Valusim *Value Report*

Cisco (CSCO)

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Valusim utilizes a discounted cash flow based valuation model. In simple terms, this uses the company's past performance to forecast its future performance and then calculates the value of the cash flows that this will generate. This is referred to as the intrinsic value.

The model runs on Microsoft Excel. It allows the user to override some of the forecast numbers and to change some of the assumptions, thereby creating alternative scenarios. The screenshot below represents the default scenario. This simple interface hides a lot of complexity in the methods used to predict future performance. The Valusim model uses more than 600 historical data points and uses these to predict more than 10,000 data points.

Abstract

Cisco appears to be significantly undervalued. Valusim's model values the company at $36 per share while the market price is less than $19. However, there are worrying trends in Cisco's recent performance that may account for the low valuation. Valusim's model makes the assumption that there is some reversion to long term company and market trends in the company's financial performance. Cisco's performance has been trending downward on several metrics and the assumption of a reversion may be optimistic.

In particular, the company's Cash Flow Internal Rate of Return (CFIRR), which measures the company's ability to generate cash flows based on its asset base, as measured at replacement cost, has been trending down for the last six years. This metric could be dismissed as contrived, since it relies on a series of assumptions about the existing assets, but it is indicative of a weakening in the company's asset leverage.

The trends for COGS and SG&A are also concerning. In both cases, they have been climbing steadily over the last ten years when expressed as a percentage of Revenue. This indicates a loss of pricing power.

The valuation of $36.60 assumes some continued erosion of profit margins but at a slower rate than over the last couple of years. It also assumes further decrease in the CFIRR over the next ten years but, again, at a slower rate than has been the case in recent years.

It is not difficult to build a scenario where the Stock Value of Cisco falls below its current market price. An investor's decision to invest in Cisco ultimately has to be based on their confidence on the company's management team to reverse or at least slow the downward slide.

Screenshot:

	Baseline	Alternative	Difference	%age
Equity Value (M)	$ 197	$ 197	$ -	0.0%
Stock Value	$ 36.59	$ 36.59	$ -	0.0%

Income Statement

	Baseline	Alternative
Revenue Growth:		
Last Year	4.7%	
Last Five Years	7.7%	
Years 1-5	9.0%	
Years 6-10	7.3%	
Revised Years 6-10	7.3%	
Revenue Seasonality:		
Quarter 1	-0.5%	
Quarter 2	0.6%	
Quarter 3	-0.4%	
Quarter 4	0.4%	
Gross Profit Margin:		
Last Year	61.0%	
Last Five Years	63.3%	
Years 1-5	61.7%	
Years 6-10	59.8%	
Revised Years 6-10	59.8%	
Operating Profit Margin:		
Last Year	17.2%	
Last Five Years	21.5%	
Years 1-5	20.7%	
Years 6-10	18.6%	
Revised Years 1-5	20.7%	
Revised Years 6-10	18.6%	

Balance Sheet

	Baseline	Alternative
Days of Sales in Inventory:		
Last Year	32.9	
Last Five Years	34.5	
Years 1-5	34.3	
Years 6-10	30.8	
Revised Years 6-10	30.8	
Days Sales Outstanding in A/R:		
Last Year	37.7	
Last Five Years	36.4	
Years 1-5	39.0	
Years 6-10	40.3	
Revised Years 6-10	40.3	
Asset Leverage:		
Last Year	120.9%	
Last Five Years	129.2%	
Years 1-5	137.7%	
Years 6-10	134.2%	
Revised Years 6-10	134.2%	
Days Payables Outstanding in A/P:		
Last Year	8.5	
Last Five Years	10.0	
Years 1-5	9.6	
Years 6-10	8.8	
Revised Years 6-10	8.8	

Equity Value / Stock Value

The Stock Value is the intrinsic value of a single share in the company. Multiplying by the number of shares outstanding arrives at the Equity Value.

The Stock Value for Cisco in the default scenario is $36.59 per share. This compares with a market value of $18.97 as at the time of the analysis. This indicates that Cisco is significantly undervalued. However, it is worth looking at the major elements of the valuation to identify areas where alternative assumptions may result in significantly different results.

Revenue Growth

Revenue has been growing at an average rate of 7.7% over the last five years. The model projects that growth will average 9.0% per annum over the next 5 years and 7.3% over the following five years. Growth was only 4.7% last year. This is assumed to be an anomaly. The table below shows the resulting Stock Value under alternative scenarios:

Average Growth Rate		
Years 1-5	Years 6-10	Stock Value
6.5%	5.0%	$ 34.19
9.0%	7.3%	$ 36.59
10.5%	10.0%	$ 38.58

The Revenue growth rate has a smaller impact on the Stock Value than might be expected. Lower expectations than those developed by the model do not explain the high Stock Value relative to the market price.

Revenue Seasonality

There is virtually no seasonality in Cisco's Revenue numbers. The numbers that are shown, indicating a swing of around 0.5% per quarter due to seasonality, are small enough to have been caused by noise.

Gross Profit Margin

The Gross Profit Margin is the Revenue less Cost of Goods Sold, as a percentage of Revenue.

The Gross Profit Margin has averaged 63.3% over the last five years, falling to 61.0% last year. The model predicts that the Gross Profit Margin will average 61.7% over the next five years but then fall slightly to 59.8% for the next five years. The table below shows the resulting Stock Value under alternative scenarios:

Average Gross Profit Margin		
Years 1-5	Years 6-10	Stock Value
55.0%	55.0%	$ 28.85
61.7%	59.8%	$ 36.59
65.0%	65.0%	$ 43.95

A movement of 5 percentage points in the Gross Profit Margin results in a change in the Stock Value of over 20%. Cisco's Stock Value is far more sensitive to profitability than to revenue growth. It is concerning that profitability has been trending down in recent years. This may well explain the downward trend in Cisco's market price over the last five years.

Operating Profit Margin

The Operating Profit Margin is the Revenue less Cost of Goods Sold, Research & Development, Sales & Marketing Expense, and General expenses, expressed as a percentage of Revenue.

The Operating Profit Margin averaged 21.5% over the last five years, falling to 17.2% last year. The model predicts that it will average 20.7% over the next five years, falling to 18.6% over the next five years. Changes in the Operating Profit Margin have a very similar impact to those in the Gross Operating Margin, so no sensitivity analysis is provided.

Days of Sales in Inventory

Days of Sales in Inventory (DOS) is the value of inventory divided by annual Cost of Goods Sold, multiplied by 365. It can be thought of as the number of days of sales that could be supplied out of existing inventory.

The DOS has averaged 34.5 days over the last five years, moving within a fairly narrow band. There was a distinct downward trend until about three years ago when it leveled out. The model predicts that DOS will average 34 days over the next five years and 31 days over the following five years. Inventory DOS has an extremely small impact on Stock Value.

Days Sales Outstanding in Accounts Receivable

Days Sales Outstanding in Accounts Receivable (DSO) is the value of accounts receivable divided by annual Revenue, multiplied by 365. It can be thought of as the average number of days that customers take to pay.

The DSO has averaged 36 days over the last five years, with a figure of 38 last year. The model predicts that the average over the next five years will increase to 39 days, and to 40 days in the following five years. There is a lot of variability in the DSO number from one quarter to the next, which is unexpected in a company as large as Cisco. Overall, the trend for the last ten years has been upward, which means that Cisco has been giving longer credit terms or having a more difficult time collecting amounts owed. DSO has a very small impact on Stock Value.

Asset Leverage

Asset Leverage is the Revenue divided by the Assets of the company. Assets exclude Inventory, Accounts Receivable and Cash & Investments. Asset Leverage indicates the ability of the company to generate Revenue while minimizing Assets.

Assets Leverage has been falling, with an average of 129% over the last five years and 121% last year. This continues a long term trend. The model predicts that this trend will reverse, with an average of 138% for the next five years and 134% for the next five years. This would happen if Cisco slowed its rate of capital expenditure. However, if the current trend continues and asset leverage decreases instead of bouncing back up, the Stock Value would be impacted negatively. The direct impact is relatively small but the trend would be concerning. The table below shows the resulting Stock Value under alternative scenarios:

Average Asset Leverage		
Years 1-5	Years 6-10	Stock Value
110%	100%	$ 33.35
115%	110%	$ 34.31
138%	134%	$ 36.59
145%	150%	$ 37.48

Days Payable Outstanding in Accounts Payable

Days Payables Outstanding in Accounts Payable (DPO) is Accounts Payable divided by Cost of Goods Sold, multiplied by 365. It can be thought of as the average time that the company takes to pay its suppliers.

DPO has been very low over the last five years, averaging only 10 days. The model predicts that it will average 9.6 days over the next five years and 8.8 days over the following five years. DSO has only a tiny impact on Stock Value. Cisco could free up some cash by extending their DSO but from a valuation perspective, this wouldn't be noticeable.

Discount Rate

The Discount Rate is the rate used to discount cash flows in the model's calculation of intrinsic value. It is not shown on the screenshot. The Discount Rate that has been used in this valuation is 9.4%. The impact of the Discount Rate increases as the growth rate of the cash flows increases, given that this leads to larger cash flows further in the future.

The discount rate has a very large impact on the Stock Value. The table below shows the resulting Stock Value using different discount rates.

Discount Rate	Stock Value	Discount Rate	Stock Value
5.0%	$ 75.94	13.0%	$ 25.02
6.0%	$ 62.39	14.0%	$ 23.12
7.0%	$ 52.21	15.0%	$ 21.56
8.0%	$ 44.47	16.0%	$ 20.28
9.0%	$ 38.52	17.0%	$ 19.20
10.0%	$ 33.89	18.0%	$ 18.29
11.0%	$ 30.25	19.0%	$ 17.51
12.0%	$ 27.35	20.0%	$ 16.85

Summary

Cisco's performance, both in terms of leveraging assets to generate revenue and in converting that revenue into profits, has been deteriorating over the last ten years. The company appears to be in a slow decline. The intrinsic value of the company is highly dependent on the ability of management to slow or reverse this decline. The valuation is therefore more difficult than one relating to a company that is in a steady state, relatively speaking. If the company continues on its current trajectory then the stock appears to be oversold, although anyone holding or acquiring this stock has to run the risk that the deterioration accelerates.