

CISCO SYSTEMS, INC. (CSCO)

Information Technology – Communication Equipment

April 1, 2023

Investment Thesis

We recommend a HOLD rating for Cisco Systems (CSCO) with a target price range of \$53-58, representing an upside of 3.3-10.9%. We believe CSCO is well-positioned to capture growth in many high-growth industries through their current offerings and M&A activity. Competition and macroeconomic conditions will remain key points to monitor.

Investment Positives

- CSCO's offerings position it to capture growth in many high growth industries, including cybersecurity, optical networking, and 5G. We forecast a 10-yr CAGR of 7.83% and 8.38% for CSCO's respective segments.
- CSCO is a current market leader in the industry, having the capability to offer comprehensive networking solutions to customers, creating a strong competitive advantage expected to contribute to steady revenue growth.

Investment Negatives

- The communication equipment industry is highly competitive, which could potentially disrupt CSCO's market leadership.
- CSCO projects YoY growth for FY2023 much higher than that of its 3-year historical average. Failure for this growth to materialize could adversely impact our target price. Our forecast is on the lower end of expectations.
- Unfavorable macroeconomic conditions could lead to CSCO's customers decreasing their technology budgets, negatively impacting CSCO's product segments.
- CSCO heavily relies on an extended supply chain, making it vulnerable to supply chain disruptions or problems with contract manufacturers, which impair CSCO's ability to effectively respond to demand.

Earnings Estimates (GAAP)

Year	2019	2020	2022	2023E	2024E	2025E
EPS	\$2.65	\$2.51	\$2.83	\$2.94	\$3.26	\$3.56
HF est.				\$2.88	\$3.12	\$3.39
Growth	0.8%	-5.3%	12.7%	1.8%	8.3%	8.7%

12 Month Performance



Stock Rating

HOLD

Target Price

\$54-58

Henry Fund DCF	\$58
Henry Fund DDM	\$46
Relative Multiple	\$57

Price Data

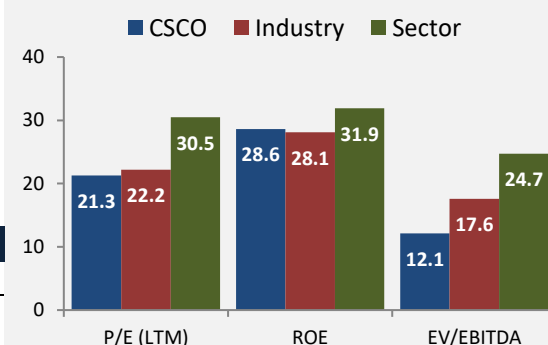
Current Price	\$52.28
52wk Range	\$38.60 – 54.91
Consensus 1yr Target	\$57.47

Key Statistics

Market Cap (B)	\$210.0
Shares Outstanding (M)	4,096
Institutional Ownership	74.2%
Beta	0.81
Dividend Yield	3.0%
LT Consensus Growth	8.4%
Price/Earnings (LTM)	18.8
Price/Earnings (FY1)	13.5
Price/Sales (Current)	3.69

Profitability

Operating Margin	27.1%
Profit Margin	22.9%
Return on Assets (TTM)	9.3%
Return on Equity (TTM)	27.9%



Source: FactSet

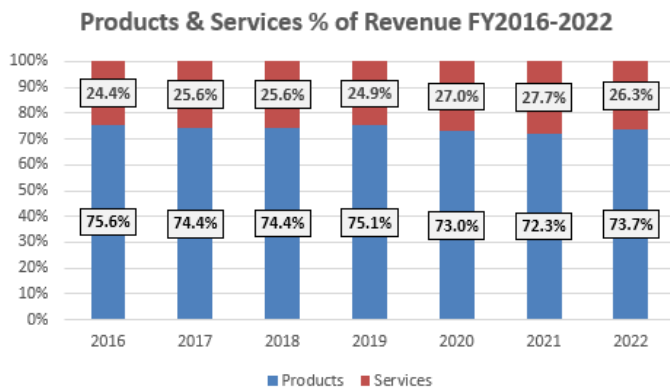
Company Description

Cisco Systems (CSCO) is an American multinational technology company that engages in the design, manufacturing, and sale of networking products and services. CSCO's products and services include switches, routers, cybersecurity software, collaboration tools, and internet of things (IoT) solutions. Currently, CSCO is the largest provider of networking equipment in the world, serving customers in a variety of industries. CSCO was founded in 1984 and is headquartered in San Jose, California.

COMPANY DESCRIPTION

Cisco Systems, Inc. (CSCO) is an American multinational technology company that engages in the design, manufacturing, and sale of networking products and services. CSCO's products and service offerings include switches, routers, cybersecurity software, collaboration tools, and internet of things (IoT) solutions. Currently, CSCO is the largest provider of networking equipment in the world, serving customers in a variety of industries. CSCO was founded in 1984 and is headquartered in San Jose, California. CSCO is a market leader in the communications equipment industry, comprising 58.2% of the S&P 1500 Communications Equipment Index as of November 8, 2022⁹.

CSCO's business is consolidated across two primary business segments: Product and Service. As of FY2022, Product revenue comprises 73.7% of total revenue, while Service accounts for the remaining 26.3%. CSCO's primary customers include businesses of all sizes, public institutions, governments, and service providers which include large webscale providers¹. The mix of Product and Service over time (2016-2022) has remained fairly consistent, with Product accounting for approximately 75% of total revenue:

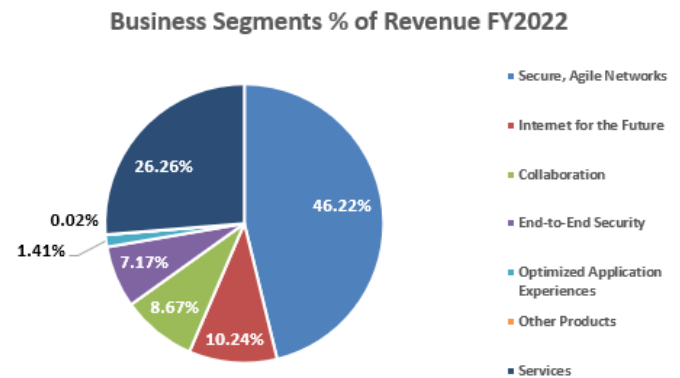


Source: CSCO 10K

The Product segment can be decomposed into six categories based on the type of product and customer markets, which are as follows:

- Secure, Agile Networks
- Internet for the Future
- Collaboration
- End-to-End Security
- Optimized Application Experiences
- Other Products

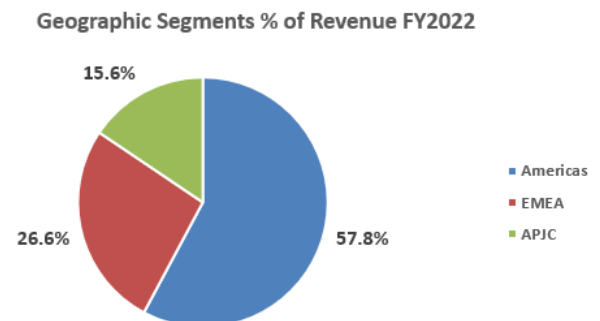
Given CSCO's evolving business model and changing product categories, we only have three years of historical data available for the current revenue decomposition. Prior to FY2022, CSCO had four primary product segments, which were Infrastructure, Applications, Security, and Other Products. In the figure below, we see that Secure, Agile Networks is CSCO's largest business segment, followed by Services.



Source: CSCO 10K

Geographic Segments

CSCO is a multinational company, with key geographic segments divided into Americas, Europe, Middle East, and Africa (EMEA), and Asia Pacific, Japan, and China (APJC), shown in the figure below:



Source: FactSet

In FY2022, revenue from the United States alone was \$26.7 billion, comprising about 90% of Americas revenue, and 48%, making the US CSCO's largest market by country¹. Additionally, entering developing markets is a

focus of CSCO's growth strategy, so developments in these markets will be important to monitor.

Secure, Agile Networks

The Secure, Agile Networks segment is currently CSCO's largest product category by revenue, generating \$23.8 billion and comprising 46.2% of total revenue in FY2022. This segment consists of switching, enterprise routing, wireless, and compute products¹. These technologies consist of both hardware and software offerings, including software licenses and software-as-a-service (SaaS). CSCO states that the intention of these offerings is to help customers build networks, as well as automate, integrate, and digitize data¹.

The product portfolios are as follows:

Switching: Encompasses campus switching and data center switching offerings. These provide the foundation for converged data, voice, video, and internet-of-things (IoT) services. Products include the Catalyst 9000 series of switches, and software subscriptions to Cisco DNA, which is designed to provide automation, analytics, and security features that can be centrally monitored, managed, and configured¹.

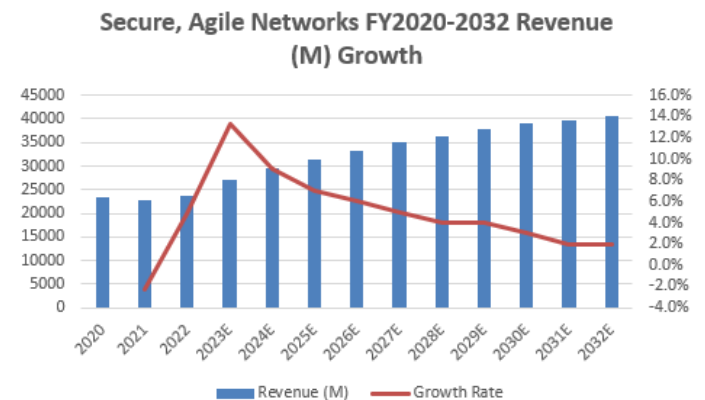
Enterprise Routing: Interconnects public and private wireline and mobile networks, which are designed to deliver highly secure and reliable connectivity to campus, data center, and branch networks for enterprise and commercial customers¹.

Wireless: Provides indoor and outdoor wireless coverage designed for seamless roaming use of voice, video, and data applications¹. Specific products include standalone, controller appliance-based, and switch-converged wireless access points, and Meraki cloud-managed offerings.

Compute: Includes technologies and solutions such as the Cisco Unified Computing System, Hyperflex (CSCO's hyperconverged offering), and software management capabilities¹.

The Secure, Agile Networks segment grew 4.87% in FY2022, and we expect strong to stable growth for this

segment over the next 10 years, forecasting a 5.47% CAGR from FY2022-2032:



Source: FactSet, HF Estimates

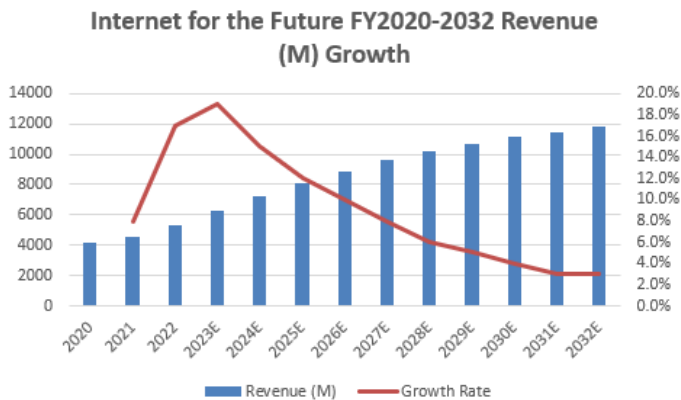
The global enterprise networking market, which consists of routers, switches, and wireless access points, is expected to grow at a 5.90% CAGR from 2023-2030, becoming an \$88.23B market, of which CSCO is a major player, with 41% market share in 2022^{6,8}. This is driven by increasing demand for IT infrastructure, rising bandwidth requirements, enterprises shifting towards wireless systems¹⁶, and increasing adoption of internet of things (IoT) and cloud applications⁸. Assuming no changes to CSCO's business model, we assume this will remain their largest segment over our 10-year forecast.

Internet for the Future

The internet for the Future segment consists of routed optical networking, 5G, and silicon and optics solutions. Specific solutions include CSCO's Silicon One and pluggable optics solutions, which are designed to greatly enhance the economics of building and operating networks for service providers, and to meet growing demand for low-latency and higher speeds¹. CSCO views optics becoming increasingly important as connection speeds continue to increase¹.

The Internet for the Future segment grew 16.93% in FY2022 driven by growth in the webscale provider market¹ and benefit from the 2021 acquisition of Acacia (a communications equipment designer/manufacturer) in

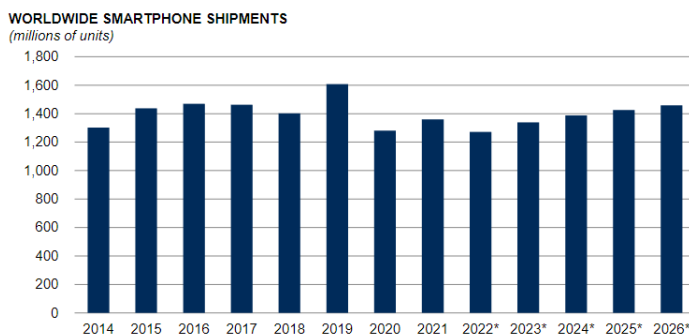
3Q FY2021¹. We expect this strong growth in this segment, forecasting an 8.38% CAGR from FY2022-2032:



Source: FactSet, HF Estimates

Beyond CSCO's guidance, we use two industries to help guide our growth projections: the global 5G infrastructure market and the global optical communication and networking equipment market.

The global 5G infrastructure segment is expected to grow at a CAGR of 34.2% from 2022-2030⁷. This is driven by growing demand for better bandwidth connectivity with low latency⁷, as well as 5G adoption through mobile phone upgrade cycles⁹, though by 2030 this may include 6G infrastructure as well. CSCO estimates that in 2023 around 10% of global mobile devices/connections will be 5G capable^{9,3}. The estimated growth in smartphone shipments is shown in the figure below:



*Estimated.
Source: IDC, September 2022.

Source: CFRA Comm. Equipment Industry Survey, IDC

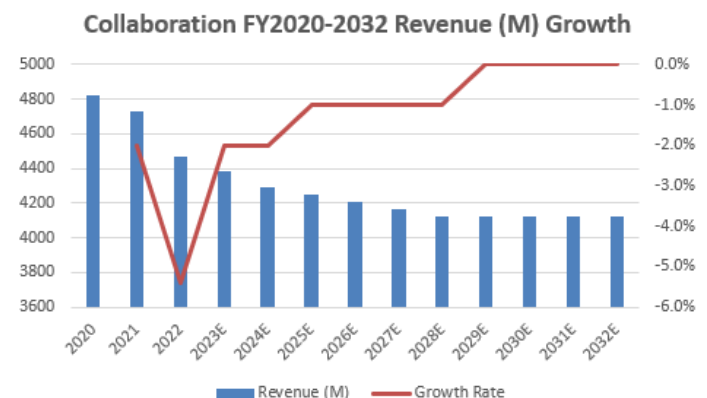
The global optical communication and networking equipment market is expected to grow at a CAGR of 8.6% from 2022-2027. This is driven by a rise in demand for compact and energy-efficient transceivers, as well as an expansion of telecom infrastructure in developing economies¹⁷. Within this market, the optical transceiver

segment, which is among CSCO's offerings, is expected to grow at the highest CAGR of 32% over the forecast period. As data traffic increases through advancements in AI, machine learning, and 5G communication, demand for high-scale data centers is expected to increase, which helps drive growth for this offering¹⁷. As a result, we anticipate this segment to be CSCO's most significant in terms of future growth.

Collaboration

The Collaboration segment consists of CSCO's Meetings, Collaboration Devices, Calling, and Contact Center and Communications Platform as a Service (CPaaS) offerings, including perpetual licenses and subscription arrangements¹. CSCO's strategy within this segment is to power hybrid work through providing technology that enables effortless collaboration among distributed teams. In addition, CSCO's Webex (videoconferencing application) portfolio boasts artificial intelligence and machine learning capabilities that are stated to help improve productivity¹.

The Collaboration segment fell 5.39% in FY2022, driven by declines in meetings and collaboration devices². We expect sequential falls in FY2023 and 2024 as firms remain cautious regarding spending, paired with prevalence in alternative collaboration technologies. As such, we forecast a -0.80% CAGR from FY2022-2032:



Source: FactSet, HF Estimates

The global team collaboration software market size was valued at \$21.7B in 2021, and with CAGR estimates ranging from 9.5% from 2022-2030⁷ and 2.00% from 2023-2030⁶. This is driven by the rising need for enterprises to incorporate effective means of team collaboration across organizations. However, given CSCO's guidance, strong competitors in this market, and macroeconomic

conditions we do not anticipate CSCO to reach as high of growth metrics over our forecast horizon. However, the level of growth in hybrid work environments will be important to monitor, as they may increase demand for products in this segment.

End-to-End Security

The End-to-End Security segment consists of Cisco's Network Security, Cloud Security, Security Endpoints, Unified Threat Management, and Zero Trust offerings. CSCO has displayed a strong commitment to continue investing in this segment, as security remains a high priority for all customers, as well as seeing strong sequential growth in this segment¹. Additional solutions include Secure Access by Duo for identity verification and secure remote access, as well as Cisco+ Secure Connect, combining network and security functionality into one cloud-native service¹. These offerings position CSCO well to be a one-stop shop for many enterprise cybersecurity solutions.

The End-to-End Security segment grew 9.37% in FY2022, driven by CSCO's unified threat management and zero trust offerings³. We expect this segment to experience strong growth as cybersecurity is expected to remain a significant risk for companies moving forward, forecasting an 7.38% CAGR from FY2022-2032:



Source: FactSet, HF Estimates

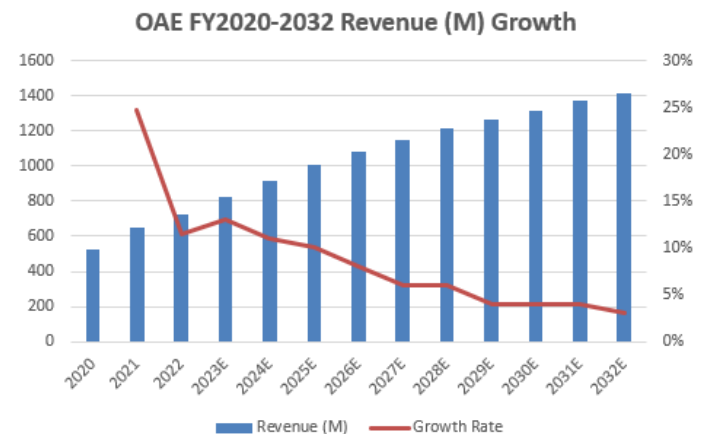
The global cybersecurity market is expected to grow at a CAGR of 12.3% from 2023-2030⁷, driven by the number of cyber-attacks with the emergence of e-commerce platforms, deployment of cloud solutions, and increased use of smart devices⁷. In addition, the cost of cybercrime is expected to starkly increase going into the future, with

the global cost rising from \$8.44 trillion in 2022 to \$23.84 trillion by 2027⁶.

Optimized Application Experiences

Currently CSCO's smallest product segment, the Optimized Application Experiences (OAE) segment consists of CSCO's full stack observability and cloud-native platform offerings. CSCO's goal behind this segment is to provide customers with visibility and insights across customers' applications, networks, multi-cloud infrastructures, and the Internet¹. Specific offerings include AppDynamics for monitoring and analytics, and ThousandEyes for network services, allowing for 360-degree views across hybrid digital ecosystems¹.

The OAE segment grew 11.42% in FY2022, driven by strong growth in CSCO's ThousandEyes offering. We anticipate strong growth in this segment, with a 6.85% CAGR from 2022-2032. CSCO intends to continue shifting their business to incorporate more recurring revenue-based offerings, which we expect to drive strong growth for this segment.



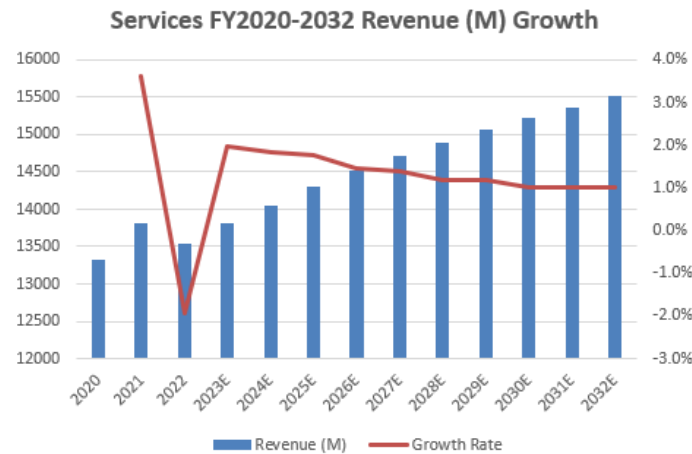
Source: FactSet, HF Estimates

Services

CSCO's Services segment consists of end-to-end customer services, which provide a broad range of service and support options for customers. As of FY2022, Services comprised 26.3% of CSCO's total revenue⁴.

CSCO has not provided any guidance regarding this segment, and this is complementary to their overall product offerings. Therefore, we forecast growth as roughly an average over the past two years, reaching a CV

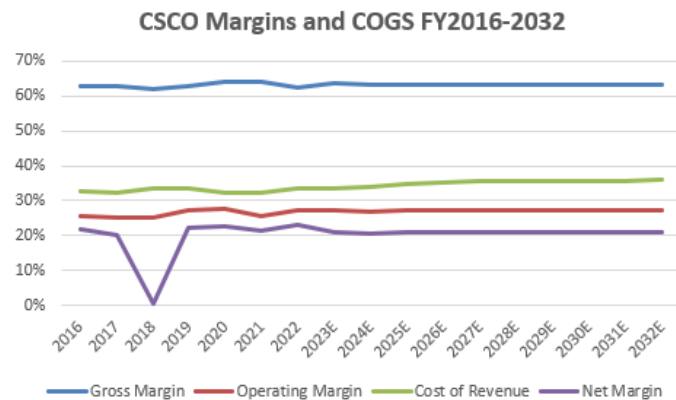
growth of 1%. This equates to a CAGR of 1.38% from FY2022-2032.



Source: FactSet, HF Estimates

Cost Structure Analysis

The figure below shows CSCO's gross margin, operating margin, cost of revenue, and net margins over both the historical period and our forecast horizon:



Source: CSCO 10K, HF Estimates

Apart from the significant fall in net margin in 2018, CSCO has experienced relative stability in their margins, with slight fluctuation. We forecast these trends to generally continue, though we do anticipate a slight decline in cost of goods sold as CSCO increases their recurring revenue and SaaS offerings, which we expect will gradually improve their gross margins over our forecast horizon.

We expect CSCO's operating margin to be driven by their R&D expenses and SG&A expenses, which have fluctuated but remained around the same range. As CSCO has not provided estimates regarding these expenses, we

took a two-year historical average as our forecast, to reflect more recent values for CSCO.

Debt Maturity Analysis

The figure below shows Cisco's debt maturity schedule as of FY2022:

Five-Year Debt Maturity Schedule

Fiscal Year	Payment (\$mil)
2023	500
2024	1,750
2025	500
2026	750
2027	1,500
Thereafter	4,000
Total	\$9,000

Source: CSCO 10K

The figure below shows CSCO's bond rating relative to peers in the communication equipment industry. S&P gives CSCO an AA- rating, which is considered investment grade¹⁸. Among its peers with available credit ratings, CSCO is seen to have a strong capacity to meet financial commitments. Its peers, however, either have adequate capacity to meet these commitments (BBB) or are considered the lowest investment-grade by market participants¹⁸.

Company	Rating
Cisco Systems (CSCO)	AA-
Arista Networks (ANET)	No data
Hewlett Packard Enterprise (HPE)	BBB
Juniper Networks (JNPR)	BBB
Motorola Solutions (MSI)	BBB-
Palo Alto Networks (PANW)	No data

Source: S&P Global

In terms of liquidity ratios, CSCO has a quick ratio of 1.33 as of FY2022, and a current ratio is 1.43 as of FY2022. As a result of all these factors, we do not anticipate CSCO having issues repaying their debt.

ESG Analysis

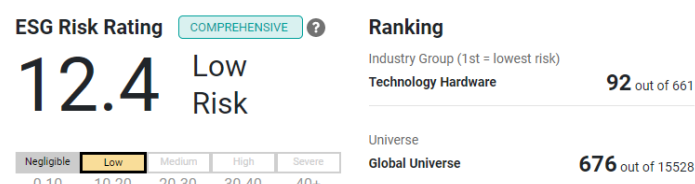
ESG, or Environment, Social, and Governance, is a framework to assess the sustainability and ethical impact of companies based on those three metrics. We find CSCO to be well-positioned among its peers, having an ESG risk rating of 12.40, one of the lowest in its peer group. In the

table below, a lower ESG risk rating score is considered better.

Company	ESG Risk Rating	
Cisco Systems (CSCO)	12.40	Low
Arista Networks (ANET)	15.41	Low
Hewlett Packard Enterprise (HPE)	10.76	Low
Juniper Networks (JNPR)	14.67	Low
Motorola Solutions (MSI)	12.91	Low
Palo Alto Networks (PANW)	13.92	Low

Source: Morningstar Sustainalytics

In addition, CSCO ranks highly in terms of its ESG scores relative to its industry group and the global universe of companies covered by Morningstar Sustainalytics:



This is driven by CSCO's strong ESG initiatives across people, global communities, and the environment. Key highlights of current ESG initiatives are shown below³:

- Maintained over 80% employee participation in community impact from FY2019-2022.
- Positively impacted 848 million (goal of 1 billion) people through social impact grants and signature programs from FY2016-2022.
- Set target of net zero CO₂ emissions by 2040.
- Reduced Scope 1 and 2 greenhouse gas emissions by 39% compared to FY2019.

RECENT DEVELOPMENTS

Q2 FY2023 Earnings Announcement

CSCO announced their second quarter earnings for FYE July 2023 on February 15, 2023. Their quarterly EPS beat consensus estimates by 2.91%, and revenue by 1.34%. This was driven primarily by growth across CSCO's enterprise and commercial markets, with Secure, Agile Networks, Optimized Application Experiences, and End-to-End Security experiencing the largest growth, respectively. In addition, management cites increased demand for CSCO's cloud-driven networking portfolio, continued success with business transformation, and improving supply situation as large contributors towards growth².

CSCO expects strong year-over-year revenue growth to be 9% to 10.5%, with GAAP EPS between \$2.85 and \$2.96. This is driven by increasing recurring revenue as a percentage of total revenue (now 44%), aggressive actions to improving CSCO's supply chain to increase product deliveries and decrease lead times, as well as increasing enterprise technology budgets despite macroeconomic headwinds². We anticipate CSCO being able to reach their revenue growth estimates given the resiliency of demand in their end markets, though this does present a threat to our current target price should this growth fail to materialize. Considering these factors, we anticipate a revenue growth of 9.52% and GAAP EPS of \$2.88 in FY2023, in-line with CSCO's expectations.

COVID-19 Impact

The COVID-19 pandemic caused significant supply chain disruptions across the communication equipment industry, which significantly impacted CSCO as well. The supply chain disruptions led to factories in China shutting down for a period of time, which increased lead times and adversely impacted CSCO's financial performance. However, it provided new opportunities for CSCO with many organizations shifting to remote work, increasing demand for CSCO's Collaboration products such as Webex. Currently, CSCO is still at a heightened risk for supply chain disruptions but may benefit from the increasing popularity of the hybrid work environment and increased enterprise technology spending. As of CSCO's most recent earnings, management has expressed an improvement in their supply situation, and has a robust backlog of orders.

Russia-Ukraine War

In March 2022, CSCO announced it would stop business operations in Russia and Belarus for the foreseeable future, beginning the exit in June 2022. Business operations in Russia, Belarus, and Ukraine accounted for approximately 1% of total revenue for FY2021, and 0.1% of total assets at the end of FY2022¹. This resulted in a negative impact of about \$200 million on total revenue for FY2022, and the recognition of non-recurring charges of \$91 million in cost of sales and operating expenses in FY2022¹.

M&A Activity

CSCO has had a strong M&A history, with 51 recorded M&A deals over the past five years⁴, including the recent

acquisition of Valtix and the announcement to acquire Lightspin. Valtix, a privately held cloud security company, was acquired by CSCO in late February 2023. In March 2023, CSCO announced its intention to acquire Lightspin, a Tel Aviv-based company offering end-to-end cloud security posture management (CSPM) across cloud-native resources³. The financial terms of these deals were not disclosed as of this report. CSCO management has indicated that it will be increasing its cybersecurity offerings in the next 12-18 months², which we view these acquisitions to be a sign of.

We view CSCO's M&A activity as a large source of growth for the company, and given CSCO's history and guidance we expect this trend to continue in the future. However, the companies CSCO acquires are subject to additional risk as well, so CSCO's acquisitions will be an important factor to monitor. In our forecasts, we consider CSCO's commitment to cybersecurity as a driver of growth. While we do not know the details of future acquisitions, we expect them to be in industries expecting high growth, such as Internet for the Future.

MARKETS AND COMPETITION

Supply Chain Risks

CSCO does not currently own or operate the bulk of their manufacturing facilities and is heavily reliant on their external supply chain¹. CSCO works with contract manufacturers and component suppliers across the world, so aside from potential global disruptions, there is additional risk if CSCO's partners encounter financial problems, capacity shortages, or supply shortages. These could adversely impact CSCO's gross margins and the company's ability to effectively respond to changing customer demand. As of their most recent earnings, CSCO has cited that aggressive actions had been taken to de-risk their supply chain, specifically through product redesigns which reduce lead times. While this is an ongoing process, we view CSCO's supply chain as a current potential threat to CSCO's operations. To our knowledge, CSCO has not provided an exact figure as to how much this supply chain de-risking will cost but remains optimistic towards FY2023 and 2024 growth.

Competitive Environment

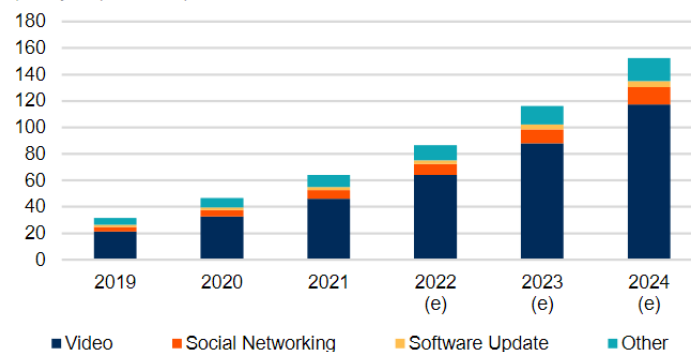
While the communication equipment industry remains highly competitive, CSCO is currently a strong market

leader. CSCO is viewed as a one-stop-shop networking vendor, having the capability to offer comprehensive networking solutions to customers⁹ that give it a competitive advantage over peers, who may specialize in only one aspect of the broader market.

Expected industry drivers include rapid adoption of internet video and social media content, increased adoption of smartphones, and shift towards a more virtualized network environment for enterprises and service providers⁹. The estimated increase in data traffic, which indicates demand for networking equipment, is shown in the figure below:

Global Mobile Data Traffic Forecast

(exabytes per month)



Traffic refers to aggregated traffic in mobile access networks and does not include DVB-H, Wi-Fi, or Mobile WiMax traffic.
Source: Ericsson.

Source: CFRA Comm. Equipment Industry Survey

The threat of new entrants is viewed as moderate, as the industry is fast-changing with short product cycles⁹. As a result, innovation and strategic acquisitions will be key to maintaining competitive advantage among top players⁹. Arista Networks, for instance, was founded by former CSCO employees, and has experienced relative success producing data center switches, and now competes with CSCO.

PEER COMPARISONS

We compared CSCO across other companies in the communication equipment industry, focusing on those either outlined by CSCO to be their competitors and/or are major players in the industry. Our peer group includes:

- Arista Networks (ANET)
- Hewlett Packard Enterprise (HPE)
- Juniper Networks (JNPR)
- Motorola Solutions (MSI)
- Palo Alto Networks (PANW)

Market Valuation & Dividend Yield

Company	Market Cap (B)	P/E (LTM)	Div. Yield
CSCO	210.0	18.8	3.0%
ANET	48.7	37.4	0.0%
HPE	20.6	24.6	3.0%
JNPR	10.9	23.6	2.6%
MSI	47.4	35.7	1.2%
PANW	58.1	2,552.1	0.0%

Source: FactSet

Profitability Ratios

Company	Oper. Margin	Gross Margin	ROA (%)	ROE (%)
CSCO	27.4	61.9	12.3	29.1
ANET	35.0	61.1	21.6	30.5
HPE	3.1	31.4	1.5	4.4
JNPR	10.2	56.4	5.2	10.7
MSI	19.6	43.8	10.9	3,586.8
PANW	-3.4	68.8	-2.4	-63.2

Source: FactSet

Investment and Efficiency Ratios

Company	R&D %Sales	CapEx %Sales	EV/EBITDA
CSCO	13.1	0.92	12.3
ANET	16.6	3.30	29.8
HPE	7.2	11.0	6.4
JNPR	19.5	2.0	15.3
MSI	8.6	2.8	23.3
PANW	25.8	3.5	314.8

Source: FactSet

Arista Networks (ANET)

Arista Networks (ANET) engages in the business of developing, marketing, and selling cloud networking solutions, primarily selling Ethernet switches and software to data centers¹¹. ANET's flagship product is their Extensible Operating System (EOS), which is a network operating system which aims to improve organizations' improvement of their performance, security, and scalability of their data center and cloud computing

environments. ANET serves a wide range of customers including internet companies, service providers, financial services organizations, government agencies, media and entertainment companies, and others²⁰. The company was founded in 2004 by former CSCO employees and is headquartered in Santa Clara, California.

ANET beat analyst EPS expectations by 16.19% and revenue by 6.21% in their most recent earnings report in December 2022. This growth was driven by healthy customer additions and growth in the enterprise vertical^{22,10}. The company is forecasting growth in FY2023 despite macro headwinds and intends to further optimize their supply position while reducing their product lead times²². We see ANET as CSCO's primary competitor in the data center networking market.

Hewlett Packard Enterprise (HPE)

Hewlett Packard Enterprise (HPE) is a global edge-to-cloud company, operating through its Compute, High Performance Computing & AI, Storage, Intelligent Edge, Financial Services, and Corporate Investments segments. HPE's products include server, storage, networking, and software offerings. HPE was founded in 1939 and is headquartered in Spring, Texas.

HPE beat analyst EPS expectations by 17.76% and revenue by 5.50% in their most recent earnings report in January 2023, and raised full-year revenue growth guidance from 3% to 6%²¹. This was driven by an order book about twice the size of historical levels and positive reception of HPE Greenlake, HPE's hybrid cloud platform²¹. HPE sees an opportunity in the rapidly growing market for AI software²¹, and we expect HPE to remain a competitor against CSCO in the enterprise networking, data center, and cloud markets.

Juniper Networks (JNPR)

Juniper Networks designs, develops, and sells products and services for high performance networks for customers to build scalable, reliable, secure, and cost-effective networks. Specific offerings include routing, switching, Wi-Fi, network security, AI-enabled enterprise networking operations, and software-defined networking technologies⁴. JNPR was founded in 1996 and is headquartered in Sunnyvale, California. JNPR competes against CSCO primarily in the enterprise networking market.

JNPR beat analyst EPS expectations by 0.66% but fell short by 2.41% in revenue in their most recent earnings report in December 2022. JNPR's sales were negatively impacted by supply and logistical challenges, though experienced strong performance in its enterprise and cloud businesses²⁴. We anticipate supply chain issues and uncertainty surrounding end-markets to be JNPR's most significant short-term challenges.

Motorola Solutions (MSI)

Motorola Solutions (MSI) provides communication infrastructure, devices, accessories, software, and services⁴. The bulk of MSI's revenue comes from sales of land mobile radios and radio network infrastructure¹¹. The company primarily serves public safety departments as well as schools, hospitals, and other businesses¹¹. MSI was founded in 1928 and is headquartered in Chicago, Illinois.

MSI beat December 2022 EPS earnings expectations by 4.82% and revenue by 6.78%. This was driven by strong demand for its land mobile radio (LMR) and video access control offerings²⁵. While CSCO and MSI have differing target markets and product offerings, they do compete across wireless networking and security solutions, and we expect MSI to maintain their strong positioning in their target markets.

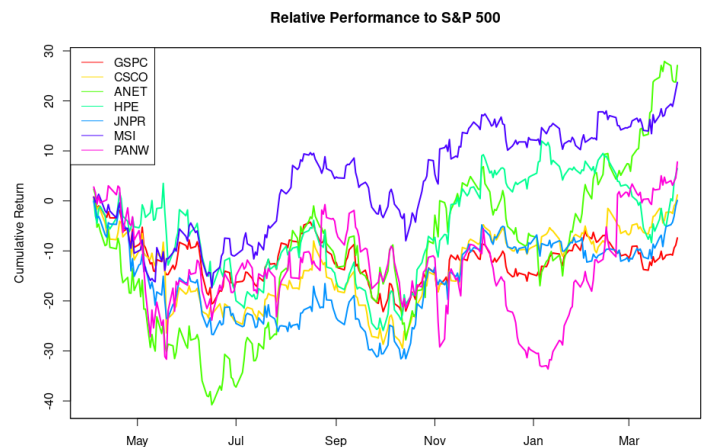
Palo Alto Networks (PANW)

Palo Alto Networks (PANW) provides network security solutions to enterprises, service providers, and government entities. PANW is seen as a leader in cybersecurity solutions, including network security, cloud security, and security operations¹¹, which help position the firm to capture the high expected growth from the cybersecurity market. PANW was founded in 2005 and is headquartered in Santa Clara, California.

PANW beat January 2023 EPS earnings by 35.43% and revenue by 0.34%. This marked the third consecutive quarter of profitability following a decade of unprofitability³⁰, with management expecting the cybersecurity market to be resilient despite macroeconomic headwinds. In addition, management now believes that PANW meets the requirements for inclusion into the S&P 500²⁶, though as of this report it remains traded on the US NASDAQ.

Relative Performance

Over a one-year period (4/1/2022 to 4/1/2023), CSCO outperformed the market and JNPR, though did underperform against its other peers, outlined in the figure below. It should be noted that relative performance depends significantly on the timeframe used, so this should not be used as the sole indicator of CSCO's competitive positioning and overall performance.

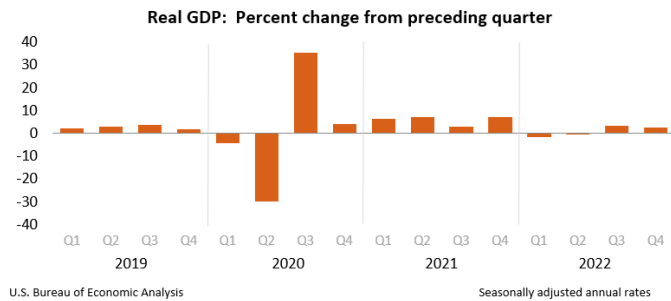


Source: Yahoo Finance, quantmod R package

ECONOMIC OUTLOOK

Real GDP Outlook

In Q4 and Q3 of 2022, the real gross domestic product (GDP) increased at an annual rate of 2.6% and 3.2%, respectively¹². Looking forward, the Conference Board forecasts real GDP growth to be 0.3% in 2023, though this may be negative if the US fails to achieve a soft landing for the economy. Among the key risks facing the economy currently that we expect to negatively impact GDP growth include higher levels of inflation and increasing interest rates, which would negatively impact consumer spending. This is paired with the heightened probability of a recession in 2023, a hypothesis that is supported by the current inverted yield curve, which have historically preceded recessions.



Source: US Bureau of Economic Analysis

For the communication equipment industry, lower GDP growth, or potentially a recession, could have a significant negative impact on demand, as enterprise and commercial end markets will curb spending. While enterprise technology budgets have remained resilient so far, depending on the severity of the macroeconomic climate this may be subject to change. Of CSCO's product segments, we believe End-to-End Security to remain the most resilient in the face of recession, as we do not anticipate firms cutting back on cybersecurity spending. Other product segments, such as Collaboration and Secure, Agile Networks may potentially be more discretionary if firms opt to delay upgrades of internal networking systems or forgo additional spending on collaboration solutions.

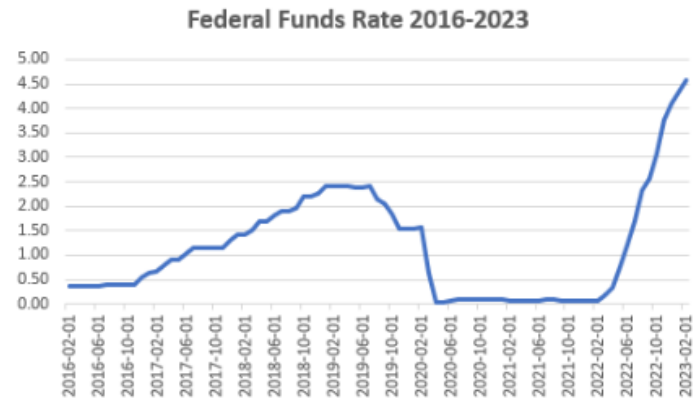
Fed Funds Rate & Inflation

The Fed Funds rate has ripple effects throughout the economy, impacting longer-term interest rates, such as mortgages, loans, and savings, which significantly impact consumer wealth and confidence. As for inflation, while the US CPI inflation rate has decreased from its 2022 high of 9.1%, it remains well above the Fed's 2% target, being 5.2% as of March 2023²⁷. A high rate of inflation can adversely affect CSCO's supply chain and investment activities, due to rising raw material prices and decreased investment value.

The Fed has been consistently hiking interest rates since early 2022 to bring down inflation to a 2% target. Currently, the Fed Funds rate is at a target price of 4.75-5.00%, with the market factoring in an additional 25 bps rate hike in the Fed's May meeting¹⁴.

While we believe these hikes are necessary to reduce inflation, this is expected to impact CSCO adversely if rates continue to rise. CSCO maintains an investment portfolio of various holdings, types and maturities, notably available-for-sale debt investments. CSCO's fair value (as

of their annual report) for their available-for-sale debt investments was \$11,947M, and a hypothetical interest rate increase of 150 basis points would decrease the fair value to \$11,630M¹. From July 2022 (the date of the annual report) to March 2023, the effective federal funds rate has increased 297 basis points¹³.

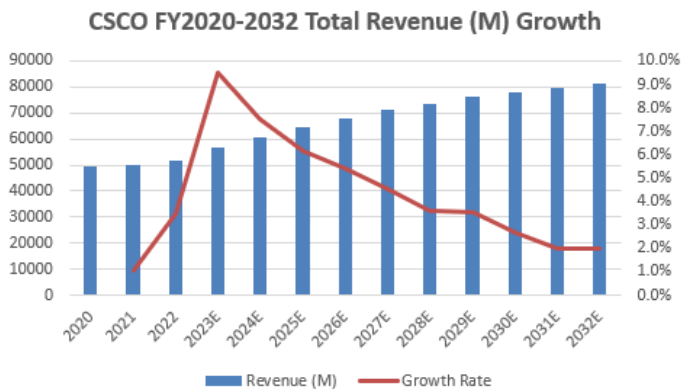


Source: FRED

VALUATION

Revenue Growth

Our growth assumptions are based on Cisco's product categories, with a forecasted CAGR of 4.66% from FY2022-2032. For FY2023, we forecast revenue growth as on the lower end of management expectations, or 9.52%. Our largest growth expectations come from CSCO's Internet for the Future, End-to-End Security, and Optimized Application Experiences product segments, as we see strong growth in the markets that use these products over our forecast horizon. By the end of our forecast period, Secure, Agile Networks is expected to make up the majority of CSCO's revenue, with 49.93%. Historical revenue growth and our estimates are shown in the figure below:



Source: FactSet, HF Estimates

Earnings Estimates

Compared to consensus estimates, we forecast slightly lower earnings for 2023E, 2024E, and 2025E, which we believe is driven by differences in assumptions and future tax rate. For FY2023, we use the same tax rate as the consensus, or 19%. This is CSCO's estimation for their 2023 effective tax rate. Moving forward, we use CSCO's implied marginal tax rate of 23.50% for our tax rate assumptions, which may deviate from consensus estimates for tax rates. However, our earnings and revenue estimates still align with CSCO's GAAP guidance. It should be noted that many published analyst expectations are non-GAAP EPS estimates, which we did not estimate and are higher than the GAAP estimates.

Operating Expenses

CSCO's operating expenses as a percentage of sales have remained fairly consistent over time, and CSCO did not give specific guidance as of their last earnings report. As a result, we chose to take a 3-year average of operating expenses to project over our forecast. We applied a -0.5% growth factor to COGS, however, as we anticipate CSCO to continue to shift to more SaaS-based and recurring revenue-based offerings that will increase their gross margin into the future.

Dividend & Share Repurchase Projections

CSCO has a strong history of increasing their dividend payments each year, with the recent increase to \$0.39 marking CSCO's 13th consecutive increase. Currently, CSCO has a dividend yield of 3.8%. As CSCO has not indicated otherwise, we assume this growth will continue at a rate

equal to that of the average growth rate of the past two years, or 2.78%.

Regarding share repurchases, CSCO announced that they had repurchased \$1.3B worth of share repurchases this quarter, with \$13.4B remaining share repurchase authorization. In our forecasts, we assume CSCO uses the full \$13.4B authorization over our forecast horizon, with most significant repurchases occurring in FY2023 and 2024. However, these will be subject to change per announcements from CSCO.

WACC Assumptions

We calculated a weighted average cost of capital of 7.69% for Cisco, below the FactSet consensus estimate of 8.10%. For this calculation, we used the following assumptions:

Risk-Free Rate: We used 3.47%, the 10-year US Treasury Bond yield as of April 1, 2023.

Beta: We used the average of the weekly 3-year, 4-year, and 5-year raw betas from Bloomberg, equal to 0.81.

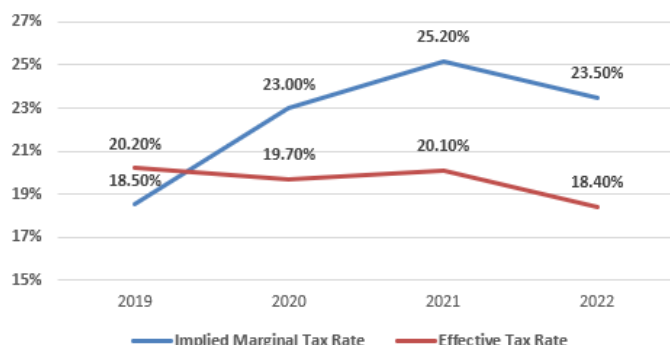
Equity Risk Premium: We used the Henry Fund consensus estimate of 5.50%.

Using the capital asset pricing model (CAPM), we derived a cost of equity of 7.69% for CSCO. It should be noted that this differs from the FactSet estimate of 8.29%, due to differing assumptions.

Pre-tax Cost of Debt: We used 4.33%, the yield for CSCO's outstanding corporate bond closest to our 10-year forecast horizon. This bond matures on September 20, 2026.⁵

Tax Rate: We used 23.50% for our forecast horizon, equal to the implied marginal tax rate of FY2022. Historically, the effective tax rate of CSCO has remained fairly close to the implied marginal tax rate, outlined in the figure below:

CSCO Tax Rates FY2019-2022



Source: CSCO 10K's

We opted to use the book value of debt as a proxy for the market value of debt, given the difficulty of estimating this value for CSCO.

DCF / Economic Profit (EP)

Our discounted cash flow (DCF) and economic profit (EP) models both yielded an implied price today of \$58.12, representing an upside of 11.2% from the current price. We opt to use this as our primary model driving our recommendation, as this model considers more company-specific factors and allows us to incorporate growth assumptions per product segment. Our assumption is for CV growth of NOPLAT is 1.86%, equal to the growth of NOPLAT of the last year in our forecast horizon, which we view to be sustainable.

Relative Valuation (P/E and PEG)

For our relative valuation models, we considered five of CSCO's main competitors in the communication equipment subsector, which include Palo Alto Networks, Arista Networks, Motorola Solutions, Juniper Networks, and Hewlett Packard Enterprise.

Our relative P/E valuation models yielded an implied price today of \$56.83 based on 2023 forecasted EPS, implying that it is currently undervalued relative to peers. While we do consider Palo Alto Networks to be a peer of CSCO, we omitted the company from our relative P/E valuation model due to their significantly larger P/E ratio. Our relative PEG valuation models yielded an implied price of today of \$27.73 based on 2023 forecasted EPS. We favor using the P/E model, given the uncertainty of EPS growth for these companies, and the starkly lower target price relative to all other models.

Dividend Discount Model (DDM)

Our dividend discount model (DDM) yielded an implied price of \$45.82, representing a baseline for the stock price based on the company's dividend payments, but our model suggests the firm could pay a larger dividend than the current amount. As of this report, CSCO recently increased their dividend to \$0.39, marking their 13th consecutive increase. As CSCO has not indicated otherwise, we anticipate this growth to continue in the future. We opted to use a CV growth of EPS equal to the growth in our terminal year, or 2.22%, which we view to be sustainable in the long-term. It should be noted that this EPS growth is slower than our short-term projected EPS growth, which could be the source of a lower valuation from this model.

Sensitivity Analysis

Our target price for CSCO is sensitive to certain factors, including our 2023 growth factors, given that they are significantly higher than the three-year historical average and based off CSCO's earnings guidance. Historically and over our forecast horizon, Secure, Agile networks accounts for nearly 50% of CSCO's total revenue, so changes in this segment's growth can alter are target price. In our testing range, our target price can vary from \$56-59 from our 2023 growth projection alone for Secure, Agile Networks growth. Variances in our Internet for the Future 2023 do not have as great of an impact of our target price, as this does not comprise as large of a percentage of total revenue.

		2023 Secure, Agile Networks Growth						
2023 IFF Growth	\$ 58.18	7.25%	9.25%	11.25%	13.25%	15.25%	17.25%	19.25%
	11%	55.89	56.45	57.02	57.58	58.14	58.70	59.27
	13%	56.04	56.61	57.17	57.73	58.29	58.86	59.42
	15%	56.19	56.76	57.32	57.88	58.44	59.01	59.57
	17%	56.34	56.91	57.47	58.03	58.59	59.16	59.72
	19%	56.49	57.06	57.62	58.18	58.74	59.31	59.87
	21%	56.65	57.21	57.77	58.33	58.90	59.46	60.02
	23%	56.80	57.36	57.92	58.48	59.05	59.61	60.17

Regarding relative volatility, we assume a beta of 0.81 (3yr, 4yr, 5yr weekly raw beta average) to capture a longer-term value for CSCO that we view to be reflective of the long-term. However, our target price can vary greatly depending on our beta assumption, as if we were to use and estimate closer to Yahoo Finance's beta value of 0.98, our target price would drop to \$49-53.

Risk-Free Rate	Beta							
	58.18	0.51	0.61	0.71	0.81	0.91	1.01	1.11
	3.17%	84.02	74.51	66.98	61.09	55.80	51.54	47.90
	3.27%	82.11	73.02	65.78	60.09	54.97	50.83	47.29
	3.37%	80.29	71.58	64.62	59.12	54.17	50.15	46.70
	3.47%	78.53	70.19	63.49	58.18	53.38	49.48	46.12
	3.57%	76.88	68.88	62.42	57.29	52.63	48.84	45.57
	3.67%	75.29	67.60	61.37	56.41	51.90	48.21	45.02
	3.77%	73.76	66.37	60.37	55.57	51.18	47.59	44.49

Regarding tax rates, assuming a value closer to CSCO's effective tax rate over our forecast horizon could increase our target price slightly, in the magnitude of \$2-3. Our target price is relatively agnostic towards our capital expenditure and ROI assumptions, shifting around \$0.50 over the sensitivity test.

KEYS TO MONITOR

For CSCO, key points to monitor will be their competitive landscape, CSCO's supply chain, M&A activity, product offerings, and macroeconomic environment moving forward.

With an uncertain macroeconomic climate and a regime of rising interest rates, it will be important to monitor CSCO's investment profile and demand in end markets. A downturn in enterprise technology spending, particularly on cybersecurity or networking solutions, would be especially relevant for CSCO.

While CSCO has been making improvements to their supply chain, they still do not own or operate their manufacturing facilities, many of which are overseas. Financial issues among these partners or other widespread supply chain issues will put CSCO at heightened risk.

CSCO has historically driven its growth through its M&A activity, though these transactions do have the potential to fall through, or not provide the value-add that CSCO anticipates. The target market these acquisitions tailor to as well as the acquisition price (if publicized) will be important to monitor.

As the industry is highly competitive, CSCO competes with many other companies across different product offerings. As customer demands change and new technologies become available, it will be critical for CSCO to maintain their level of innovation to sustain their competitive positioning.

Summary

We recommend a HOLD rating for Cisco Systems, with a target price range of \$53-58 based on our DCF, EP, and relative P/E valuation models. This represents a current upside of approximately 3-11% from the current price of \$52.28. The communications equipment industry, of which CSCO is a market leader, is poised for strong growth into the future, with CSCO having the capability to deliver comprehensive networking solutions to customers that will bolster its competitive advantage. We expect CSCO to capitalize on growth in cybersecurity, enterprise networking, 5G, and related end markets.

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24. Juniper Networks Earnings
25. Motorola Solutions Earnings
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28. McKinsey
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Cisco Systems, Inc.
Revenue Decomposition

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Revenue by Product Category													
Secure, Agile Networks	23265	22722	23829	26986	29415	31474	33363	35031	36432	37889	39026	39806	40603
Growth Rate		-2.33%	4.87%	13.25%	9.00%	7.00%	6.00%	5.00%	4.00%	4.00%	3.00%	2.00%	2.00%
% of Total Revenue	47.19%	45.61%	46.22%	47.79%	48.45%	48.83%	49.11%	49.33%	49.52%	49.74%	49.89%	49.91%	49.93%
Internet for the Future	4180	4514	5278	6281	7223	8090	8899	9611	10187	10697	11124	11458	11802
Growth Rate		7.99%	16.93%	19.00%	15.00%	12.00%	10.00%	8.00%	6.00%	5.00%	4.00%	3.00%	3.00%
% of Total Revenue	8.48%	9.06%	10.24%	11.12%	11.90%	12.55%	13.10%	13.53%	13.85%	14.04%	14.22%	14.37%	14.51%
Collaboration	4823	4727	4472	4383	4295	4252	4209	4167	4126	4126	4126	4126	4126
Growth Rate		-1.99%	-5.39%	-2.00%	-2.00%	-1.00%	-1.00%	-1.00%	-1.00%	0.00%	0.00%	0.00%	0.00%
% of Total Revenue	9.78%	9.49%	8.67%	7.76%	7.07%	6.60%	6.20%	5.87%	5.61%	5.42%	5.27%	5.17%	5.07%
End-to-End Security	3158	3382	3699	4180	4807	5336	5869	6339	6719	7122	7407	7629	7858
Growth Rate		7.09%	9.37%	13.00%	15.00%	11.00%	10.00%	8.00%	6.00%	6.00%	4.00%	3.00%	3.00%
% of Total Revenue	6.41%	6.79%	7.17%	7.40%	7.92%	8.28%	8.64%	8.93%	9.13%	9.35%	9.47%	9.56%	9.66%
Optimized Application Experiences	524	654	729	824	914	1006	1086	1151	1221	1269	1320	1373	1414
Growth Rate		24.81%	11.47%	13.00%	11.00%	10.00%	8.00%	6.00%	6.00%	4.00%	4.00%	4.00%	3.00%
% of Total Revenue	1.06%	1.31%	1.41%	1.46%	1.51%	1.56%	1.60%	1.62%	1.66%	1.67%	1.69%	1.72%	1.74%
Other Products	28	15	11	7	3	1	0	0	0	0	0	0	0
Growth Rate		-46.43%	-26.67%	-36.36%	-57.14%	-66.67%	-100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
% of Total Revenue	0.06%	0.03%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Services	13323	13804	13539	13804	14056	14303	14510	14713	14889	15068	15219	15371	15524
Growth Rate		3.61%	-1.92%	1.96%	1.83%	1.75%	1.45%	1.40%	1.20%	1.20%	1.00%	1.00%	1.00%
% of Total Revenue	27.02%	27.71%	26.26%	24.45%	23.15%	22.19%	21.36%	20.72%	20.24%	19.78%	19.46%	19.27%	19.09%
Total Revenue	49301	49818	51557	56464	60714	64461	67936	71011	73574	76171	78222	79763	81327
Growth Rate		1.05%	3.49%	9.52%	7.53%	6.17%	5.39%	4.53%	3.61%	3.53%	2.69%	1.97%	1.96%
Revenue by Geographic Segment													
Americas	29291	29161	29814	33083	35407	37546	39665	41411	42905	44438	45622	46523	47438
Growth Rate		-5.29%	2.24%	10.97%	7.02%	6.04%	5.64%	4.40%	3.61%	3.57%	2.67%	1.97%	1.97%
% of Total Revenue	59.41%	58.54%	57.83%	58.59%	58.32%	58.25%	58.39%	58.32%	58.32%	58.34%	58.32%	58.33%	58.33%
EMEA	12659	12951	13715	14733	15925	16958	17806	18640	19317	19986	20532	20936	21344
Growth Rate		-3.37%	2.31%	7.42%	8.10%	6.49%	5.00%	4.68%	3.63%	3.46%	2.73%	1.97%	1.95%
% of Total Revenue	25.68%	26.00%	26.60%	26.09%	26.23%	26.31%	26.21%	26.25%	26.26%	26.24%	26.25%	26.25%	26.24%
APIC	7352	7706	8027	8648	9381	9957	10465	10960	11351	11747	12068	12304	12545
Growth Rate		-6.66%	4.82%	7.74%	8.47%	6.13%	5.11%	4.73%	3.57%	3.49%	2.73%	1.96%	1.96%
% of Total Revenue	14.91%	15.47%	15.57%	15.32%	15.45%	15.45%	15.40%	15.43%	15.43%	15.42%	15.43%	15.43%	15.43%
Total Revenue	49302	49818	51556	56464	60714	64461	67936	71011	73574	76171	78222	79763	81327
Growth Rate		1.05%	3.49%	9.52%	7.53%	6.17%	5.39%	4.53%	3.61%	3.53%	2.69%	1.97%	1.96%

Cisco Systems, Inc.
Income Statement

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Product revenue	35978	36014	38018	42660	46657	50158	53426	56299	58684	61103	63003	64392	65802
Service revenue	13323	13804	13539	13804	14056	14303	14510	14713	14889	15068	15219	15371	15524
Total revenue	49301	49818	51557	56464	60714	64461	67936	71011	73574	76171	78222	79763	81327
Product cost of sales	13199	13300	14814	16009	17640	19110	20201	21341	22265	23149	23885	24413	24941
Service cost of sales	4419	4624	4495	4595	4685	4759	4831	4899	4957	5017	5067	5117	5169
Total cost of sales (excl. D/A)	15810	16062	17352	18844	20661	22557	24050	25308	26284	27223	28004	28579	29156
Depreciation Expense	1008	931	880	766	787	796	801	804	805	806	807	807	808
Amortization Expense	800	931	1077	900	773	403	61	2	0	0	0	0	0
Gross margin	31683	31894	32248	35955	38493	40705	43024	44898	46485	48141	49411	50377	51364
Research & development	6347	6549	6774	7370	7961	8445	8892	9303	9636	9975	10245	10447	10651
Sales & marketing	9169	9259	9085	10315	11025	11613	12329	12858	13310	13798	14161	14440	14726
General & administrative	1925	2152	2101	2315	2529	2651	2803	2936	3035	3145	3230	3292	3357
Amortization of purchased intangible assets	141	215	313	205	175	129	120	119	119	119	119	119	119
Restructuring & other charges	481	886	6	479	478	336	451	441	428	461	464	472	487
Total operating expenses	18063	19061	18279	20685	22168	23175	24595	25658	26528	27498	28220	28770	29341
Operating income (loss)	13620	12833	13969	15270	16325	17530	18429	19240	19956	20643	21190	21607	22022
Interest income	920	618	476	498	521	545	571	597	625	654	684	716	749
Interest expense	585	434	360	423	436	453	462	476	486	496	506	513	521
Other income (loss), net	15	245	392	0	0	0	0	0	0	0	0	0	0
Interest & other income (loss), net	350	429	508	75	85	92	108	122	139	158	179	202	228
Income (loss) before provision for (benefit from) income taxes	13970	13262	14477	15345	16409	17622	18538	19362	20095	20801	21369	21810	22250
Provision for (benefit from) income taxes	2756	2671	2665	2916	3856	4141	4356	4550	4722	4888	5022	5125	5229
Net income (loss)	11214	10591	11812	12430	12553	13481	14181	14812	15373	15913	16347	16684	17021
Weighted average shares outstanding - basic	4236	4222	4170	4078	4020	3982	3960	3946	3933	3922	3912	3904	3896
Year end shares outstanding	4237	4217	4110	4,046	3,995	3,969	3,952	3,939	3,927	3,916	3,908	3,900	3,893
Net income (loss) per share - basic	2.65	2.51	2.83	3.05	3.12	3.39	3.58	3.75	3.91	4.06	4.18	4.27	4.37
Cash dividends declared per common share	1.42	1.46	1.50	\$ 1.56	\$ 1.60	\$ 1.65	\$ 1.69	\$ 1.74	\$ 1.79	\$ 1.84	\$ 1.89	\$ 1.94	\$ 2.00

Cisco Systems, Inc.
Balance Sheet

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Cash & cash equivalents	11809	9175	7079	14050	21531	27944	35559	43160	50912	59114	67298	75398	83630
Investments	17610	15343	12188	12753	13345	13963	14611	15288	15997	16739	17515	18327	19177
Accounts receivable, net	5472	5766	6622	6685	7338	7901	8193	8617	8939	9228	9491	9678	9862
Inventories	1282	1559	2568	2016	2364	2674	2630	2820	2940	3006	3106	3168	3223
Financing receivables, net	5051	4380	3905	5009	5107	5341	5790	5970	6184	6433	6585	6718	6855
Other current assets	2349	2889	4355	3578	4166	4651	4623	4942	5145	5270	5442	5549	5648
Total current assets	43573	39112	36717	44090	53850	62473	71405	80797	90118	99790	109438	118837	128395
Total gross property & equipment	11014	10918	10165	10986	11796	12605	13413	14221	15029	15837	16645	17454	18262
Less: accumulated depreciation & amortization	8561	8580	8168	8934	9720	10516	11317	12120	12926	13732	14539	15347	16154
Property & equipment, net	2453	2338	1997	2052	2076	2088	2096	2100	2103	2105	2106	2107	2107
Financing receivables, net	5714	4884	4009	4963	5029	5503	5713	6017	6211	6442	6609	6742	6873
Goodwill	33806	38168	38304	38304	38304	38304	38304	38304	38304	38304	38304	38304	38304
Purchased intangible assets, net	1576	3619	2569	2194	1609	1498	1492	1493	1493	1493	1493	1493	1493
Deferred tax assets	3990	4360	4449	4664	4889	5124	5372	5631	5902	6187	6485	6798	7126
Other assets	2820	3921	4954	5184	5424	5676	5939	6214	6502	6804	7119	7449	7795
Operating lease right-of-use assets	921	1095	1003	1031	1043	1049	1053	1055	1056	1057	1058	1058	1058
Total assets	94853	97497	94002	102482	112223	121715	131373	141612	151690	162182	172613	182789	193152
Short-term debt	3005	2508	1099	1242	1363	1477	1525	1605	1667	1719	1769	1804	1838
Accounts payable	2218	2362	2281	2572	2777	2912	3090	3229	3338	3461	3553	3622	3695
Income taxes payable	839	801	961	938	1240	1332	1401	1463	1519	1572	1615	1648	1682
Accrued compensation	3122	3818	3316	3845	4231	4342	4645	4863	5008	5203	5342	5442	5552
Deferred revenue	11406	12148	12784	13611	14832	15756	16526	17326	17944	18564	19076	19448	19828
Other current liabilities	4741	4620	5199	5453	5872	6320	6598	6909	7172	7411	7616	7767	7917
Total current liabilities	25331	26257	25640	27660	30314	32140	33785	35395	36649	37931	38970	39732	40511
Long-term debt	11578	9018	8416	8518	8707	8987	9146	9369	9553	9730	9898	10042	10188
Income taxes payable	8837	8538	7725	7353	6999	6662	6342	6036	5746	5469	5206	4955	4717
Deferred revenue	9040	10016	10480	11061	12147	12876	13490	14164	14660	15165	15588	15890	16200
Other long-term liabilities (excl. Deferred tax liabilities)	2066	2259	1913	2002	2095	2192	2293	2400	2511	2627	2749	2877	3010
Deferred Tax Liabilities	81	134	55	55	54	54	54	54	53	53	53	53	52
Total liabilities	56933	56222	54229	56649	60316	62911	65110	67418	69173	70976	72463	73548	74678
Common stock & additional paid-in capital	41202	42346	42714	42756	42764	42764	42764	42764	42764	42764	42764	42764	42764
Retained earnings (accumulated deficit)	-2763	-654	-1319	4699	10764	17662	25121	33052	41375	50064	59008	68099	77331
Accumulated other comprehensive income (loss)	-519	-417	-1622	-1622	-1622	-1622	-1622	-1622	-1622	-1622	-1622	-1622	-1622
Total equity	37920	41275	39773	45833	51906	58804	66263	74194	82517	91206	100150	109241	118474
Total liabilities and equity	94853	97497	94002	102482	112223	121715	131373	141612	151690	162182	172613	182789	193152

Cisco Systems, Inc.
Historical Cash Flow Statement

Fiscal Years Ending Dec. 31	2016	2017	2018	2019	2020	2021	2022
Net income (loss)	10739	9609	110	11621	11214	10591	11812
Depreciation, amortization & other adjustments	2150	2286	2192	1897	1808	1862	1957
Share-based compensation expense	1458	1526	1576	1570	1569	1761	1886
Provision (benefit) for receivables	-9	-8	-134	40	93	-6	55
Deferred income taxes	-194	-124	900	-350	-38	-384	-309
Excess tax benefits from share-based compensation	-129	-153	-	-	-	-	-
Losses (gains) on investments & other, net	-317	154	-322	-	-	-	-
Losses (gains) on divestitures, investments & other, net	-	-	-	-24	-138	-354	-453
Accounts receivable	-404	756	-269	-84	-107	-107	-1009
Inventories	315	-394	-244	131	84	-244	-1030
Financing receivables	-150	-1038	-219	-249	-797	1577	1241
Other assets	-37	15	66	-955	96	-797	-1615
Accounts payable	-65	311	504	87	141	-53	-55
Income taxes, net	-300	60	8118	312	-322	-549	-690
Accrued compensation	-101	-110	100	277	-78	643	-427
Deferred revenue	1219	1683	1205	1407	2011	1560	1328
Other liabilities	-605	-697	83	151	-110	-46	535
Net cash flows from operating activities	13570	13876	13666	15831	15426	15454	13226
Purchases of investments	-46760	-42702	-14285	-2416	-9212	-9328	-6070
Proceeds from sales of investments	28778	28827	17706	7388	5631	3373	2660
Proceeds from maturities of investments	14115	12143	15769	12928	7975	8409	5686
Acquisitions, net of cash & cash equivalents acquired & divestitures	-3161	-3324	-3006	-2175	-327	-7038	-373
Proceeds from business divestiture	372	-	27	-	-	-	-
Purchases of investments in privately held companies	-256	-222	-267	-148	-190	-175	-186
Return of investments in privately held companies	91	203	168	159	224	194	237
Acquisition of property & equipment	-1146	-964	-834	-909	-770	-692	-477
Proceeds from sales of property & equipment	41	7	59	22	179	28	91
Other investing activities	-191	39	-13	-12	-10	-56	-15
Net cash flows from investing activities	-8117	-5993	15324	14837	3500	-5285	1553
Issuances of common stock	1127	708	623	640	655	643	660
Repurchases of common stock - repurchase program	-3909	-3685	-17547	-20717	-2659	-2877	-7689
Shares repurchased for tax withholdings on vesting of restricted stock units	-557	-619	-703	-862	-727	-636	-692
Short-term borrowings, original maturities of 90 days or less, net	-4	2497	-2502	3446	-3470	-5	606
Issuances of debt	6978	6980	6877	2250	-	-	1049
Repayments of debt	-3863	-4151	-12375	-6780	-6720	-3000	-3550
Excess tax benefits from share-based compensation	129	153	-	-	-	-	-
Dividends paid	-4750	-5511	-5968	-5979	-6016	-6163	-6224
Other financing activities	150	-178	-169	113	51	-1	-122
Net cash flows from financing activities	-4699	-3806	-31764	-27889	-18886	-12039	-15962
Effect of foreign currency exchange rate changes on cash, cash equivalents, restricted cash & restricted cash equivalents	-	-	-	-	-	-	-180
Net increase (decrease) in cash, cash equivalents, restricted cash & restricted cash equivalents	754	4077	-2774	2779	40	-1870	-1363
Cash, cash equivalents, restricted cash & restricted cash equivalents, beginning of fiscal year	6877	7631	11708	8993	11772	11812	9942
Cash, cash equivalents, restricted cash & restricted cash equivalents, end of fiscal year	7631	11708	8934	11772	11812	9942	8579
Cash paid for interest	859	897	910	839	603	438	355
Cash paid for income taxes, net	2675	2742	3911	2986	3116	3604	3663

Cisco Systems, Inc.
Forecasted Cash Flow Statement

Fiscal Years Ending Dec. 31	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Cash & Cash Equivalents at Beginning of Period	7079	14050	21531	27944	35559	43160	50912	59114	67298	75398
Net Income	12430	12553	13481	14181	14812	15373	15913	16347	16684	17021
Adjustments to reconcile net income to cash from operating activities:										
Depreciation, amortization, and other	1666	1560	1199	862	806	805	806	807	807	808
Changes in Operating Activities:										
Accounts Receivables, net	-63	-653	-563	-293	-423	-323	-289	-263	-187	-185
Inventories	552	-348	-310	44	-190	-121	-65	-101	-61	-55
Financing receivables, net (current)	-1104	-99	-234	-449	-180	-214	-249	-153	-133	-137
Other current assets	777	-587	-485	28	-320	-203	-125	-172	-107	-99
Operating Lease Assets	-28	-12	-6	-4	-2	-1	-1	-1	0	0
Financing receivables, net (non-current)	-954	-66	-474	-211	-304	-194	-231	-167	-133	-131
Deferred Tax Assets	-215	-225	-236	-247	-259	-272	-285	-298	-313	-328
Other assets	-230	-240	-252	-263	-275	-288	-302	-315	-330	-345
Accounts Payable	291	205	135	178	138	110	123	92	69	72
Income Taxes Payable (current)	-23	303	92	69	62	55	53	43	33	33
Accrued Compensation	529	386	112	303	217	146	195	138	100	111
Deferred Revenue	827	1221	925	769	800	618	620	512	373	379
Other current liabilities	254	419	448	277	311	263	239	204	152	149
Income Taxes Payable (non-current)	-372	-354	-337	-321	-305	-291	-277	-263	-251	-239
Deferred revenue (non-current)	581	1086	729	614	674	496	505	422	302	310
Other long-term liabilities	89	93	97	102	106	111	116	122	127	133
Deferred Tax Liabilities	0	0	0	0	0	0	0	0	0	0
Net Cash from Operating Activities	15007	15240	14321	15641	15668	16072	16747	16954	17133	17499
Changes in Investing Activities:										
Investments	-565	-591	-619	-647	-678	-709	-742	-776	-812	-850
Property and equipment, gross	-821	-811	-808	-808	-808	-808	-808	-808	-808	-808
Goodwill	0	0	0	0	0	0	0	0	0	0
Purchased intangible assets, net	-525	-188	-293	-55	-3	0	0	0	0	0
Net Cash from Investing	-1911	-1589	-1720	-1511	-1489	-1517	-1550	-1584	-1620	-1658
Changes in Financing Activities:										
Short-term debt	143	121	114	48	80	62	52	49	35	34
Long-term debt	102	189	280	159	223	184	177	168	144	146
Common Stock & APIC	42	8	0	0	0	0	0	0	0	0
Dividends Paid	-6412	-6488	-6583	-6723	-6881	-7050	-7224	-7403	-7593	-7789
Net Cash from Financing	-6125	-6169	-6189	-6516	-6578	-6803	-6995	-7186	-7414	-7609
Cash & Cash equivalents at end of period	14050	21531	27944	35559	43160	50912	59114	67298	75398	83630

Cisco Systems, Inc.
 Common Size Income Statement

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Product revenue	72.98%	72.29%	73.74%	75.55%	76.85%	77.81%	78.64%	79.28%	79.76%	80.22%	80.54%	80.73%	80.91%
Service revenue	27.02%	27.71%	26.26%	24.45%	23.15%	22.19%	21.36%	20.72%	20.24%	19.78%	19.46%	19.27%	19.09%
Total revenue	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Product cost of sales	36.69%	36.93%	38.97%	37.53%	37.81%	38.10%	37.81%	37.91%	37.94%	37.89%	37.91%	37.91%	37.90%
Service cost of sales	33.17%	33.50%	33.20%	33.29%	33.33%	33.27%	33.30%	33.30%	33.29%	33.30%	33.29%	33.29%	33.29%
Total cost of sales (excl. D/A)	32.07%	32.24%	33.66%	33.37%	34.03%	34.99%	35.40%	35.64%	35.72%	35.74%	35.80%	35.83%	35.85%
Depreciation Expense	2.04%	1.87%	1.71%	1.36%	1.30%	1.23%	1.18%	1.13%	1.09%	1.06%	1.03%	1.01%	0.99%
Amortization Expense	1.62%	1.87%	2.09%	1.59%	1.27%	0.63%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Gross margin	64.26%	64.02%	62.55%	63.68%	63.40%	63.15%	63.33%	63.23%	63.18%	63.20%	63.17%	63.16%	63.16%
Research & development	12.87%	13.15%	13.14%	13.05%	13.11%	13.10%	13.09%	13.10%	13.10%	13.10%	13.10%	13.10%	13.10%
Sales & marketing	18.60%	18.59%	17.62%	18.27%	18.16%	18.02%	18.15%	18.11%	18.09%	18.12%	18.10%	18.10%	18.11%
General & administrative	3.90%	4.32%	4.08%	4.10%	4.16%	4.11%	4.13%	4.13%	4.12%	4.13%	4.13%	4.13%	4.13%
Amortization of purchased intangible assets	0.29%	0.43%	0.61%	0.36%	0.29%	0.20%	0.18%	0.17%	0.16%	0.16%	0.15%	0.15%	0.15%
Restructuring & other charges	0.98%	1.78%	0.01%	0.92%	0.90%	0.61%	0.81%	0.78%	0.73%	0.77%	0.76%	0.76%	0.76%
Total operating expenses	36.64%	38.26%	35.45%	36.63%	36.51%	35.95%	36.20%	36.13%	36.06%	36.10%	36.08%	36.07%	36.08%
Operating income (loss)	27.63%	25.76%	27.09%	27.04%	26.89%	27.20%	27.13%	27.09%	27.12%	27.10%	27.09%	27.09%	27.08%
Interest income	1.87%	1.24%	0.92%	0.88%	0.86%	0.85%	0.84%	0.84%	0.85%	0.86%	0.87%	0.90%	0.92%
Interest expense	1.19%	0.87%	0.70%	0.75%	0.72%	0.70%	0.68%	0.67%	0.66%	0.65%	0.65%	0.64%	0.64%
Other income (loss), net	0.03%	0.49%	0.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Interest & other income (loss), net	0.71%	0.86%	0.99%	0.13%	0.14%	0.14%	0.16%	0.17%	0.19%	0.21%	0.23%	0.25%	0.28%
Income (loss) before provision for (benefit from) income taxes	28.34%	26.62%	28.08%	27.18%	27.03%	27.34%	27.29%	27.27%	27.31%	27.31%	27.32%	27.34%	27.36%
Provision for (benefit from) income taxes	5.59%	5.36%	5.17%	5.16%	6.35%	6.42%	6.41%	6.41%	6.42%	6.42%	6.42%	6.43%	6.43%
Net income (loss)	22.75%	21.26%	22.91%	22.01%	20.68%	20.91%	20.87%	20.86%	20.89%	20.89%	20.90%	20.92%	20.93%

Cisco Systems, Inc.
Common Size Balance Sheet

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Cash & cash equivalents	23.95%	18.42%	13.73%	24.88%	35.46%	43.35%	52.34%	60.78%	69.20%	77.61%	86.04%	94.53%	102.83%
Investments	35.72%	30.80%	23.64%	22.59%	21.98%	21.66%	21.51%	21.53%	21.74%	21.98%	22.39%	22.98%	23.58%
Accounts receivable, net	11.10%	11.57%	12.84%	11.84%	12.09%	12.26%	12.06%	12.13%	12.15%	12.11%	12.13%	12.13%	12.13%
Inventories	2.60%	3.13%	4.98%	3.57%	3.89%	4.15%	3.87%	3.97%	4.00%	3.95%	3.97%	3.97%	3.96%
Financing receivables, net	10.25%	8.79%	7.57%	8.87%	8.41%	8.29%	8.52%	8.41%	8.41%	8.44%	8.42%	8.42%	8.43%
Other current assets	4.76%	5.80%	8.45%	6.34%	6.86%	7.21%	6.80%	6.96%	6.99%	6.92%	6.96%	6.96%	6.94%
Total current assets	88.38%	78.51%	71.22%	78.09%	88.70%	96.92%	105.11%	113.78%	122.49%	131.01%	139.91%	148.99%	157.88%
Total gross property & equipment	22.34%	21.92%	19.72%	19.46%	19.43%	19.55%	19.74%	20.03%	20.43%	20.79%	21.28%	21.88%	22.45%
Less: accumulated depreciation & amortization	17.36%	17.22%	15.84%	15.82%	16.01%	16.31%	16.66%	17.07%	17.57%	18.03%	18.59%	19.24%	19.86%
Property & equipment, net	4.98%	4.69%	3.87%	3.63%	3.42%	3.24%	3.08%	2.96%	2.86%	2.76%	2.69%	2.64%	2.59%
Financing receivables, net	11.59%	9.80%	7.78%	8.79%	8.28%	8.54%	8.41%	8.47%	8.44%	8.46%	8.45%	8.45%	8.45%
Goodwill	68.57%	76.61%	74.29%	67.84%	63.09%	59.42%	56.38%	53.94%	52.06%	50.29%	48.97%	48.02%	47.10%
Purchased intangible assets, net	3.20%	7.26%	4.98%	3.89%	2.65%	2.32%	2.20%	2.10%	2.03%	1.96%	1.91%	1.87%	1.84%
Deferred tax assets	8.09%	8.75%	8.63%	8.26%	8.05%	7.95%	7.91%	7.93%	8.02%	8.12%	8.29%	8.52%	8.76%
Other assets	5.72%	7.87%	9.61%	9.18%	8.93%	8.80%	8.74%	8.75%	8.84%	8.93%	9.10%	9.34%	9.58%
Operating right-of-use assets	1.87%	2.20%	1.95%	1.83%	1.72%	1.63%	1.55%	1.49%	1.44%	1.39%	1.35%	1.33%	1.30%
Total assets	192.40%	195.71%	182.33%	181.50%	184.84%	188.82%	193.38%	199.42%	206.17%	212.92%	220.67%	229.17%	237.50%
Short-term debt	6.10%	5.03%	2.13%	2.20%	2.24%	2.29%	2.24%	2.26%	2.27%	2.26%	2.26%	2.26%	2.26%
Accounts payable	4.50%	4.74%	4.42%	4.55%	4.57%	4.52%	4.55%	4.55%	4.54%	4.54%	4.54%	4.54%	4.54%
Income taxes payable	1.70%	1.61%	1.86%	1.66%	2.04%	2.07%	2.06%	2.06%	2.06%	2.06%	2.06%	2.07%	2.07%
Accrued compensation	6.33%	7.66%	6.43%	6.81%	6.97%	6.74%	6.84%	6.85%	6.81%	6.83%	6.83%	6.82%	6.83%
Deferred revenue	23.14%	24.38%	24.80%	24.11%	24.43%	24.44%	24.33%	24.40%	24.39%	24.37%	24.39%	24.38%	24.38%
Other current liabilities	9.62%	9.27%	10.08%	9.66%	9.67%	9.80%	9.71%	9.73%	9.75%	9.73%	9.74%	9.74%	9.73%
Total current liabilities	51.38%	52.71%	49.73%	48.99%	49.93%	49.86%	49.73%	49.84%	49.81%	49.80%	49.82%	49.81%	49.81%
Long-term debt	23.48%	18.10%	16.32%	15.09%	14.34%	13.94%	13.46%	13.19%	12.98%	12.77%	12.65%	12.59%	12.53%
Income taxes payable	17.92%	17.14%	14.98%	13.02%	11.53%	10.34%	9.33%	8.50%	7.81%	7.18%	6.66%	6.21%	5.80%
Deferred revenue	18.34%	20.11%	20.33%	19.59%	20.01%	19.97%	19.86%	19.95%	19.93%	19.91%	19.93%	19.92%	19.92%
Other long-term liabilities	4.19%	4.53%	3.71%	3.55%	3.45%	3.40%	3.38%	3.38%	3.41%	3.45%	3.51%	3.61%	3.70%
Deferred tax liabilities	0.16%	0.27%	0.11%	0.10%	0.09%	0.08%	0.08%	0.08%	0.07%	0.07%	0.07%	0.07%	0.06%
Total liabilities	115.48%	112.85%	105.18%	100.33%	99.35%	97.60%	95.84%	94.94%	94.02%	93.18%	92.64%	92.21%	91.82%
Common stock & additional paid-in capital	83.57%	85.00%	82.85%	75.72%	70.44%	66.34%	62.95%	60.22%	58.12%	56.14%	54.67%	53.61%	52.58%
Retained earnings (accumulated deficit)	-5.60%	-1.31%	-2.56%	8.32%	17.73%	27.40%	36.98%	46.54%	56.24%	65.73%	75.44%	85.38%	95.09%
Accumulated other comprehensive income (loss)	-1.05%	-0.84%	-3.15%	-2.87%	-2.67%	-2.52%	-2.39%	-2.28%	-2.20%	-2.13%	-2.07%	-2.03%	-1.99%
Total equity	76.92%	82.85%	77.14%	81.17%	85.49%	91.22%	97.54%	104.48%	112.16%	119.74%	128.03%	136.96%	145.68%
Total liabilities and equity	192.40%	195.71%	182.33%	181.50%	184.84%	188.82%	193.38%	199.42%	206.17%	212.92%	220.67%	229.17%	237.50%

Cisco Systems, Inc.
Value Driver Estimation

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
NOPLAT:													
Total revenue	49301	49818	51557	56464	60714	64461	67936	71011	73574	76171	78222	79763	81327
Less: Total cost of sales (excl. D/A)	15810	16062	17352	18844	20661	22557	24050	25308	26284	27223	28004	28579	29156
Less: Research and Development	6347	6549	6774	7370	7961	8445	8892	9303	9636	9975	10245	10447	10651
Less: Sales and marketing	9169	9259	9085	10315	11025	11613	12329	12858	13310	13798	14161	14440	14726
Less: General and administrative	1925	2152	2101	2315	2529	2651	2803	2936	3035	3145	3230	3292	3357
Less: Amortization of purchased intangible assets	141	215	313	205	175	129	120	119	119	119	119	119	119
Less: Depreciation & Amortization	1808	1862	1957	1666	1560	1199	862	806	805	806	807	807	808
Less: Restructuring and other charges	481	886	6	479	478	336	451	441	428	461	464	472	487
Plus: Implied interest on operating leases	40	47	43	45	45	45	46	46	46	46	46	46	46
EBITA	13660	12880	14012	15315	16370	17576	18475	19286	20002	20689	21236	21653	22068
Implied Marginal Tax Rate	23.00%	25.20%	23.50%	19.00%	23.50%	23.50%	23.50%	23.50%	23.50%	23.50%	23.50%	23.50%	23.50%
Adjusted Taxes													
Provision for Income Taxes	2756	2671	2665	2916	3856	4141	4356	4550	4722	4888	5022	5125	5229
Plus: Tax Shield on Operating Lease Interest	9	12	10	8	11	11	11	11	11	11	11	11	11
Plus: Tax Shield on Interest Expense	135	109	85	80	103	107	109	112	114	117	119	121	122
Less: Tax on Interest Income	212	156	112	95	122	128	134	140	147	154	161	168	176
Less: Tax on Interest, & other income, net	3.45	61.74	92.12	0	0	0	0	0	0	0	0	0	0
Total Adjusted Taxes	2685	2575	2556	2910	3847	4130	4342	4532	4701	4862	4990	5088	5186
Deferred Tax Liabilities	81	134	55	55	54	54	54	54	53	53	53	53	52
Deferred Tax Assets	3990	4360	4440	4664	4889	5124	5372	5631	5902	6187	6485	6798	7126
Change in Deferred Taxes	61	-317	-168	-215	-225	-236	-247	-259	-272	-285	-299	-313	-328
NOPLAT	11036	9989	11289	12190	12298	13209	13886	14494	15030	15542	15947	16251	16554
Invested Capital (IC):													
Plus: Normal Cash	6769	6840	7079	7753	8336	8851	9328	9750	10102	10459	10740	10952	11167
Plus: Accounts Receivable, net of allowance	5472	5766	6622	6685	7338	7901	8193	8617	8939	9228	9491	9678	9862
Plus: Inventories	1282	1559	2568	2016	2364	2674	2630	2820	2940	3006	3106	3168	3223
Plus: Financing Receivables, net	5051	4380	3905	5009	5107	5341	5790	5970	6184	6433	6585	6718	6855
Plus: Other current assets	2349	2889	4355	3578	4166	4651	4623	4942	5145	5270	5442	5549	5648
Less: Accounts Payable	2218	2362	2281	2572	2777	2912	3090	3229	3338	3461	3553	3622	3695
Less: Accrued compensation	3122	3818	3316	3845	4231	4342	4645	4863	5008	5203	5342	5442	5552
Less: Income taxes payable	839	801	961	938	1240	1332	1401	1463	1519	1572	1615	1648	1682
Less: Other current liabilities	4741	4620	5199	5453	5872	6320	6598	6909	7172	7411	7616	7767	7917
Net Operating Working Capital	10003	9833	12772	12233	13191	14511	14829	15635	16273	16747	17239	17584	17909
Plus: Property, Plant, and Equipment	2453	2338	1997	2052	2076	2088	2096	2100	2103	2105	2106	2107	2107
Plus: Purchased intangible assets, net	1576	3619	2569	2194	1609	1498	1492	1493	1493	1493	1493	1493	1493
Plus: Goodwill	33806	38168	38304	38304	38304	38304	38304	38304	38304	38304	38304	38304	38304
Plus: Other assets	2820	3921	4954	5184	5424	5676	5939	6214	6502	6804	7119	7449	7795
Less: Deferred Revenue (non-current)	9040	10016	10480	11061	12147	12876	13490	14164	14660	15165	15588	15890	16200
Less: Income Taxes Payable	8837	8538	7725	7353	6999	6662	6342	6036	5746	5469	5206	4955	4717
Less: Deferred Revenue (current)	11406	12148	12784	13611	14832	15756	16526	17326	17944	18564	19076	19448	19828
Plus: PV of Operating Leases	921	1095	1003	1031	1043	1049	1053	1055	1056	1057	1058	1058	1058
Invested Capital (IC)	22296	28272	30610	28972	27668	27831	27355	27275	27381	27312	27450	27702	27922
Free Cash Flow (FCF):													
NOPLAT	11036	9989	11289	12190	12298	13209	13886	14494	15030	15542	15947	16251	16554
Change in IC	-3009	5976	2338	-1638	-1304	163	-476	-80	106	-70	139	252	220
FCF	14045	4013	8951	13828	13601	13047	14362	14574	14924	15612	15808	16000	16334
Return on Invested Capital (ROIC):													
NOPLAT	11036	9989	11289	12190	12298	13209	13886	14494	15030	15542	15947	16251	16554
Beginning IC	25305	22296	28272	30610	28972	27668	27831	27355	27275	27381	27312	27450	27702
ROIC	43.61%	44.80%	39.93%	39.82%	42.45%	47.74%	49.89%	52.99%	55.10%	56.76%	58.39%	59.20%	59.76%
Economic Profit (EP):													
Beginning IC	25305	22296	28272	30610	28972	27668	27831	27355	27275	27381	27312	27450	27702
x (ROIC - WACC)	35.91%	37.10%	32.23%	32.12%	34.75%	40.04%	42.19%	45.29%	47.40%	49.06%	50.69%	51.50%	52.06%
EP	9088	8272	9112	9833	10067	11079	11743	12388	12930	13434	13844	14138	14421

Cisco Systems, Inc.

Weighted Average Cost of Capital (WACC) Estimation

Cost of Equity:

Risk-Free Rate	3.47%
Beta	0.81
Equity Risk Premium	5.50%
Cost of Equity	7.90%

ASSUMPTIONS:

10yr US Treasury Yield (4/1/2023) Source: WSJ Markets
Average of 3, 4, 5yr weekly raw betas (Bloomberg)
Henry Fund consensus estimate

Cost of Debt:

Risk-Free Rate	3.47%
Implied Default Premium	0.86%
Pre-Tax Cost of Debt	4.33%
Marginal Tax Rate	19.00%
After-Tax Cost of Debt	3.51%

10yr US Treasury Yield (4/1/2023) Source: WSJ Markets

Yield for CSCO Outstanding for 9/20/2026
CSCO management FY2023 effective tax assumption

Market Value of Common Equity:

Total Shares Outstanding	4110
Current Stock Price	\$52.28
MV of Equity	214,871

MV Weights

95.33%

Market Value of Debt:

Short-Term Debt	1099
Long-Term Debt	8416
PV of Operating Leases	1003
MV of Total Debt	10,518.00

4.67%

Market Value of the Firm

225,388.80

100.00%

Estimated WACC

7.70%

Cisco Systems, Inc.
Discounted Cash Flow (DCF) and Economic Profit (EP) Valuation Models

Key Inputs:

CV Growth of NOPLAT	1.86%
CV Year ROIC	59.76%
WACC	7.70%
Cost of Equity	7.90%

Fiscal Years Ending Dec. 31	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
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DCF Model:

Free Cash Flow (FCF)	13828.1	13601.3	13046.7	14361.9	14573.9	14923.8	15611.6	15808.4	15999.6	16334.0
Continuing Value (CV)										274682.6
PV of FCF	12839.6	11726.2	10444.0	10675.0	10058.2	9563.4	9289.0	8733.7	8207.4	140905.7

Value of Operating Assets:	232442.1
Non-Operating Adjustments	
Plus: Excess Cash	0.0
Plus: Investments	12188.0
Less: ST Debt	-1099.0
Less: LT Debt	-8416.0
Less: PV of ESOP	-2575.0
Less: PV of Oper. Leases	-1003.0

Value of Equity	231537.0
Shares Outstanding	4110.0
Intrinsic Value of Last FYE	\$ 56.34
Implied Price as of Today	\$ 58.18

EP Model:

Economic Profit (EP)	9833.3	10067.1	11079.3	11743.2	12388.4	12929.9	13434.0	13844.2	14138.1	14421.0
Continuing Value (CV)										246980.3
PV of EP	9130.4	8679.2	8869.1	8728.6	8549.8	8285.6	7993.3	7648.5	7252.5	126695.0

Total PV of EP	201832.1
Invested Capital (last FYE)	30610.0
Value of Operating Assets:	232442.1
Non-Operating Adjustments	
Plus: Excess Cash	0.0
Plus: Investments	12188.0
Less: ST Debt	-1099.0
Less: LT Debt	-8416.0
Less: PV of ESOP	-2575.0
Less: PV of Oper. Leases	-1003.0

Value of Equity	231537.0
Shares Outstanding	4110.0
Intrinsic Value of Last FYE	\$ 56.34
Implied Price as of Today	\$ 58.18

Cisco Systems, Inc.

Dividend Discount Model (DDM) or Fundamental P/E Valuation Model

Fiscal Years Ending Dec. 31	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
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EPS	\$ 3.05	\$ 3.12	\$ 3.39	\$ 3.58	\$ 3.75	\$ 3.91	\$ 4.06	\$ 4.18	\$ 4.27	\$ 4.37
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Key Assumptions

CV growth of EPS	2.22%
CV Year ROE	15.58%
Cost of Equity	7.90%

Future Cash Flows

P/E Multiple (CV Year)										15.09
EPS (CV Year)										\$ 4.37
Future Stock Price										\$ 65.91
Dividends Per Share	1.56	1.60	1.65	1.69	1.74	1.79	1.84	1.89	1.94	2.00
Discounted Cash Flows	1.49	1.42	1.35	1.28	1.22	1.17	1.11	1.06	1.01	33.24

Intrinsic Value as of Last FYE	\$ 44.33
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Implied Price as of Today	\$ 45.79
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Cisco Systems, Inc.
Relative Valuation Models

Ticker	Company	Price	EPS 2023E	EPS 2024E	P/E 23	P/E 24	Est. 5yr EPS gr.	PEG 23	PEG 24
PANW	Palo Alto Networks	\$199.74	\$4.02	\$4.69	49.69	42.59	30.6	1.63	1.39
ANET	Arista Networks	\$167.86	\$5.82	\$6.46	28.84	25.98	19.9	1.45	1.31
MSI	Motorola Solutions	\$286.16	\$11.22	\$12.42	25.50	23.04	9.9	2.58	2.33
JNPR	Juniper Networks	\$34.42	\$2.30	\$2.58	14.97	13.34	16.0	0.94	0.84
HPE	Hewlett Packard Enterprise	\$20.00	\$2.07	\$2.15	9.66	9.30	5.7	1.70	1.63
Average					19.74	17.92		1.66	1.50

CSCO	Cisco Systems, Inc.	\$52.28	\$3.05	\$3.12	17.2	16.7	5.8	3.0	2.9
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Implied Relative Value:

P/E (EPS23)	\$ 60.18
P/E (EPS24)	\$ 55.94
PEG (EPS23)	\$ 29.36
PEG (EPS24)	\$ 27.21

Cisco Systems, Inc.
Key Management Ratios

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Liquidity Ratios:													
Current Ratio (CA/CL)	1.72	1.49	1.43	1.59	1.78	1.94	2.11	2.28	2.46	2.63	2.81	2.99	3.17
Quick Ratio (CA - Inv) / CL	1.67	1.43	1.33	1.52	1.70	1.86	2.04	2.20	2.38	2.55	2.73	2.91	3.09
Cash Ratio (Cash + Mkt. Sec.) / CL	0.47	0.35	0.28	0.51	0.71	0.87	1.05	1.22	1.39	1.56	1.73	1.90	2.06
Asset-Management Ratios:													
Asset Turnover (Net Sales / Avg. Total Assets)	0.51	0.52	0.54	0.57	0.57	0.55	0.54	0.52	0.50	0.49	0.47	0.45	0.43
Inventory Turnover (COGS / Avg. Inv)	11.86	11.31	8.41	8.22	9.43	8.96	9.07	9.29	9.13	9.16	9.16	9.11	9.12
Accounts Receivable Turnover (Sales / Avg. AR)	8.99	8.87	8.32	8.49	8.66	8.46	8.44	8.45	8.38	8.39	8.36	8.32	8.32
Financial Leverage Ratios:													
Debt-to-Equity Ratio (ST debt + LT debt / TSE)	0.38	0.28	0.24	0.21	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10
Interest Coverage Ratio (EBIT / Int. exp)	23.35	29.68	38.92	36.22	37.52	38.76	39.96	40.56	41.14	41.70	42.01	42.19	42.35
Debt-to-Asset Ratio (ST debt + LT debt / Assets)	0.15	0.12	0.10	0.10	0.09	0.09	0.08	0.08	0.07	0.07	0.07	0.06	0.06
Profitability Ratios:													
Return on Equity (NI/Beg TSE)	33.40%	27.93%	28.62%	31.25%	27.39%	25.97%	24.12%	22.35%	20.72%	19.28%	17.92%	16.66%	15.58%
Return on Assets (NI / Total Assets)	11.82%	10.86%	12.57%	12.13%	11.19%	11.08%	10.79%	10.46%	10.13%	9.81%	9.47%	9.13%	8.81%
Operating Profit Margin (Opr. Profit / Sales)	27.63%	25.76%	27.09%	27.04%	26.89%	27.20%	27.13%	27.09%	27.12%	27.10%	27.09%	27.09%	27.08%
Net Profit Margin (Net Income / Sales)	22.75%	21.26%	22.91%	22.01%	20.68%	20.91%	20.87%	20.86%	20.89%	20.89%	20.90%	20.92%	20.93%
Payout Policy Ratios:													
Dividend Payout Ratio (Dividend/EPS)	53.58%	58.17%	53.00%	51.18%	51.35%	48.68%	47.31%	46.38%	45.79%	45.33%	45.24%	45.46%	45.72%
Total Payout Ratio ((Divs. + Repurchases)/NI)	77.36%	85.36%	117.79%	51.75%	51.55%	48.32%	46.54%	45.47%	44.84%	44.37%	44.24%	44.42%	44.65%

Cisco Systems, Inc.
Sensitivity Tables

Risk-Free Rate	Beta							
	58.18	0.51	0.61	0.71	0.81	0.91	1.01	1.11
	3.17%	84.02	74.51	66.98	61.09	55.80	51.54	47.90
	3.27%	82.11	73.02	65.78	60.09	54.97	50.83	47.29
	3.37%	80.29	71.58	64.62	59.12	54.17	50.15	46.70
	3.47%	78.53	70.19	63.49	58.18	53.38	49.48	46.12
	3.57%	76.88	68.88	62.42	57.29	52.63	48.84	45.57
	3.67%	75.29	67.60	61.37	56.41	51.90	48.21	45.02
	3.77%	73.76	66.37	60.37	55.57	51.18	47.59	44.49

		Cost of Equity						
Pre-tax Cost of Debt	58.18	4.90%	5.90%	6.90%	7.90%	8.90%	9.90%	10.90%
	3.93%	57.20	57.57	57.95	58.32	58.69	59.07	59.44
	4.13%	57.13	57.50	57.88	58.25	58.62	58.99	59.36
	4.33%	57.06	57.44	57.81	58.18	58.55	58.92	59.29
	4.53%	56.99	57.37	57.74	58.11	58.48	58.85	59.22
	4.73%	56.92	57.30	57.67	58.04	58.41	58.78	59.15
	4.93%	56.85	57.23	57.60	57.97	58.34	58.71	59.08

		Tax Rate							
		58.18	15.50%	17.50%	19.50%	21.50%	23.50%	25.50%	27.50%
Equity Risk Premium	5.30%	65.70	64.20	62.70	61.20	59.70	58.20	56.70	
	5.40%	64.85	63.37	61.89	60.41	58.93	57.45	55.97	
	5.50%	64.02	62.56	61.10	59.64	58.18	56.72	55.27	
	5.60%	63.21	61.77	60.33	58.89	57.45	56.01	54.57	
	5.70%	62.42	61.00	59.58	58.16	56.74	55.32	53.90	
	5.80%	61.65	60.25	58.85	57.45	56.05	54.65	53.25	

CV Growth of NOPLAT								
	58.18	1.56%	1.66%	1.76%	1.86%	1.96%	2.06%	2.16%
CapEx	490	56.87	57.38	57.90	58.44	59.00	59.57	60.17
	590	56.79	57.30	57.82	58.35	58.91	59.49	60.08
	690	56.71	57.21	57.73	58.27	58.82	59.40	60.00
	790	56.63	57.13	57.65	58.18	58.74	59.31	59.91
	890	56.54	57.04	57.56	58.10	58.65	59.22	59.82
	990	56.46	56.96	57.48	58.01	58.56	59.14	59.73
	1,090	56.38	56.88	57.39	57.93	58.48	59.05	59.64

Change in COGS % of Sales								
	58.18	-1.5%	-1.0%	-0.5%	0.0%	0.5%	1.0%	1.5%
Dividend Yield	2.58%	59.13	58.73	58.33	57.93	57.53	57.13	56.73
	2.78%	59.05	58.65	58.26	57.86	57.46	57.06	56.66
	2.98%	58.98	58.58	58.18	57.78	57.39	56.99	56.59
	3.18%	58.90	58.51	58.11	57.71	57.31	56.92	56.52
	3.38%	58.83	58.43	58.04	57.64	57.24	56.85	56.45
	3.58%	58.76	58.36	57.96	57.57	57.17	56.77	56.38

Growth R&D % of Sales								
	58.18	-1.5%	-1.0%	-0.5%	0.0%	0.5%	1.0%	1.5%
ROI %	4.34%	60.08	59.48	58.87	58.24	57.60	56.95	56.28
	4.54%	60.05	59.44	58.83	58.20	57.56	56.91	56.24
	4.64%	60.03	59.42	58.81	58.18	57.54	56.89	56.22
	4.74%	60.01	59.40	58.79	58.16	57.52	56.87	56.20
	4.84%	59.99	59.39	58.77	58.14	57.50	56.85	56.18
	4.94%	59.97	59.37	58.75	58.12	57.48	56.83	56.16

2023 Secure, Agile Networks Growth								
2023 IFF Growth	\$ 58.18	7.25%	9.25%	11.25%	13.25%	15.25%	17.25%	19.25%
	11%	55.89	56.45	57.02	57.58	58.14	58.70	59.27
	13%	56.04	56.61	57.17	57.73	58.29	58.86	59.42
	15%	56.19	56.76	57.32	57.88	58.44	59.01	59.57
	17%	56.34	56.91	57.47	58.03	58.59	59.16	59.72
	19%	56.49	57.06	57.62	58.18	58.74	59.31	59.87
	21%	56.65	57.21	57.77	58.33	58.90	59.46	60.02
	23%	56.80	57.36	57.92	58.48	59.05	59.61	60.17