however, others companies in the sector were been forced to put breaks on their large IT hardware spending. Dell being the leader in IT hardware, have registered higher sales in servers, storage and allied infrastructure than its peers.
With rising demand of cloud-like IT solutions, Dell is focusing on investments around

consumption-based, as-a-service offerings with its new ventures like Project Apex and the Dell Technologies Cloud. Dell is also investing heavily in building out the new 5G infrastructure and edge computing solutions.

Dell’s own revenue estimate for its first fiscal quarter 2021-22, is nearly $22.23 billion, which represents roughly 7 percent growth year over year. If Dell’s potential VMware spin-off this year, it would accompany Dell with a cash dividend of ~ $10 billion that will further reduced Dell’s debt. On the back of these positives, Dell expects the stock to give 10% returns to the investors in the upcoming year.

3. Section II - Valuation Model

There are different ways used by industry practitioners to evaluate the intrinsic value of the company. In the coming sections, we will understand which model will be suitable to find the intrinsic value of HP Inc. and what all assumptions were taken while calculating the intrinsic value.

3.1. Company Specific Reports – HP Inc. (HPQ)

The below tear sheet describes the intrinsic value of HP Inc. (HPQ) and recommendations of the Analysts.

3.1.1. Tear Sheet

Analyst	Abhijay Shukla Adarsh Choubey Edward Parrilla Mehul Mehta	
Date		4/5/2021
Name		HP INC
Ticker		HPQ
SIC Code		3570
Current Price	$	32.05
Shares outstanding (millions)		1,303.93
Market Cap	$	41,790.86
P/E		12.61
P/B		-18.76
Valuations		
FCFE	**$**	**38.63**
FCFE Advice		Buy
DDM		N/A
DDM Advice		N/A
Final Decision	**Buy**	

3.1.2. Investment Thesis

(Note: throughout this report, we refer to HP Inc. as "the Firm" as well as HPQ.)

HP Inc. is an American multinational information technology company headquartered in Palo Alto. It is a provider of products, technologies, software, solutions and services to individual consumers, small- and medium-sized businesses, and enterprises. It is one of the most significant players that provides personal computing (laptop computers & desktops), imaging, printing products (Printers, Ink, Toner, Digital press, Scanners, Copiers, 3D printers, Displays), and related technologies services in the United States and globally.

To calculate the intrinsic value of HP Inc. we used Free Cash Flow to the Equity (FCFE) Model (the rational for using FCFE Model is given in Section 3.1.3). Sales growth rates, cost of equity capital, terminal P/E, and tax rate were the primary inputs in our model for determining the intrinsic value of HP Inc (HPQ).

The assumptions in the model are discussed in the section 3.1.4. To summarize the assumptions, the future sales growth rate is considered as the average of last 3 years sales of HP Inc. (i.e., from the year 2017 t0 2019. The year 2020 is excluded since it was behaving like an outlier). The cost of capital is calculated using the Fama French 3 Model. Terminal P/E of HP Inc. is 13 however, we believe that the P/E ratio of HP Inc. is less as compared with the industry standards which means that either the stock price is undervalued or there might be a negative growth rate in the past. Since, there was no negative growth rate, therefore, the stock is undervalued. We believe that the P/E ratio of HP Inc. will increase from 13 to 17 in the future and therefore, we have taken the value of P/E as 17. Other growth rates were found using a blend of analyst proxies, proprietary approaches, or Global GDP numbers.

Therefore, based on our valuation of HP Inc., we recommend the SunTrust MBA Fund to **buy this equity**. With a share of HP Inc. trading at $32.05, our valuation using the FCFE Model has estimated the intrinsic value of a share of HP Inc. to be $38.63—which is $6.58 above the current market price.

<u>Actual Performance of HP Inc. in the 1st quarter of 2021</u>

HP Inc. and its subsidiaries ("HP") latest financial results reflected that the firm has performed healthier than anticipated during the 1st quarter of 2021. The firm announced its first quarter revenue of $15.6 billion in 2021, which is 7.0% up from the $ 14.6 billion reported in Q1 2020. After the announcement, the investors responded positively with HP's shares rising seven percent from $27.45 to $29.44. In an earnings call with analysts and investors, Enrique Lores (the President and CEO of HP), told: "It was an exceptional start to the year with strong revenue, profit, and EPS growth. The strength of our portfolio and diversity of our business is driving our performance and positioning HP well for the future. Simply put, we are doing what we said we would do – and our strategy is working."

The revenue of the firm comes from two main segment i.e., **printing and personal systems**. Both the segment saw a 7% increase from the last year. The split of the segment is given below.

	Segment	Q1 2021	Q1 2020	%Change
A	**Personal Systems**			
1	Notebooks	$7.4 bn	$6 bn	23%
2	Desktops	$2.4 bn	$2.9bn	-18%
3	Workstations	$0.4 bn	$0.6 bn	-36%
4	Others	$0.5 bn	$0.4 bn	13%
	Sub-Total (1)	**$10.6 bn**	**$9.9 bn**	**7%**
B	**Printing**			

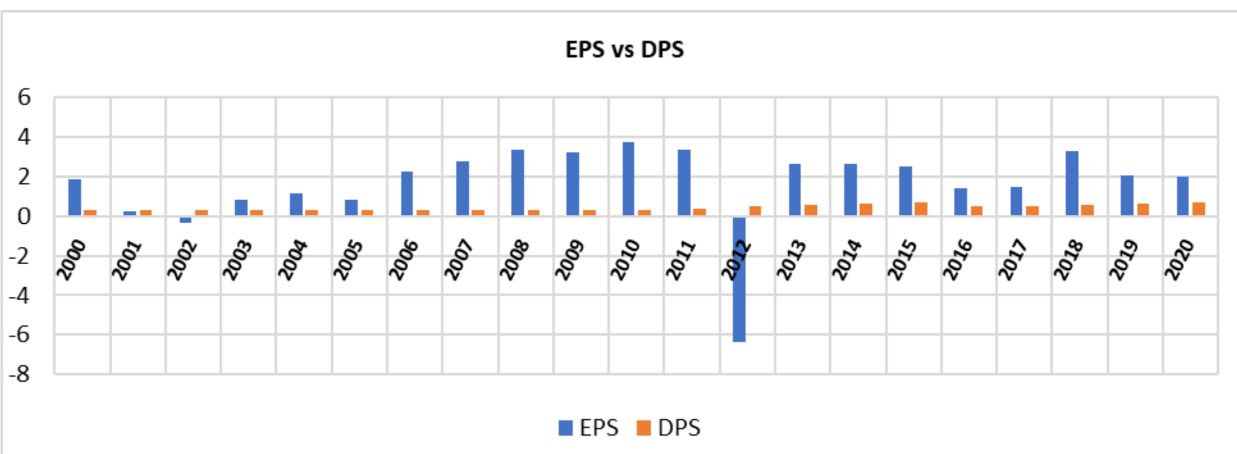
	Segment	Q1 2021	Q1 2020	%Change
1	Supplies	$3.1 bn	$3.0 bn	3%
2	Commercial	$1 bn	$1.1 bn	-11%
3	Consumer	$0.9 bn	$6 bn	55%
	Sub-Total (2)	**$5 bn**	**$4.7 bn**	**7%**
	Total	**$15.6 bn**	**$14.6 bn**	**7%**

3.1.3. Choosing the right valuation technique - DDM Model vs. FCFE Model

One of the initial steps of our valuation was deciding whether to use the Dividend Discount Model (DDM) or the Free Cash Flow to Equity (FCFE) methodology for HPQ. We utilized a strict set of conditional criteria to ensure the valuation method ultimately used was the most prudent methodology. Our decision tree functioned as follows:

- Does the firm pay dividends? If yes, then move to the next condition; if no, then use FCFE valuation.
- Does the firm pay dividends every year or sporadically? This criterion matters because firms such as Dell does not pay a dividend to shareholders. If the firm pays dividends on an annual basis, then move to the next condition, otherwise use FCFE valuation.
- Does the firm's payment of dividends ***seem*** to match its capacity to pay dividends? Firms such as HP Inc. —almost invariably—pay shareholders the same dividend regardless of its performance (note: we did this visually using the graph below). If yes, move to the next condition; if no, then use FCFE.
- In conjunction with the last condition, does the correlation between EPS and Dividends per share have a correlation coefficient greater than or equal to .7? If yes, then use DDM; if no, use FCFE.

HP Inc. (1) pays dividends; (2) pays dividends annually; (3) at first glance, HP Inc. dividend payout seems to match its capacity to pay dividends; and (4) **however,** the correlation between the firm's dividend per share and earnings per share was as low as **0.00723** (in the year 2000-2020).



The above figure reflects that the correlation between the EPS and DPS was 0.00723 which indicates that using DDM would not be an effective way to calculate the intrinsic value of HP Inc. **Since the 4th condition is not satisfied therefore, we used the FCFE model in our valuation.**

3.1.4. Assumptions in the FCFE Valuation Model

Growth rates, cost of equity capital, terminal P/E, and tax rate were the primary inputs in our model for determining an intrinsic value for a share of HP Inc.

Assumptions Block	
Choose these yourself	
Sales growth per year for next 5 years	7.00%
Current Stock Price	32.05
Long Term Growth Rate in FCFE	2.09%
Long Term Growth Rate in Dividends	N/A
Terminal P/E Value	17
Buy/Sell/Hold Margin	10%
Choice of Terminal Value for FCFE Model: 1= Gordon Growth, 2= Terminal PE model	2
Choice of Terminal Value for Dividend Model: 1= Gordon Growth, 2= Terminal PE model	N/A
Sales Growth option: 1=Constant growth, 2=YoY change in growth	1

Come from recent financials	
Gross Fixed Assets (PPE)/Sales.	14.92%
Depreciation/Trailing Gross Fixed Assets	11.17%
Current assets/Sales	36.46%
Current liabilities/Sales	46.29%
COGS/Sales	80.38%
SGA/Sales	11.27%
Interest /Trailing Debt	2.55%
Dividend payout % of earnings	30.08%
Tax Rate	27.06%
Fixed Debt/Assets Ratio	30.82%
All Other Assets (Assume stays fixed $ amount)	$ 10,299.00
Shares Outstanding	1304

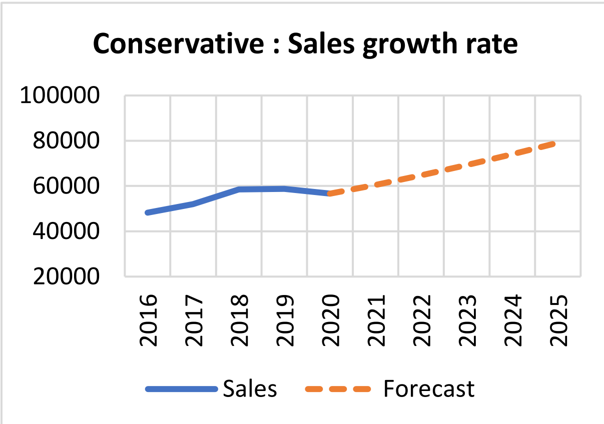
1. **Sales Growth Rate -** We believe that the future sales growth rate will be **7% year on year**. The intuition behind the growth rate is that the demand of work at home culture brought by the pandemic is rising due to which the demand in PC will stay strong for foreseeable future. Moreover, there is an increasing shift from offline to online education that might increase the rate at which the personal systems are being sold. Also, HPQ is planning to launch new products in the upcoming years, which will drive its sales. Furthermore, innovations in 3-D printings and advancement in mobile printing might also be responsible for the sales growth of HPQ.

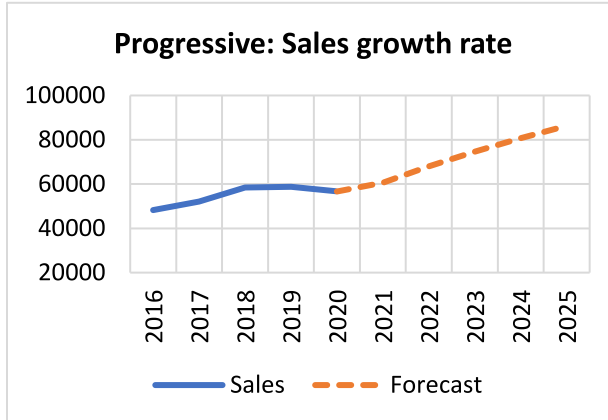
   Furthermore, we have used a toggle to describe more realistic situation of the sales growth rate two different approaches are considered to determine the intrinsic value.

   Two approaches are as follows:
   - *Toggle 1 (Conservative) means that we are assuming constant average growth rate.*
   - *Toggle 2 (Progressive) means that the growth rate is changing year on year.*

   The former is based on the historical average sales from 2017-2019, which also corresponds to the Y-o-Y average sales growth rate (~7%) of technology industry. The latter is based on the reasoning that sales of HPQ is rising at higher growth rate during the initial years due to launching of new products and then the sales surge at constant growth rate of ~7%. In this report, we have considered the conservative approach to determine the intrinsic value.

Alternatively, the model comprises a toggle to determine the intrinsic value based on the progressive based approach.





2. Terminal P/E Ratio

The current terminal P/E ratio of HP Inc. is 12.90 while the average P/E ratio of the Technology sector is ~21. We believe that the P/E ratio of the firm is less either because the firm is undervalued or because of the negative growth rate in the last year (2020). Since, there was no negative growth therefore, we believe that the firm's value is undervalued. Hence, we believe that the firm's P/E ratio will increase in the future due to rise in company's growth for the following reasons; shift to work-from-home culture, innovations in 3-D printings and advancement in mobile printing. Therefore, to estimate the terminal P/E value of HP Inc., we took the average between current P/E ratio of HP Inc. and P/E of technology industry. **Therefore, the terminal P/E ratio of HP Inc. is considered as 17.**

3. Terminal Value

HP Inc's terminal value was calculated using two methods: FCFE Gordon Growth Model and the Terminal P/E model. Model is provided with a switch to control this option.

a) FCFE Gordon Growth Model:

We use the Gordon Growth Model to calculate the value of equity using the below formula:
Vequity=(r−g) / FCFE

Where,

- Vequity = value of the stock today
- FCFE = expected FCFE for next year
- r = cost of equity of the firm
- g = growth rate in FCFE for the firm

Using the above formula, we got the value of equity as $49,527.09. After discounting the value by using the previously noted cost of equity, we get the present value of the terminal value as $27,305.51.

b) **Terminal P/E model**

Our terminal value was found using after tax earnings from 2025 ($3,705.86M) which is then multiplied with the P/E factor (as calculated above) and then discounted using the previously noted cost of equity. The total intrinsic value of the stock was calculated by finding the sum of the present value of the future cash flows and the terminal P/E value.

4. Long Term Growth Rate in FCFE

To calculate the long term FCFE growth rate, we took the average of GDP growth of the USA for the last 20 years i.e., from 2000 to 2020. **Therefore, the average of GDP growth was 2.092%.** Here, we believe that in the long-term the HP Inc. will reach the matured phase, i.e., it has maximized its operation/production and its products reaches market saturation. Hence, it is highly conservative to take a long-term growth rate as GDP rate.

5. Tax Rate

The US has reduced the corporate tax on the profits of US resident corporations from 35% to 21 %. The reduction was done in the year 2017 by Tax Cuts and Jobs Act. We were not sure about how the tax rate would increase or decrease in the near future; therefore, we estimated the tax rate using HP Inc's average effective tax rate for 2016-2020. Since HP Inc. distributes its products internationally and we have no idea of pinpoint *where* its next dollar will come nor do we know the tax regulations in that locale, the value of this next dollar is altered due to foreign exchange risk and hence, we felt more comfortable using the firm's average (effective) tax rate. **Therefore, the four years' average tax rate for HP Inc was 27.06%.**

6. Cost of Capital using the Fama-French Factor Model

The cost of equity capital for our valuation of HP Inc. was estimated using the Fama-French model—a three factor model that expands on the capital asset pricing model (CAPM) with its inclusion of a size factor and value factor. The genesis of this model—created by Eugene Fama and Ken French—came from the desire to better explain market returns. The FFM model estimates the company's monthly excess stock returns over Treasury bill returns by running a time series multiple regression. Therefore, the dependent variable is the company's excess stock returns on the market and the independent variables are (1) market risk, (2) the outperformance of small cap companies relative to large-cap companies, and (3) the outperformance of high book-to-market value companies versus low book-to-market value companies.

Expected Rate of Return = Risk Free Rate + Market Risk Premium + SMB + HML

Summary:

HP Inc.		
Factor	**Annual Factors/Returns**	**Beta (Sensitivity of HP Inc.)**

HP Inc.		
Market (Rm-Rf)	8.712%	1.0394
Size (SMB)	3.093%	-0.0556
Value (HML)	3.972%	0.1068
Risk Free Rate	3.339%	-

The Annual Factors/Returns were calculated using the average of annual returns for "value-weight portfolios formed on size and book-to-market", the excess return on the market, which includes "all NYSE, AMEX, and NASDAQ firms", and the average risk-free return using Treasury Bill rates, **from 1927-2020.** While we vacillated on the proper time horizon to use for our cost of equity calculation (concerns pertaining to standard errors and survivorship bias), we liked that we, through using such a large time horizon, were able to capture the various business cycle fluctuations that have occurred in the US over the past century.

Regarding the Betas, we measured how HP Inc's share price co-varied with the movement of both the fundamental risk factors in the economy as well as the monthly performance of size and value portfolios from 2014-2020. Our sensitivity factors were in-line with our initial qualitative assessment: for instance, we expected HP Inc. to have a negative SMB beta given its $39.47 B + market capitalization which shows that HP Inc. behaves similar to the market of large cap companies, a positive HML given that HP got bifurcated into HP Inc. and HP Enterprise in 2016. After bifurcation, HP Inc. is still in growing stage and market has underpriced it, but still have the potential for a value increase. The market beta of +1.0394 coveys that HP Inc. tends to move with the market and that it's [HPQ's] share price movements tend to be directly proportional to movements in the market. The task of calculating these Betas was made fairly amenable using Microsoft Excels Linest function and/or an ANOVA table.

Our calculated cost of equity for HP inc. was 12.65%.

3.1.5. Financial Projections

Given the aforementioned assumptions, below is a five-year forecast of HP Inc's financials produced by our valuation model:

Particulars	Current	Forecast				
year	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
T	**0**	**1**	**2**	**3**	**4**	**5**
Sales	56639	60604	64846	69385	74242	79439
EBIT	3940	4113	4401	4709	5039	5392
Dividends	997	843	904	970	1040	1115
FCFE	3852.51	3880.44	4159.73	4458.56	4778.32	5120.46
Total Assets	34681	35774	36944	38195	39534	40967
Total Liabilities	36909	39081	41406	43893	46554	49401
Total Equity	-2228	-3307	-4462	-5697	-7020	-8434

3.1.6. Sensitivity Analysis

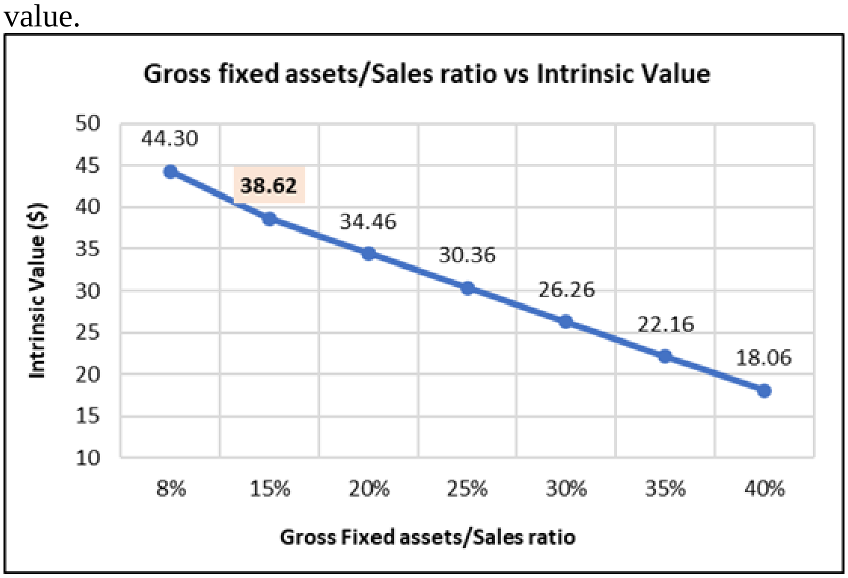
To improve the quality of valuation report, analyst performs sensitivity analysis to capture the impact of change in critical assumptions on the final outcome. The final outcome of the model is dependent on several expectations which is highly subjective to the decision of management, but it would be helpful in providing insights about any modifications.

Our model has some of the assumptions that are crucial to the valuation price. Most relevant features are:

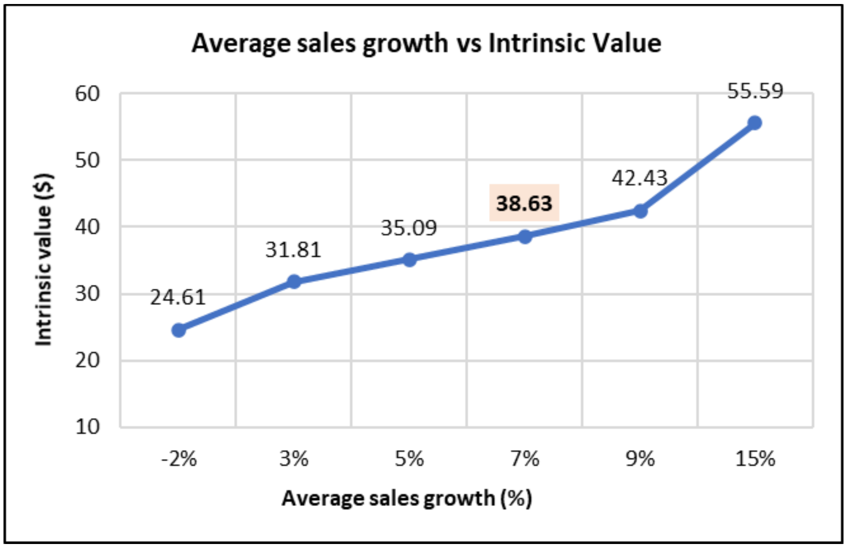
1) ***Change in cost of equity with change in long term FCFE growth* -** As in our model the long-term growth rate is calculated based on the historical GDP/inflation rate, which is the minimum requirement of company to grow in the future. If company delays its stagnant growth phase and keeping the same cost of equity then we could see the intrinsic value increases in the range of ~$35-$48.

		DATA TABLE: SENSITIVITY OF FCFE STOCK VALUATION TO Cost of Equity AND LONG-TERM GROWTH RATE					
		Long-term FCFE growth ↓					
	38.63	1%	2%	4%	5%	6%	7%
Cost of Equity Capital	7%	48.40	48.40	48.40	48.40	48.40	N/A
	9%	44.61	44.61	44.61	44.61	44.61	44.61
	11%	41.19	41.19	41.19	41.19	41.19	41.19
	13%	38.62	38.62	38.62	38.62	38.62	38.62
	15%	35.32	35.32	35.32	35.32	35.32	35.32
	17%	32.79	32.79	32.79	32.79	32.79	32.79
	19%	30.50	30.50	30.50	30.50	30.50	30.50
	21%	28.42	28.42	28.42	28.42	28.42	28.42

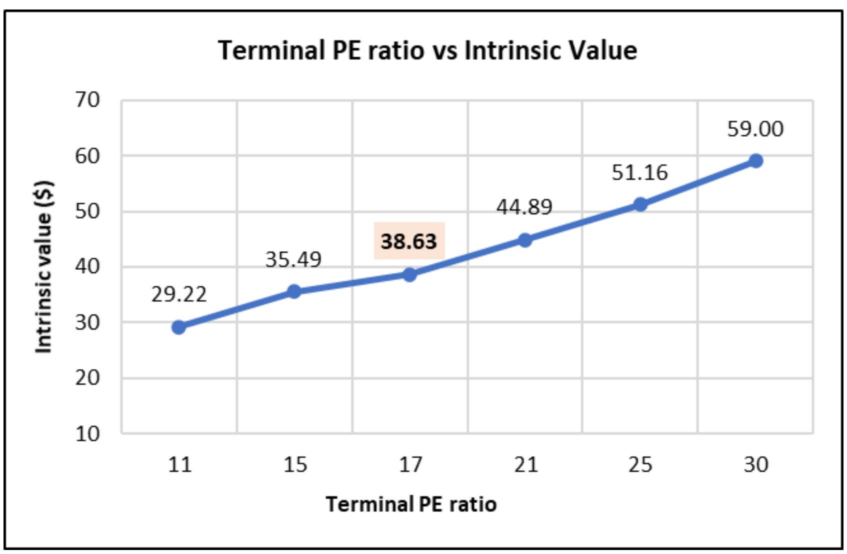
2) ***Change in Gross fixed assets to sales ratio* -** In future, if the sales of HPQ drops due to competition in the industry, lack of innovation in products or inefficiency of assets then with the current (fixed) gross assets, it impacts the ratio and decreases the intrinsic value.



3) ***Change in average sales growth* -** This factor is necessary for sensitivity analysis to observe the impact on share price of HPQ, if it successfully launches its future product and meet the customer demand. This event is expected to increase the sales growth of HPQ which further increases the intrinsic value.



4) ***Change in terminal PE ratio* -** In future, there might be possibilities that HPQ might lower down its re-investing, contracting operations, or conversely, it might increase its earnings, reduce the debt amount or intensify the re-investment and dividends. The former event will definitely contract the terminal PE value, but the latter will help in rising its PE value. So, in some of the scenarios it might perform better than average PE of technology sector.



3.1.7. Scenario Analysis

Using Microsoft excel, we performed scenario analysis at different pre-defined situations viz., Base Case, Worst case and Best case. We modified three critical assumptions in our model namely: sales growth, the cost of equity and the terminal P/E ratio in order to provide the insights of different scenario. It is helpful in visualizing lower and upper bound scenario of most bullish and bearish market. Our predictions are as follows:

Scenario Summary	Current Values:	Worst Case	Best Case	Base Case
Changing Cells:				
sales_growth	7.0%	2.0%	12.0%	7.0%
LTgrowth_FCFE	2.1%	1.0%	5.0%	2.1%
cost_equity	12.6%	15.0%	9.0%	12.6%
Result Cells:				
Intrinsic_FCFE	$38.63	$ 27.69	$ 56.28	$ 38.63
FCFE Advice	Buy	Sell	Buy	Buy

Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

- **Best Case:** HPQ is planning to launch new products in the upcoming years, which will drive its sales number at an average rate of 12%; cost of equity drops from current 12.65% to 9%; delay in stagnant growth phase will help HPQ in achieving the higher long-term growth rate;

- **Worst Case:** Lower sales growth rate of HPQ continues, new products might not satisfy the customer demand, which will slow down its sales growth to 2%; cost of equity increases from 12.65% to 15%; decline in profits might be due to availability of similar products at a competitive rate or, market disruption in the core sector or, shift in technology, plunges long term growth rate to 1% which is even worse than the GDP growth level.

3.2. Company Specific Reports – DELL Technologies INC (DELL)

The below tear sheet describes the intrinsic value of DELL Technologies INC (DELL) and recommendations of the Analysts.

3.2.1. Tear sheet

Analyst	Abhijay Shukla Adarsh Choubey Edward Parrilla Mehul Mehta	
Date		05/04/21
Name		DELL TECHNOLOGIES INC
Ticker		DELL
SIC Code		3571
Current Price	$	89.00
Shares outstanding (millions)		749.00
Market Cap	$	66,661.00
P/E		23.41
P/B		6.57
Valuations		
FCFE	**$**	**113.75**
FCFE Advice		**Buy**
DDM		N/A
DDM Advice		N/A
Final Decision	**Buy**	

3.2.2. Investment Thesis

The Dell Technologies is one of the largest players in the Technology Sector. Dell operates in 3 segments: Infrastructure Solutions Group ("ISG"), Client Solutions Group ("CSG") and VMware.

Dell was founded in 1984.It a leading technology company with business spreaded across the world. It is involved in the development, production, distribution, and servicing of a variety of electronic devices, such as PCs, monitors, storage devices, and servers & networking equipment. The company also provides cloud and security services for its customers. It is headquartered in Round Rock, Texas, USA, and has over 150K employees worldwide. Dell operates in 3 segments namely Infrastructure Solutions Group ("ISG"),Client Solutions Group ("CSG") and

VMware. The Client Solutions group tops the company's segments rankings with over $45 billion in revenue contribution. The Infrastructure Solution group holds second place. While the VMware segment ranks last in, the segment is the fastest-growing in the company with over 50% growth in the past three years."

Growth rates, cost of equity capital, and terminal P/E were the primary inputs in our model for determining an intrinsic value for a share of DELL. We can foresee a constant growth rate in sales in the short-term and continuation of the high P/E ratio for DELL. Growth rates of the Data driven service like cloud computing and technology product markets are expected to be high in the coming years. Dell being the major player in both the segments, its sales are expected to grow rapidly. Also, currently, the market is experiencing positive momentum based on an uptick in work and study from home due to COVID-19. Thus, there is even more room for positive revisions. This explains the results of our valuation for DELL.

With a share of DELL trading at ~$89, our valuation using the FCFE model has estimated the intrinsic value of a share to be ~$114, and we recommend the SunTrust MBA Fund to **buy this equity as** it is undervalued.

3.2.2. Choosing the right valuation technique - DDM Model vs. FCFE Model

3.2.3. Choosing the right valuation technique - DDM Model vs. FCFE Model

One of the initial steps of our valuation was deciding whether to use the Dividend Discount Model (DDM) or the Free Cash Flow to Equity (FCFE) methodology for DELL, we utilized a strict set of conditional criteria to ensure the valuation method ultimately used was the most prudent methodology. Our decision tree functioned as follows:

- Does the firm pay dividends? If yes, then move to the next condition; if no, then use FCFE valuation.
- Does the firm pay dividends every year or sporadically? This criterion matters because firms such as National Beverage Corporation pay a dividend to shareholders only once every few years. If the firm pays dividends on an annual basis, then move to the next condition, otherwise use FCFE valuation.
- Does the firm's payment of dividends ***seem*** to match its capacity to pay dividends? Firms such as Coca-Cola bottling company—almost invariably—pay shareholders the same dividend regardless of its performance (note: we did this visually using the graph below). If yes, move to the next condition; if no, then use FCFE.
- In conjunction with the last condition, does the correlation between EPS and Dividends per share have a correlation coefficient greater than or equal to .7[23]? If yes, then use DDM; if no, use FCFE.

Dell Inc was a private company from 2013 to 2017, and after acquiring EMC Corp. it went back to being a public company in Dec 2018. Hence, the data being analyzed here is after 2018 when Dell went public**. Dell does not pay dividends, so we cannot use dividends growth rate as an assumption to calculate the intrinsic value of Dell. Hence, we have used FCFE Model.** We assumed some rates in our spreadsheet, below is the detailed explanation for those assumptions.

3.2.4. Assumptions in the FCFE valuation model

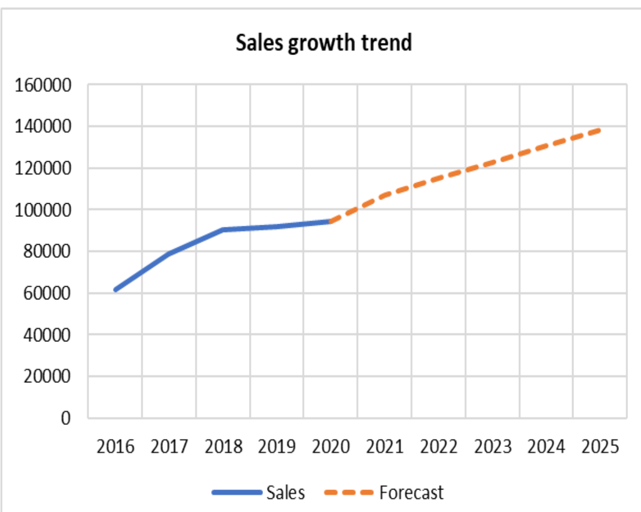
To calculate the value of Dell in the near future (for the next 5 years) we populated the assumption block with the following key values: Sales growth, Terminal P/E and Financial Projections.

Assumptions Block	
Choose these yourself	
Sales growth per year for next 5 years	8.05%
Current Stock Price ($)	89
Long Term Growth Rate in FCFE	2.09%
Long Term Growth Rate in Dividends	N/A
Terminal P/E Value	21
Buy/Sell/Hold Margin	10%
Choice of Terminal Value for FCFE Model: 1= Gordon Growth, 2= Terminal PE model	2
Choice of Terminal Value for Dividend Model: 1= Gordon Growth, 2= Terminal PE model	N/A
Choice of sales growth in future: 1= YoY average growth, 2= YoY sales growth	1

Come from recent financials	
Gross Fixed Assets (PPE)/Sales.	18.36%
Depreciation/Trailing Gross Fixed Assets	31.15%
Current assets/Sales	46.24%
Current liabilities/Sales	57.45%
COGS/Sales	65.07%
SGA/Sales	23.48%
Interest /Trailing Debt	3.82%
Dividend payout % of earnings	0.00%
Tax Rate	21.00%
Fixed Debt/Assets Ratio	48.80%
All Other Assets (Assume stays fixed $ amount)	$ 73,417.00
Shares Outstanding	749

1. Sales growth rate:

We used the sales trend from the previous years from 2016 to 2020, to project the future figures. In our case we get a constant value of 8.05%. This high rate of growth can be explained by analytic study of the segments which Dell operates in and the market share it holds.



- **Client Solutions Group ("CSG")** - The demand for work and study from home for both consumer and commercial clients will drive strong demand for notebooks and gaming systems. Although the segment is expected to grow in one digit, the major growth will be driven by the demand for 2-in-1 laptops, along with the growing market for the gaming laptops. Dell is well-represented in both fast-growing segments, with its XPS series and Inspiration 2-in-1 laptops, as well as its most famous Alienware gaming series laptops. If Dell holds its market share of 15.1%, the company can generate $1.13 billion in incremental sales over the next 4 years.

- **Infrastructure Solutions Group ("ISG") -** Triple-digit demand growth in high-end PowerMax and double-digit growth in VxRail and Data Protection are expected to be the major contributors to the segment moving forward. According to the IDC, the worldwide server market will grow 19.8% YoY for the next four years. The growth will be achieved primarily due to the demand for the enterprise servers, where Dell holds 13.9% of the market share.
- **VMware -** This segment is enjoying unprecedented data growth throughout all industries, fueling continued demand for storage solutions and services. The cloud services market size is estimated to grow at a CAGR of 16.4% from 2020 to 2027. The main growth is expected to occur in the Software as a Service (SaaS) segment, where VMware is represented with its cloud products favorably impacting the company's finances. The SaaS segment accounted for more than two-fifths of the global cloud services market share in 2019 and is anticipated to lead the trail until 2027. The actual sales number and forecasted sales is presented below:

2. **Terminal P/E Ratio:**

   Based on the recent earnings (as of today), the current terminal P/E ratio of DELL Inc. is ~21. While the average P/E ratio of the Technology sector is ~17. We believe that the high sales growth rate in gaming laptop and data storage solutions, the company will perform at higher PE than the average PE of sector. In the medium term as the uncertainty around the pandemic subsides, we expect the P/E ratio to align at 21 which is much more conservative if compared to the PE of overall sector.

3. **Cost of Capital**

The cost of equity capital for our valuation of DELL was estimated using the Fama-French model—a three factor model that expands on the capital asset pricing model (CAPM) with its inclusion of a size factor and value factor. The genesis of this model—created by Eugene Fama and Ken French—came from the desire to better explain market returns. The following equation expresses the Fama-French model:

$$r_i = R_F + \beta_i^{\text{mkt}}\text{RMRF} + \beta_i^{\text{size}}\text{SMB} + \beta_i^{\text{value}}\text{HML},$$

- Where…
  - SMB = The return to small stocks minus the return to large stocks
  - β^{size} = The sensitivity of security *i* to movements in small stocks
  - HML = The return to value stocks minus the return to growth stocks
  - β^{value} = The sensitivity of security *i* to movements in value stocks

Dell Inc. Technology		
Factor	**Annual Factors/Returns**	**Beta (Sensitivity of HP Inc.)**
Market (Rm-Rf)	8.71%	1.0964
Size (SMB)	3.09%	0.3782

Dell Inc. Technology		
Value (HML)	3.97%	-0.0069
Risk Free Rate	3.34%	-

Our calculated cost of equity for Dell was ~14 %. The cost of capital generally depends on the average return on investment that could be expected based on returns generated by the wider market. This makes the cost of equity for a low-risk high growth company like DELL in line with its peers. The Annual Factors/Returns were calculated using the average of annual returns for "value-weight portfolios formed on size and book-to-market", the excess return on the market, which includes, the average risk-free return using Treasury Bill rates, from 1927-2020. But since the Dell Inc. listed on NYSE on 2018, so the Fama French factors specifics to Dell Inc. is considered from 2019 onwards. This is the reason; the Beta (size & HML) factors are very less.

4. **Long Term Growth Rate in FCFE:**
   To calculate the long term FCFE growth rate, we took the average of GDP growth of the USA for the last 20 years i.e., from 2000 to 2020. Therefore, the average of GDP growth was 2.092%. We considered that in the future if Dell reaches matured phase then it has to grow at the future average GDP growth rate of ~2%-3% to maintain its operation.

5. **Tax Rate**
   The US has reduced the corporate tax on the profits of US resident corporations from 35% to 21 %. The reduction was done in the year 2017 by Tax Cuts and Jobs Act. We were not sure about how the tax rate would increase or decrease in the near future; therefore, we estimated the tax rate using DELL's average effective tax rate for 2016-2020. Since DELL distributes its products internationally and we have no idea of pinpoint *where* its next dollar will come nor do we know the tax regulations in that locale, the value of this next dollar is altered due to foreign exchange risk and hence, we felt more comfortable using the firm's average (effective) tax rate. **Therefore, the four years' average tax rate for DELL was 21.00%.**

3.2.5. Financial Projections:

Using the above-mentioned model, we created our financial projections for the next five years from 2021-2025

Particulars	**Current**			**Forecast**		
year	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
T	**0**	**1**	**2**	**3**	**4**	**5**
Sales	94224	101807	110000	118852	128417	138752
EBIT	5401	6269	6774	7319	7908	8545
Dividends	0	0	0	0	0	0
FCFE	489.48	7656.57	8493.05	9332.20	10238.89	11218.55
Total Assets	125532	124921	124390	123816	123196	122526
Total Liabilities	115390	119448	123896	128702	133894	139505
Total Equity	10142	5473	494	-4885	-10698	-16978

3.2.6. Sensitivity analysis

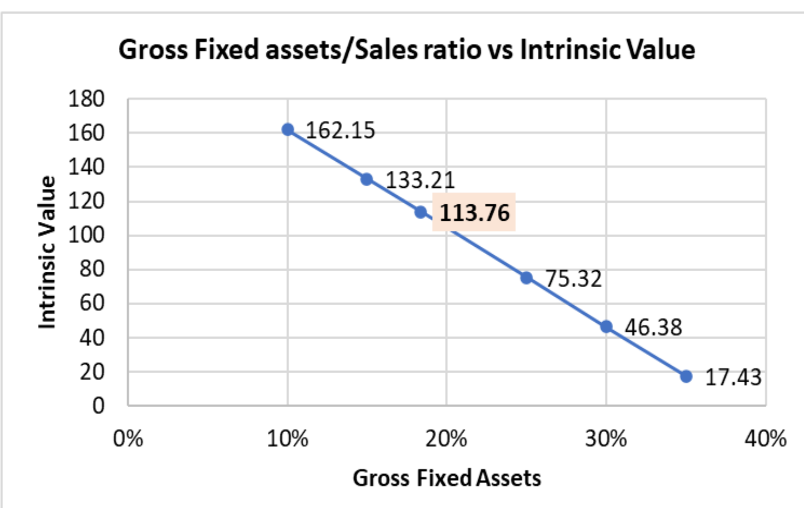
We altered some values to the sales growth, long term growth and to the cost of equity. In all the scenarios the altered price was very far off compared to the current price. This sensitivity analysis determines that different shifts in values of sales growth, long term growth and the cost of equity affect the intrinsic value of Dell very strongly. With this additional insight we will advise the investor to take a more conservative approach even if they think a specific outcome is indeed feasible.

Relations between cost of equity and the intrinsic value:

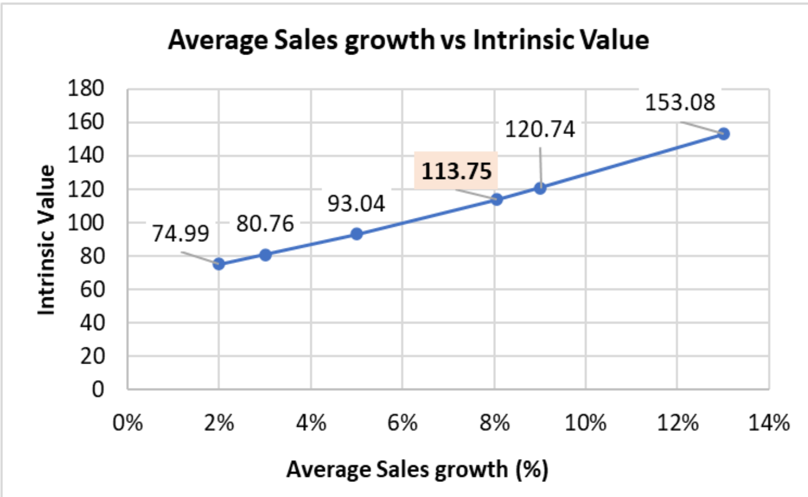
1. **Change in cost of equity with change in long term FCFE growth:** As in our model the long-term growth rate is calculated based on the historical GDP/inflation rate, which is the minimum requirement of company to grow in the future. If company delays its stagnant growth phase and keeping the same cost of equity then we could see the intrinsic value increases in the range of ~50-60 dollars.

		DATA TABLE: SENSITIVITY OF FCFE STOCK VALUATION TO Cost of Equity AND LONG-TERM GROWTH RATE					
		Long-term FCFE growth ↓					
	113.75	1%	2%	5%	7%	9%	11%
Cost of Equity Capital	7%	149.45	149.45	149.45	N/A	N/A	N/A
	9%	137.95	137.95	137.95	137.95	N/A	N/A
	11%	127.58	127.58	127.58	127.58	127.58	N/A
	14%	113.75	113.75	113.75	113.75	113.75	113.75
	16%	105.71	105.71	105.71	105.71	105.71	105.71
	18%	98.40	98.40	98.40	98.40	98.40	98.40
	20%	91.76	91.76	91.76	91.76	91.76	91.76
	22%	85.71	85.71	85.71	85.71	85.71	85.71

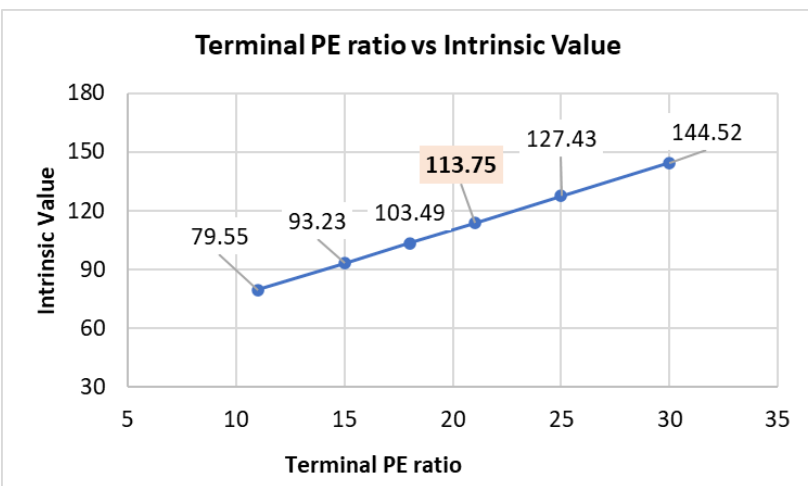
2. **Change in Gross fixed assets to sales ratio:** In future, if the sales of DELL drop due to competition in the industry, lack of innovation in products or inefficiency of assets then with the current (fixed) gross assets, it impacts the ratio and decreases the intrinsic value.



3. **Change in average sales growth:** This factor is necessary for sensitivity analysis to observe the impact on share price of DELL, if it successfully innovates its future product and meet the customer demand. This event is expected to increase the sales growth of DELL which further increases the intrinsic value.



4. **Change in terminal PE ratio:** In future, there might be possibilities that DELL might lose its competitive edge over its competitors, accumulate a large debt or start paying dividends. These events will definitely change the terminal PE value. So, in some of the scenarios it might perform better than average PE of technology sector.



Using Microsoft excel, we performed scenario analysis at different pre-defined situations viz., Base Case, Worst case and Best case. We modified three critical assumptions in our model namely: sales growth, the cost of equity and the terminal P/E ratio in order to provide the insights of different scenario. It is helpful in visualizing lower and upper bound scenario of most bullish and bearish market. Our predictions are as follows:

3.2.7. Scenario Analysis

Scenario Summary	Current Values:	Worst Case	Best Case	Base Case
Changing Cells:				
sales_growth	8.0%	3.0%	10.0%	8.0%
LTgrowth_FCFE	2.1%	1.0%	4.0%	2.1%
cost_equity	14.0%	16.0%	9.0%	14.0%
Result Cells:				
Intrinsic_FCFE	$ 113.75	$ 75.20	$ 155.82	$ 113.75
FCFE Advice	Buy	Sell	Buy	Buy

Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

- **Best Case:** Dell is planning to innovate its products in the gaming sector and its server market is increasing at higher rate, which will drive its sales number at an average rate of 10%; cost of equity drops from current 14.05% to 9%; delay in matured phase will help Dell in achieving the higher long-term growth rate;

- **Worst Case:** Higher debt and lower sales of Dell continues, new innovations and further acquisition deal with VMware may not take place, results in dropping its sales 3%; cost of equity increases from 14.05% to 16%; decline in profits might be due to availability of similar products at a competitive rate or, market disruption in the data storage and customer oriented laptop/PC sector or, shift in technology, plunges long term growth rate to 1% which is even worse than the GDP growth level.

4. Section III - Summary and Recommendation

The purpose of valuing of HP Inc. (HPQ) and an alternative stock, Dell Technology (DELL), was to formalize a recommendation to the SunTrust MBA Fund on whether or not to buy, sell or hold the current stock (HPQ), and, if sold, whether or not to replace HPQ with DELL.

Our recommendation to the fund is to **buy the HP Inc.** equity, and **to buy the Dell Technology Inc.** equity. Using the Free Cash Flow to the Equity Model, our valuation of HP Inc. yielded an intrinsic value very close to current share price ($38.63 (intrinsic value) versus $32.93 (traded value) respectively). Moreover, our valuation of DELL yielded an intrinsic value which is much higher than the current share price (~$114 (intrinsic value) versus ~$89 (traded price), respectively).

We believe that the pandemic has accelerated the digitalization era and moreover, has forced millions of workers and students to stay at home. This has indeed resulted in the increased in the sales of personal computers shot to their highest level. In retrospect, the covid-19 has not only fueled the laptop and desktop market demand but also has created large opportunities that might also result in a market expansion.

We feel confident given **HP Inc and Dell Technology will be a good buy** seeing its history and the maturity of the Information Technology industry. Our sales growth rates are, generally speaking, modest and conservative estimates. Once input into the model, we determined that these conservative calculations yielded an intrinsic value just a few cents different from share price. This is well within our decided 10% buy-sell-hold margin. We were also pleased to be able to substantiate the use of the FCFE Model for our final valuation determination. When all necessary factors align, the FCFE is the preferred approach for valuing a firm.

5. References

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Note: Our Valuation Report was created under the guidance of Professor Jesse Ellis, North Carolina State University.