The Henry Fund
Henry B. Tippie College of Business
Jack Wells [john-t-wells@uiowa.edu]

Cisco Systems, Inc. (CSCO)

March 18, 2021

Information Technology – Networking Equipment

Stock Rating BUY

Investment Thesis

We recommend a buy rating for Cisco Systems with an 18-28% upside. Cisco is a leader in the Networking Equipment industry where they are well positioned to grow as they shift their strategy to software and subscription revenues. Increased enterprise spending on network security will also drive performance as Cisco is the leading cybersecurity vendor globally.

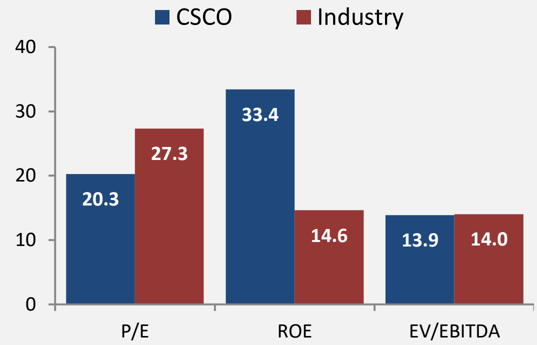
Drivers of Thesis

- Cisco's shift in strategy to more software and subscriptions will drive recurring revenues to digitizing enterprises, leading to a 5-year revenue CAGR of 2.58%
- Companies, governments, and educational institutions are increasing security spending as attacks become more prevalent and costly. We predict a 9.08% CAGR for Cisco's Security revenues over the next 5 years
- Cisco will benefit from a rebound in enterprise spending on IT infrastructure as the pandemic subsides and employees return to the workplace
- New CFO Scott Herren has a successful history of transforming business models to Software-as-a-Service, subscriptions, and cloud-based software. We forecast Cisco's transition to increase gross margins at a 1% CAGR

Risks to Thesis

- A slower-than-expected pandemic recovery would halt spending on infrastructure updates
- Legacy product gross margins have declined since 2011, and total product revenues have been relatively flat over last 5 years. Failure to innovate could hurt growth and increase pressure on margins

Target Price	$58 - 64
Henry Fund DCF	$64
Henry Fund DDM	$58
Relative P/E 2021	$68
Price Data	
Current Price	$49
52wk Range	$33 – 50
Consensus 1yr Target	$54
Key Statistics	
Market Cap (B)	$206.8
Shares Outstanding (M)	4,222
Institutional Ownership	73.53%
Beta	0.91
Dividend Yield	2.91%
Est. 5yr Growth	6.00%
Price/Earnings (TTM)	17.93
Price/Earnings (FY1)	20.28
Price/Sales (TTM)	11.64
Price/Book (mrq)	5.15
Profitability	
Operating Margin	27.63%
Profit Margin	22.75%
Return on Assets (TTM)	11.82%
Return on Equity (TTM)	33.40%

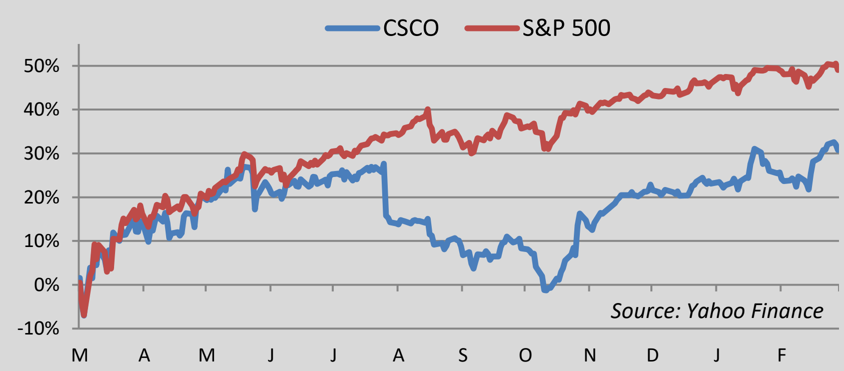


Source: FactSet

Earnings Estimates

Year	2018	2019	2020	2021E	2022E	2023E
EPS	$0.02	$2.63	$2.65	$2.47	$2.81	$3.07
HF est.	-	-	-	$2.48	$2.81	$3.03
Growth	*-99.0%*	*13,050%*	*0.8%*	*-6.4%*	*13.4%*	*7.6%*

12 Month Performance



Company Description

Cisco Systems designs, manufactures, and sells networking equipment and technologies to businesses of all industries. Their product segments include infrastructure platforms, applications, and security, which they sell globally to enterprises, governments, educational institutions, and service providers. Infrastructure Platforms is Cisco's largest segment, which consists of hardware and software technologies that connect business devices to each other and to the internet. Cisco also provides services such as technical support.

Important disclosures appear on the last page of this report.

COMPANY DESCRIPTION

Cisco has been a leader in the Networking Equipment industry since being founded in 1984. Figure 1 displays the four segments that the company operates in. Infrastructure platforms has traditionally been Cisco's largest segment by revenue, followed by Services, Applications, and Security. Together, these product segments allow Cisco's customers to transform their infrastructures while expanding applications and keeping data and platforms secure.

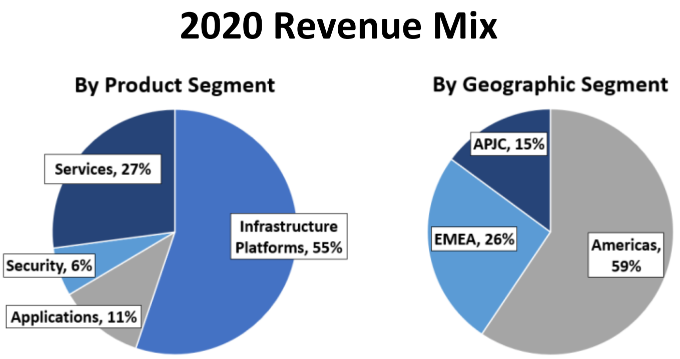


Figure 1
Source: CSCO 10K

Figure 1 also shows how Cisco operates globally, doing most of its business in the Americas. The company also earns revenues from Europe, the Middle East, & Africa (EMEA), and Asia Pacific, Japan, & China (APJC). Operating globally has helped Cisco innovate and grow to meet customer demands in different geographic segments, but also exposes them to competition worldwide. Cisco's customers include businesses of all sizes, public institutions, governments, and service providers.[1]

Infrastructure Platforms

Cisco's infrastructure platforms products include networking equipment and technologies that connect devices to each other and to the internet. The main products in this segment are switches, routers, data centers, and wireless products. We forecast infrastructure platforms to decline 4% in Cisco's fiscal 2021, which ends in July, due to decreased enterprise IT spending caused by the pandemic. Spending is already showing signs of recovery which will drive the segment growth in fiscal 2022. Gartner research forecasts worldwide IT spending to grow 6.2% in the 2021 calendar year, with enterprise software having the strongest rebound at 8.8%.[4] We predict 7% growth in infrastructure platforms for fiscal 2022 due to more money and attention being paid to digital business.

As an industry titan, Cisco is known for producing intent-based networking equipment that is reliable and secure. They continue to innovate their products as enterprises of all industries are transitioning to more digital infrastructures. This innovation has led to a new and improved networking product portfolio that is better suited for business shifts to multicloud environments.

The **Switching** portfolio consists of campus and data center switching offerings. Campus is where end-users connect to the network with devices like laptops, printers, and phones, while data center switches are for devices like servers and data storage. Cisco's Catalyst 9000 series of campus switches were developed for the cloud.[1] They include hardware embedded with software, as well as the Cisco Digital Network Architecture (DNA) subscription that provides security, automation, and analytics. Cisco's Nexus 9000 data center switches are made for scalability and security across both traditional and private and public cloud data centers.

The **Routing** portfolio connects public and private campus, data center, and branch networks. Cisco integrated its Software-Defined Wide Area Network (SD-WAN) into its new Cisco 8000 routing portfolio to support the evolution to 100G and 400G connectivity speeds.[1] SD-WAN is designed to directly connect branches to the cloud.

The **Wireless** portfolio includes indoor and outdoor wireless coverage for the use of applications. Cisco has a Catalyst portfolio of access points, and they acquired Meraki in 2012 to expand its portfolio. Meraki products are all delivered via cloud and help Cisco reach midmarket customers.[1]

The **Data Center** portfolio includes Cisco HyperFlex and the Cisco Unified Computing System, which are designed to extend convergence from data centers to the edge and multicloud. The portfolio also includes Cisco Intersight, a SaaS management platform for the data center systems.[1]

Applications

The Applications segment consists of software offerings that provide collaboration, Internet of Things (IoT), and analytics functions through the infrastructure platforms. Cisco's applications solutions are offered as software licenses and as-a-service. We forecast applications to increase 1% in fiscal 2021 and grow at a 4.3% CAGR through 2025 after declining 4% in 2020. The decline was driven by Cisco's Unified Communications solutions but was partially offset by growth in their analytics software and Webex.[1]

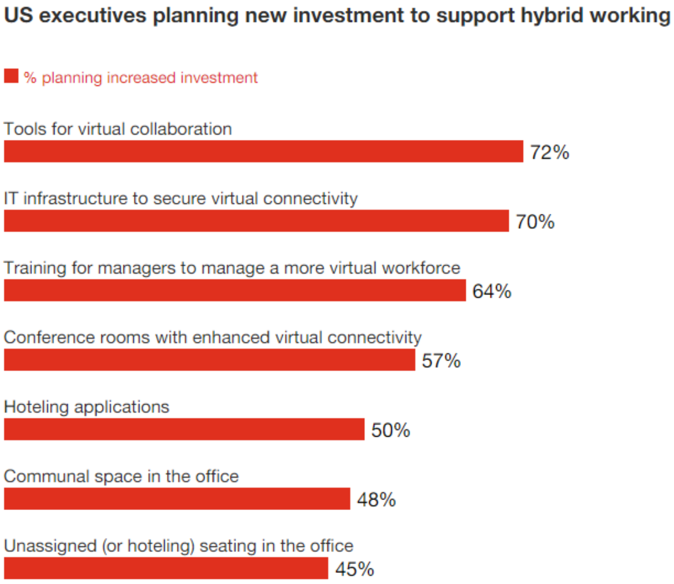


Figure 2
Source: PwC US Remote Work Survey[5]

Collaboration solutions include communications software and hardware that is delivered on-premise and through the cloud. These applications integrate voice, video, and messaging through various devices. Webex is Cisco's most recognizable collaboration tool. The shift to multicloud and hybrid work setups will drive investments in tools for collaboration, as shown in Figure 2 above. This will lead to growth in Webex going forward, although it faces competition from Microsoft Teams and Zoom. On-premise collaboration tools will return to growth as employees return to the workplace.

Analytics solutions are automated to track application and business performance data in real time. This allows enterprises to make mission-critical decisions and strategic improvements.[1] Cisco's AppDynamics analytics software had double-digit growth in 2020, and we expect this product to sustain high growth going forward

Internet of Things (IoT) software lets businesses monitor and control the lifecycle of connected devices. Cisco has a portfolio of several ruggedized IoT switches that can operate in harsh conditions with low latency, integrated security, and scalability to support bandwidth needs of connected devices.

Security

Cisco's security segment will likely grow more than any other segment over the forecast period due to increased security spending. We expect growth of 12.5% in 2021 and a 9.1% CAGR through 2025. Enterprises are spending much more on cybersecurity as cyberattacks become more prevalent and costly. The global cyber security market is expected to grow at a 12.6% CAGR from 2019 to 2027.[6]

Cisco is the largest cybersecurity provider in the world and is positioned to capitalize on growing security spending. The shift to multicloud environments means data is increasingly being spread throughout organizations on-premise, through the cloud, and at the edge, which is where personal devices connect to corporate networks. Cisco has a broad security portfolio that covers all these areas end-to-end. Their focus and market share in cybersecurity will drive high growth in the security segment over the next five years.

Security offerings are powered by cloud-delivered Cisco technology. The security portfolio includes network security, cloud and email security, identity and access management, advanced threat protection, and unified threat management products.[1]

Services

Cisco provides service and support options in addition to its products. Services have historically made up around 25% of total revenues. We forecast service revenues to grow at a 2.38% CAGR over our forecast period. This growth will come from enterprise needs for maintenance and solutions to ensure their products work efficiently as they shift to digital infrastructures. Cisco now offers more than their traditional hardware support with the addition of software, solutions, and premium support, as well as technology advisory services.

Cost Structure Analysis

Product cost of sales makes up most of Cisco's expenses, followed by sales and marketing and research and development. Cisco spends around 20% of revenues on sales & marketing annually. Technology companies like Cisco need to invest in research & development to keep up with ever-accelerating product innovation and competition.

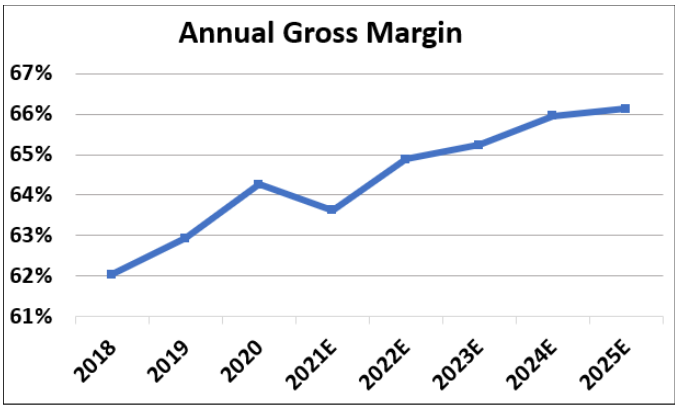


Figure 3
Source: HF Model and 10K

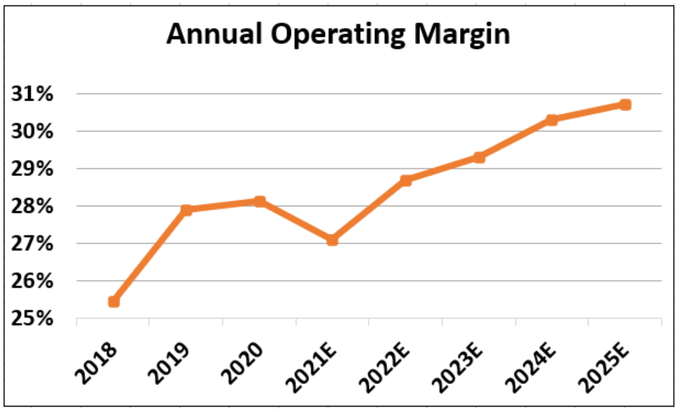


Figure 4
Source: HF Model and 10K

Figures 3 and 4 show historical and forecasted gross and operating margins, respectively. Cisco has made great progress on their strategy change to more software and subscriptions. 76% of software revenue was sold as a subscription in 2021 Q2, up from 65% in 2019 Q2.[7] SaaS generally increases gross margins by decreasing cost of goods sold, which is reflected in our gradual increase in gross margin expectations from 64.26% in 2020 to 66.14% in 2025. Margin expansion will be countered by the increasing competition in all of Cisco's product segments.

Additional Company Analysis

In addition to heavy Research and Development investing to innovate their technology products, Cisco consistently acquires small companies before they become a threat. Recent acquisitions have been focused on technology transformations to the cloud and Cisco's new software and subscriptions strategy. Some examples of these acquisitions include Meraki, Acacia, and Duo. The Meraki acquisition in 2012 expanded Cisco's cloud-based switching portfolio, and its products are sold as subscriptions. The Acacia acquisition closed in 2021, which gives Cisco a clearer path into 5G spending due to its optics portfolio. Duo is a leader in unified access security and multi-factor authentication through the cloud.

Cisco's newer products are better suited for enterprise shifts to a multicloud environment. As enterprise spending recovers through 2021 and into 2022, we predict businesses will invest in Cisco's new product portfolio, such as Catalyst 9K switching. When companies make these investments in non-legacy products, they are more likely to use Cisco's subscription and SaaS offerings, which will generate recurring revenues. Cisco's double-down on investments into the hybrid cloud space with software and subscriptions is the main reason we are bullish on the company.

ESG Analysis

The Henry Fund uses Sustainalytics for ESG analysis. Sustainalytics gives Cisco a total ESG risk score of 12.6, which is in the 4th percentile and considered low. They have small environmental risk with a 0.5 score, and social and governance risk scores of 5.9 and 6.1, respectively.

Cisco places high emphasis on their ESG performance and transparency. Their investor relations website provides extensive reports on their environmental impact, supply chain responsibility, company culture and more. They donated $485 million to community programs in 2020, including $53 million in Covid-19 relief.[8] On the governance aspect, Cisco recently promoted three more women to executive positions, including customer experience leader Maria Martinez to COO.[9]

According to Sustainalytics, Cisco's ESG risk is lower than all peers that we compared them to, including Hewlett-Packard, Juniper, Arista, Palo Alto, and Fortinet. We consider Cisco's leadership in ESG initiatives a positive to our investment thesis given the increasing importance of corporate social responsibility.

RECENT DEVELOPMENTS

2021 Q2 Earnings Call

Cisco released Q2 FY2021 results on February 9th. Revenues were flat year-over-year at $12 billion, which came in at the top of guidance range.[7] Adjusted Earnings

Per Share also topped analyst estimates as sales gradually rebound from the pandemic.

However, some of its financials served as reminders that the Communications Equipment industry is not yet out of the woods. Sales to enterprise customers are still in a slump, though they saw order growth in their three other customer segments. Infrastructure Platforms, the most impacted product segment, was down 3% with flat switching revenue and declined routing and data center sales.[7] Even with double-digit growth in Webex, Applications revenue was flat overall. Security and Service revenues were both up as customers are demanding network security and using more software offerings, but both segments fell short of estimates.

Cisco continues shifting their business to more software offerings and subscriptions, which made up 76% of total software revenue. CEO Chuck Robbins emphasized this transition to a cloud-driven, cloud-managed and delivered as-a-service portfolio; "If we can deliver it from the cloud, we will."[7]

Though some estimates fell short of expectations, guidance remains cautiously positive for the next quarter as the industry moves into a gradual recovery and customers are able to invest in more Infrastructure Platforms products. Management did not provide guidance for the entire fiscal year, but diluted earnings guidance for Q3 is $0.64-0.69 with expected 3.5-5.5% revenue growth year-over-year.

This was the first earnings call with new CFO Scott Herren. Herren has a solid track record of leading business strategy transitions to focus on SaaS and recurring subscriptions. Before Cisco, Herren was at Autodesk for six years, where he shifted the company's sales from perpetual licenses to SaaS and subscriptions.[10] His hiring is an investment positive for Cisco as it will help them earn steadier revenue sources and provide innovations to customers more frequently than once per year.

COVID-19 Impact

Covid-19 has benefitted Cisco in some areas and hurt them in others. Infrastructure platforms has been most impacted by the pandemic because the segment depends on IT spending by customers. Enterprise spending on IT infrastructure decreased in the second half of Cisco's fiscal 2020 and throughout their fiscal 2021. Spending is now showing signs of recovery as vaccinations roll out and the economy opens; demand growth has gone from negative 10%, to negative 5%. to positive 1% over the last three quarters.[11] However, the semiconductor chip shortage that is exacerbated by the pandemic hurts Cisco's supply chain and will be a headwind going forward.[12]

A rapid shift to hybrid work caused by the pandemic is a positive for Cisco's cloud portfolio, such as wireless access points, security, and cloud-based switching. It is still uncertain exactly how work setups will be post-pandemic, but it is certain that there will be hybrid work opportunities for more employees at more companies. Overall, although Covid-19 has been challenging for networking equipment providers, demand growth and enterprise spending should benefit Cisco going forward.

Applications Move to Multicloud

Customers are operating in multicloud environments, deciding to use private, public, and hybrid clouds. This way, they can choose which information to keep on-premises versus on the cloud. Industries are moving to multicloud environments because it increases scalability and speed of data storage and applications, and customers spend less on maintenance and capital costs than they would with larger, personal data centers.[12] Every industry can leverage this transition, such as governments, education, healthcare, insurance, and utilities. Figure 5 below shows the shift in IT infrastructure spending from traditional data centers to public and private clouds

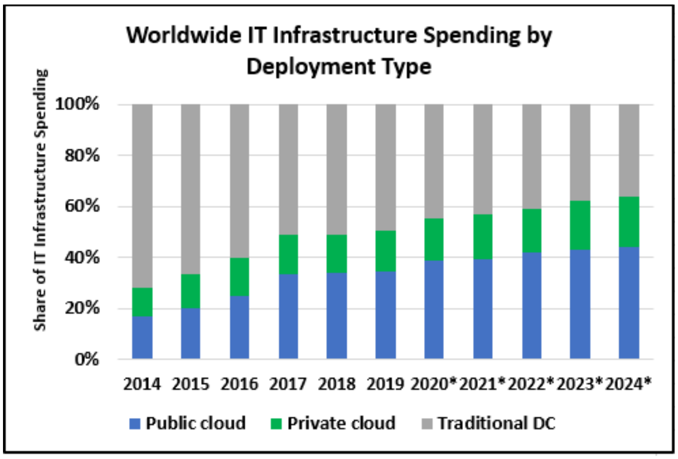


Figure 5
Source: Statista

Figure 6 below shows the acceleration in annual spending on cloud infrastructure worldwide. This transition toward cloud is a positive for the Cisco as customers will invest in related equipment and subscription purchases.

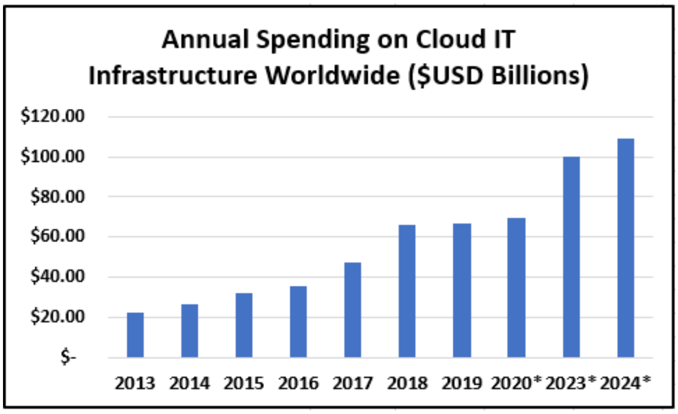


Figure 6
Source: Statista

Competitors in the networking equipment industry must be able to manage the complicated multicloud environment to supply efficient and secure cloud products and services. One way to do this is with Hyperconverged Infrastructure (HCI), which helps companies manage hybrid cloud environments by combining compute, virtualization, storage, and networking into a single platform to manage data centers. This lowers costs and reduces complexity of hybrid cloud management. Cisco provides their HyperFlex solution for hyperconvergence.[1]

INDUSTRY TRENDS

Businesses in all industries are undergoing rapid transformations to their networking and digital infrastructures. These transformations began well before the Covid-19 pandemic but have only accelerated due to work from home trends driven by the virus. As the economy recovers and businesses re-open, enterprises will continue to invest more in cloud technologies, security software, and Software-as-a-Service (SaaS) because of digital transformations to their operations. Devices and applications are becoming more interconnected through multicloud environments, and customers are demanding efficient and secure technology solutions from networking equipment providers.

We also anticipate businesses will upgrade on-premise Information Technology equipment as more employees return to work in the latter half of 2021, which will drive growth for hardware infrastructure like routers and switches.

Growth in Number of Connected Devices

The Covid-19 outbreak has accelerated businesses' reliance on technology services. This trend is likely to outlast the pandemic as companies continue spending on software applications and connecting more devices to IP networks. Cisco expects global IP traffic to increase at a 26% CAGR globally between 2017 and 2022, and they expect the number of devices connected to IP networks to be more than three times the size of the global population by 2023.[14] Figure 7 shows there will be 3.6 networked devices per capita by 2023, up from 2.4 in 2018.[14] Many of these connected devices are now on the edge; employees take connected devices like laptops home and connect personal devices like cellphones to corporate networks through the cloud. We predict the growth in number of devices will drive revenues for networking infrastructure, applications, and network security.

Average Number of Devices Per Capita

Region	2018	2023
Global	2.4	3.6
Asia Pacific	2.1	3.1
Central and Eastern Europe	2.5	4.0
Latin America	2.2	3.1
Middle East and Africa	1.1	1.5
North America	8.2	13.4
Western Europe	5.6	9.4

Figure 7
Source: Cisco Annual Internet Report[14]

Network Security is Critical

As customers add more connections to their enterprises, and as applications move to a multicloud environment, network security will be a top priority. Customers need to protect against the evolving cyber threat landscape as they want their business assets to always be available and secure. Businesses in the Communications Equipment industry must be expanding investments in all aspects of network security to create effective cybersecurity architectures. Many serious data breaches have occurred in recent years; there was 776% growth in cyberattacks between 100Gbps and 400Gbps from 2018 to 2019, and that trend is expected to increase.[14] Figure 8 below shows the number of Distributed-Denial-of-Service attacks, in which a system is targeted and flooded with traffic, will double by 2023 globally.[14] Commercial Networking companies need to continuously mitigate cyber threats like DDoS attacks, ransomware, viruses and more.

Number of DDoS Attacks Globally

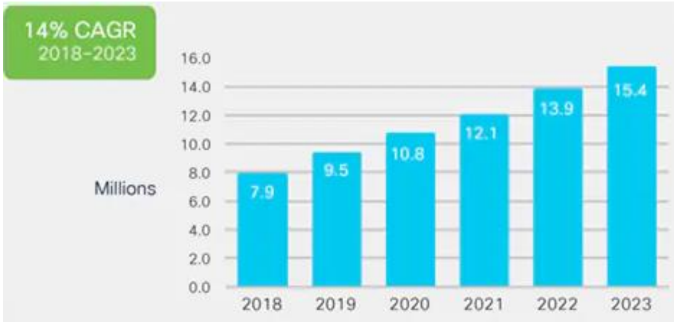


Figure 8
Source: Cisco Annual Internet Report[14]

5G on the Horizon

Service providers AT&T, Verizon, and T-Mobile are beginning to offer more devices that support 5G coverage. As these products roll out, Networking Equipment competitors are investing in or acquiring companies that produce optics capable of supporting the bandwidth requirements and the economics of next-generation networks. This is important because, as shown in Figure 9, service provider networks have been generating more revenues than enterprise networks. We do not expect the T-Mobile and Sprint merger to hurt demand for equipment because their combined assets should help them push further into 5G. The shift to 4G wireless technology was a catalyst for wireless infrastructure spending, and now the shift to 5G deployments is having the same effect.

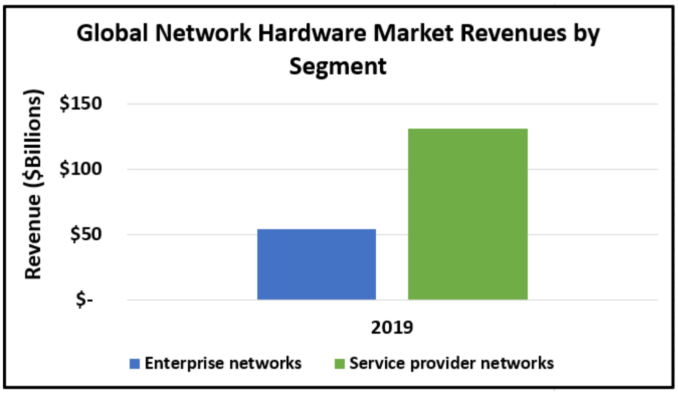


Figure 9
Source: Statista[13]

Software-as-a-Service vs. Perpetual License

Business technology requirements are constantly evolving and changing. SaaS allows companies to subscribe to certain software they need on a pay-as-you-go basis, rather than buying a perpetual license on software and needing to pay for another license every time hardware and software needs updated. Cisco is shifting their strategy to increase SaaS offerings, so they will be paid for their services on a monthly basis. We view this shift as a positive as they earn recurring revenues for their various types of subscription arrangements.

Strength in M&A Activity Continues

Mergers and Acquisitions continued to be strong despite Covid-19. Many companies are emphasizing M&A to expand their security offerings.[6] Cisco frequently engages in acquisitions to maintain industry dominance by buying companies that will help them grow their cloud and security portfolios. Cisco's competitors have continued M&A activity for similar reasons. Figure 10 below shows some of Cisco's recent acquisitions which were mentioned in the Additional Company Analysis section.

CSCO M&A Activity

Announcement Date	Target	Value (mil)	Payment Type
12/22/2020	Dashbase	-	Undisclosed
12/7/2020	IMImobile	689	Cash
7/9/2019	Acacia	4,333	Cash
6/7/2019	Sentryo	-	Cash
8/2/2018	Duo	2,350	Cash

Figure 10
Source: Bloomberg

MARKETS AND COMPETITION

The Networking and Communications Infrastructure industry is subject to rapid technological changes and expanding customer requirements. Innovation that is necessary to compete requires hefty research and development investments in areas like cloud security, cloud collaboration, and application insights.

As the industry has evolved, the number of products and service lines offered has grown. Companies in the industry now sell a broad range of technologies across networking, security, applications, collaborations, and cloud, though some competitors still focus mainly on the infrastructure platforms. Many enterprises in the industry have a global presence and face competition from foreign competitors, especially in China. One of the most important comparison metrics to note is which companies are focusing more on software and services, especially through subscriptions. We believe this presents the best opportunity for competitors to grow margins and earn consistent revenue. Security is also crucial, and Cisco has the clear advantage in that space.

Networking Infrastructure Peer Comparisons

Companies in the Communications Equipment industry mainly compete within infrastructure platforms. Cisco is a behemoth in the Communications Equipment industry, representing 68.4% of the S&P1500 Communications Equipment Index by market cap. Their 2020 revenue of $49.3 billion is more than all the other companies in the index combined.[6] They represent 56% of enterprise network vendor market share globally, as shown in Figure 11.

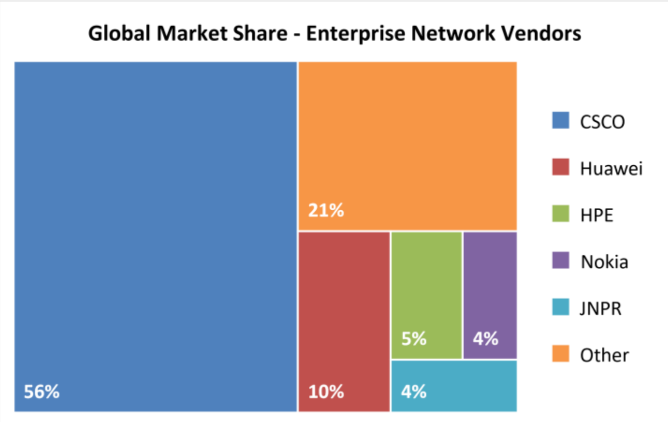


Figure 11
Source: Bloomberg[15]

The other main industry competitors who sell networking infrastructure include Aruba Networks, Juniper Networks, and Arista Networks. Aruba was acquired by Hewlett Packard Enterprise in 2015. Financial metrics of these industry peers are shown in Figure 12.

Company Name	Revenues	Gross Margin	Net Income	EBITDA	PE Ratio
Cisco Systems	49,301	64%	11,214	13,776	19
Arista Networks	2,411	64%	860	895	36
Hewlett Packard Enterprise	26,982	32%	(322)	2,656	-
Juniper Networks	4,445	59%	345	608	22

Company Name	Total Assets	Total Liabilities	Market Cap	Employees	Share Price
Cisco Systems	94,853	56,933	199,825	77,500	47
Arista Networks	4,185	1,291	24,462	2,300	323
Hewlett Packard Enterprise	54,015	37,966	18,601	59,400	14
Juniper Networks	8,838	4,227	8,326	9,419	25

Figure 12
Source: Mergent[17]

Market cap and revenue metrics reflect that Cisco and Hewlett Packard are much larger and more experienced businesses in the industry, while Juniper and Arista are relative newcomers.

However, both newer companies have shown a lot of potential by offering trusted and efficient products. They continuously innovate their hardware, software and cloud infrastructure products to serve customers globally, which has led to high year-over-year growth for each of them. Arista has been especially well-positioned for the transition to a multicloud environment as they modeled their business around cloud networking solutions to support large-scale datacenter and campus environments. Microsoft and Facebook have been two of its largest customers.[16]

Each peer has a gross margin around 60% besides HPE, whose revenues and cost of sales are different because of the many products they focus on besides networking infrastructure. Cisco and Juniper trade at 19 and 22 Price-to-Earnings ratios, respectively. Arista's higher P/E ratio of 36 is likely because they are a newer company that has been growing fast and still has strong growth prospects.

Overall, the financial metrics illustrate that Cisco is the dominant player in terms of scale. However, newcomers like Arista and Juniper are growing quickly as they focus on cloud innovation and SaaS.

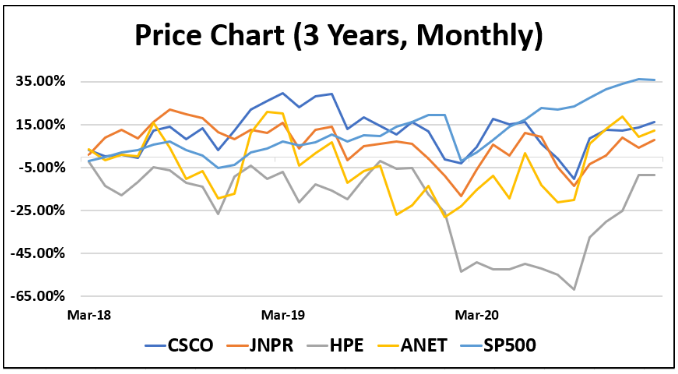
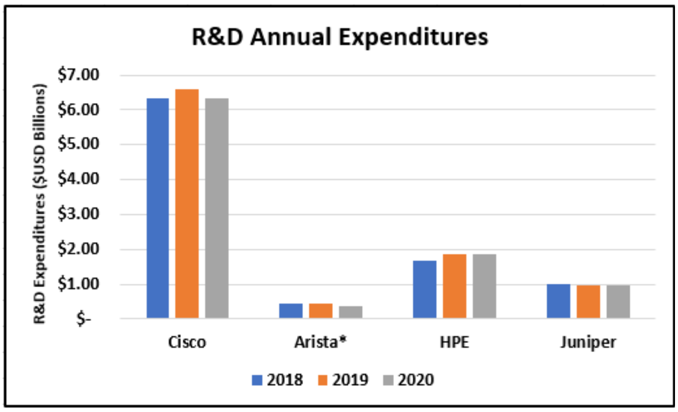
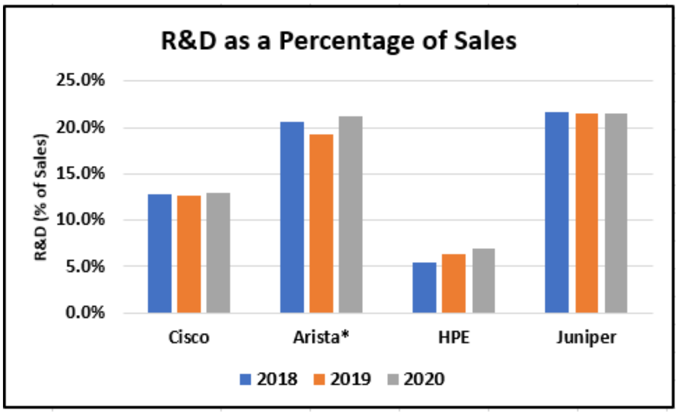


Figure 13
Source: Yahoo Finance[3]

Figure 13 above shows that Cisco's stock price has grown more than competitors over the past three years. The pandemic hit HPE especially hard in 2020, but they have begun recovering as the economic outlook has become more positive over the past few months. Each of the industry peers is now trading at or slightly above their pre-pandemic prices, but the overall industry has lagged the market. We believe Cisco has suffered the least compared to its peers due to its continued dominance in the industry. Although they have not seen as much growth as` the newcomers in recent years, they are still earning high revenues and generating high margins as a trusted company for networking.

Research and Development is crucial in this industry. More networked connections are being made and the technology needs of businesses are ever-changing. Figures 14 and 15 below show how competitors are spending on R&D overall and as a percentage of sales.



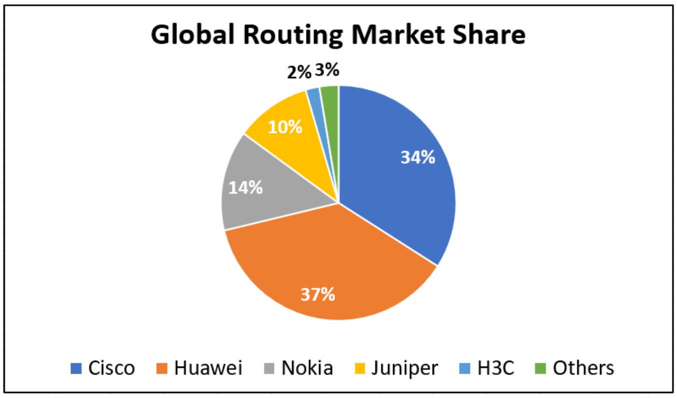


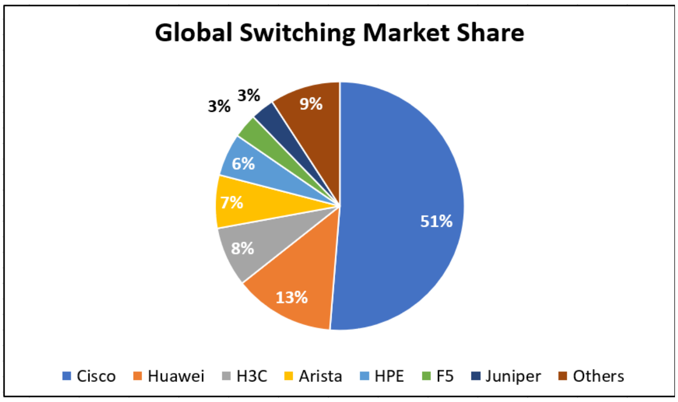
Figures 14 & 15
Source: 10Ks
**Arista 2020 data only includes first 3 quarters*

Cisco has been known for high spending into R&D, which works in their favor as a catalyst for continued innovation of products and services. They are focusing investments on cloud security, cloud collaboration, application insights and analytics, automation, multicloud environments, and 5G. These are all critical areas for the future of networking infrastructure and are the same areas where the newer players have focused their R&D expenses, which is an investment positive for these companies and the Communications Equipment industry.

Switching vs Routing Market Share

Figures 16 and 17 below show Cisco's dominance in terms of market share for both routers and switches, the legacy products of networking infrastructure. The market share data is from Q2 2020.





Figures 16 and 17
Source: Bloomberg[15]

Although competitors like Arista and Juniper are growing, they have not been able to take market share from Cisco in the overall routing and switching markets. However, Arista is rapidly growing their main product segment, High-Speed Data Center Switching, as can be seen in Figure 18. This type of switching focuses on cloud networking that automates IT workflows and provides faster problem resolution.[18] The switches use 100 Gigabit Ethernet (GbE) to make servers and storage faster, which is increasingly attractive as enterprises continue to digitize their networks. Cisco still accounts for the majority of data center switch shipments, but Arista's exposure to cloud service providers has given it an edge in share position for 100GbE switches.

High Speed Data Center Switching Market Share – Cisco vs. Arista

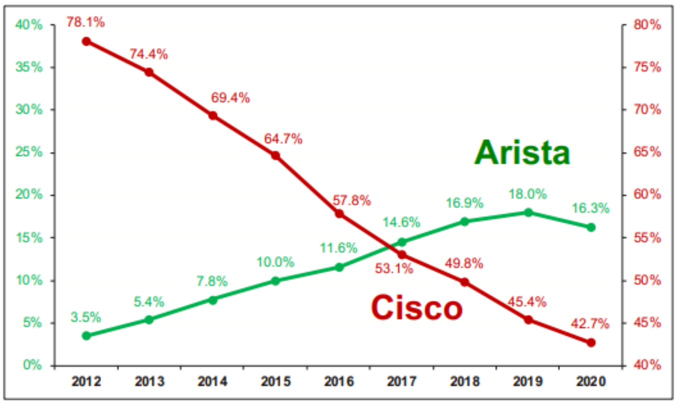


Figure 18
Source: Crehan Research Datacenter Switch Market Share Report[19] Q4'2019. Note: 10GbE and Higher – Excludes Blade Switches

The reason why companies might choose Arista over Cisco is because it has earned a reputation for manufacturing some of the fastest ethernet switches on the market. They have earned that reputation because, unlike Cisco's broad portfolio of switching, routing, security, applications and more, Arista has mainly focused on software for its ethernet switches. We believe Cisco's continued shift into software will keep Arista from gaining more switching market share. Cisco has invested in or acquired companies that expand their hybrid cloud capabilities in their switching portfolio with faster speeds and better security. Arista is Cisco's biggest threat to their switching revenues, but Cisco is positioned to do well long-term as they improve their switching capabilities and succeed with their broader product portfolio.

End-Markets

Figure 19
Source: Bloomberg[15]

End-markets for Networking Equipment vendors will be important for their growth prospects going forward. Business shifts to multicloud environments for applications and data, and service providers rolling out 5G networks, gives competitors an edge if they have more exposure to spending in those areas. Hyperscale cloud service suppliers continued to spend on data center ethernet switches throughout the pandemic.[20] As seen in Figure 19 above, this makes Arista more poised for higher growth in the near term. However, Cisco and Juniper, which are both more exposed to enterprise spending, should still see modest growth as the economy recovers and businesses spend on upgrading their IT infrastructures. These companies are also set for long term growth as they shift to providing more SaaS and cloud subscriptions.

Security Peer Comparisons

Network security is of utmost importance for enterprises as more networked connections are made between devices. Cyber-attacks are harder to prevent due to more potential entry points for security breaches. Cisco is an industry leader in network security, competing with Palo Alto Networks and Fortinet. Figure 20 below shows the leading cybersecurity vendors globally in terms of market share. Cisco will benefit from being a large end-to-end network security vendor as enterprise spending on cybersecurity continues to grow. The other Communications Equipment competitors are increasingly incorporating security into their products and services, but none have networking security market presence anywhere near Cisco's.

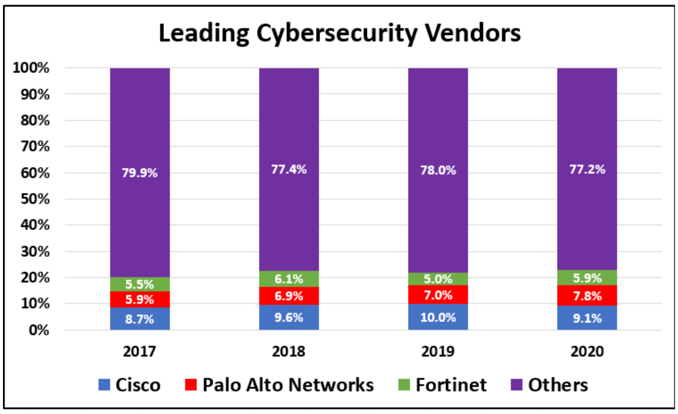


Figure 20
Source: Statista

In addition, many enterprises have historically used multiple vendors for their cybersecurity needs, with some using upwards of 50. Managing that multi-vendor environment was very challenging for businesses, which is why security vendor consolidation is on the rise. Today, 86% of organizations use between 1 and 20 security vendors, with only 13% using more than 20, as shown in figure 21 below. Cisco's SecureX security offering helps with reducing the need for multiple vendors because it is scalable, integrating all the security products in Cisco's portfolio and letting them automate and share intelligence with each other.[21]

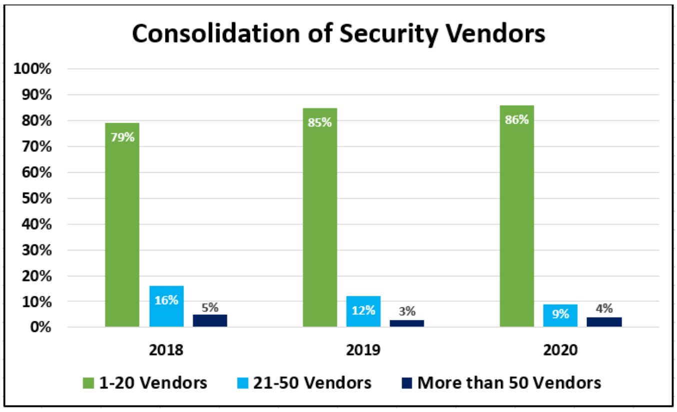


Figure 21

Source: Cisco 2020 CISO Benchmark Survey[21]

Global Competition

The Networking Equipment Industry faces intense competition globally, especially coming out of China. Huawei Technologies is one of Cisco's fiercest competitors globally. The Chinese company is one of the largest technology enterprises in the world and mainly competes against Cisco with its infrastructure business that includes networking, optical transmission, and cloud data center. This division of Huawei represented 10.4% of their almost $133 billion total revenues in 2019.[22]

Huawei will continue to be a strong competitor as they grow in scale and invest in R&D for new communications infrastructure products. However, Cisco still dominates the Communications Equipment industry for enterprises worldwide with 56.4% market share versus Huawei's 9.5%. None of the industry competitors, including Huawei, have been able to gain much market share from Cisco in the Enterprise segment, as can be seen in Figure 22 below. Part of this has to do with hesitancy from companies and governments to trust Chinese equipment. Although some cities and enterprises around the world use Huawei as a partner for their digital transformations, many have chosen to not use Chinese hardware and have even replaced their Chinese hardware with other vendors' equipment.[6] This bodes well for Cisco and will help them continue to be the primary supplier of infrastructure equipment for mid and large sized enterprises.

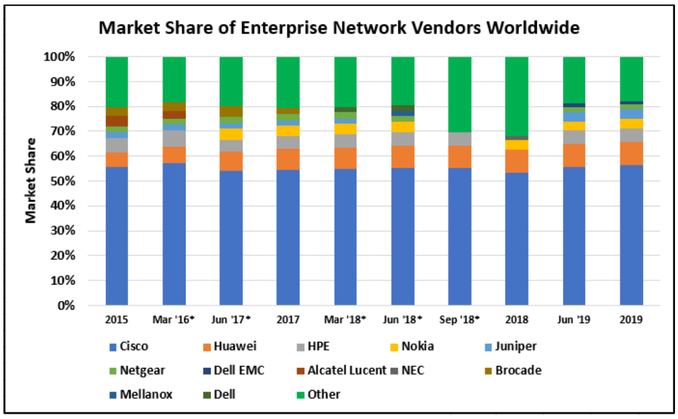


Figure 22

Source: Statista

While Cisco has the advantage as an enterprise network vendor, Huawei is the clear leader when it comes to global service provider networks due to their success in providing components for 5G mobile networks. They made up 35.4% of global market share for service provider networks. Cisco is not as large of a player in service provider networks, making up only 3.2% of worldwide market share, but they continue to invest in products for 5G spending and may benefit from the political attacks on Chinese equipment. Overall, Cisco's smaller market share as a network vendor for service providers is an investment negative because of the higher relative revenues coming from the service provider market versus enterprise market, which was shown in Figure 9.

In conclusion, Cisco remains the titan in the Communication Equipment industry and we believe they are the best positioned going forward. Their scale, product portfolio, and continued transformation into software and subscriptions as-a-service position them well to capitalize on secular opportunities in multicloud environments, 5G, and network security. However, Cisco is increasingly facing competition from newer and foreign competitors. It is especially important to keep track of competitors who are excelling in multicloud and software areas. We believe Arista could potentially be a much bigger player in the long term if Cisco does not continue to innovate in those areas. Arista's innovation in software-driven cloud networking is helping them take some market share in sub-segments of the industry that are poised for high growth. Their exposure to hyperscale cloud companies and service providers will help them in the long term. Chinese competitors like Huawei and HP3 also continue to innovate and are helped by their exposure to 5G networks. If governments and companies were to ease up on their reluctance to trust Chinese equipment, those global competitors would be able to compete with Cisco on a much higher level.

ECONOMIC OUTLOOK

Real GDP

Real Gross Domestic Product (GDP) increased 4.1% in the fourth quarter of 2020. The growth reflects a continued economic recovery from the pandemic. We expect real GDP to grow at 5.5% in 2021 due to more vaccinations and the recent stimulus bill. This forecast bodes well for the Cisco, as GDP growth will increase enterprise spending on IT infrastructure and accelerate their digitization strategies.

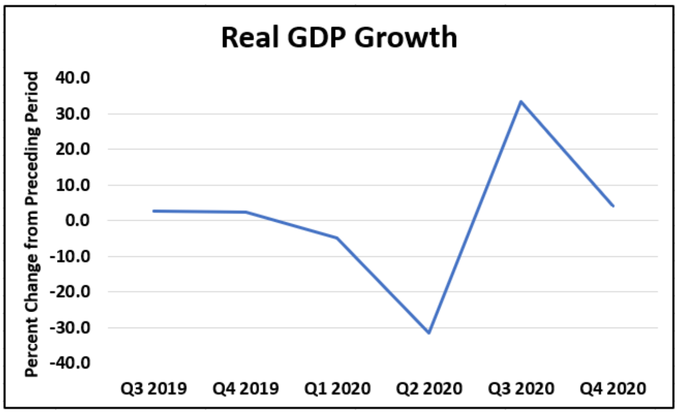


Figure 23
Source: FRED Economic Data[23]

Business Confidence Index

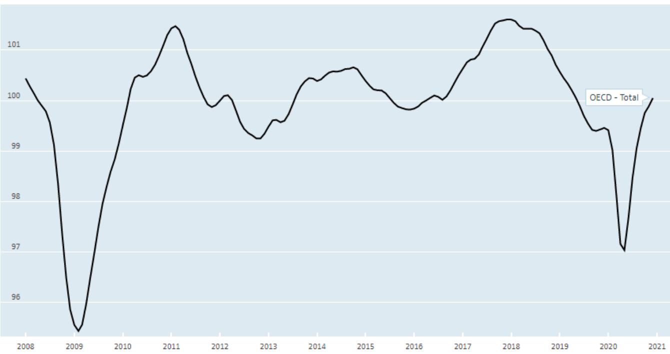


Figure 24
Source: OECD[24]

The business confidence index (BCI) is used to monitor output growth and predict changes in economic activity. A BCI above 100 suggests increased confidence in the performance of businesses in the near term, while numbers below 100 indicate the opposite. The BCI recently rose above 100 as the economy has begun to reopen and vaccinations have been administered. The positive BCI is another reason we are bullish on the networking equipment industry going forward. As business confidence continues to increase, enterprises will invest in upgrades to their IT infrastructures to support their recoveries.

Interest Rates

The United States has experienced a historically low interest rate environment during the pandemic due to low treasury yields. The low rates have not seemed to influence Cisco all that much, as their Capital Expenditures remained steady and their acquisitions have been paid in cash. The fed plans to hold steady on low short-term interest rates through 2023, but we are seeing increased pressure on long term interest rates with the 10-year moving as high as 1.75% and the bond hitting 2.50%. Increasing long-term rates will make borrowing more costly for growing companies in the industry, such as Arista.

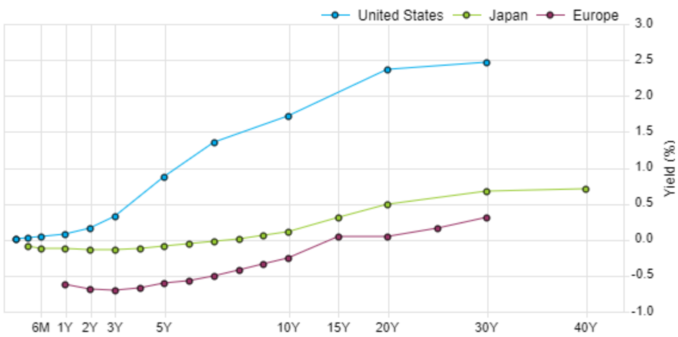


Figure 25
Source: FactSet

Rising interest rates are mostly due to sell-offs because of economic recovery expectations. This could hurt growth stocks in the networking equipment sector in the short term, but we do not believe it will be a significant negative as these companies will benefit overall from the pandemic recovery.

Valuation

We calculated an intrinsic share price for Cisco using discounted cash flow (DCF), economic profit (EP), dividend discount model (DDM), and relative valuation methods. We believe the DCF and EP models accurately reflect an intrinsic value of the company based on its operating profits and assets, and the DDM makes sense because

Cisco has consistently paid dividends over the last several years. Each of these models is a product of assumptions highlighted below.

Revenues

Figure 26 shows revenue growth assumptions through 2025 for each of Cisco's segments. These assumptions were detailed in the company description section. We are bullish on all segments in the near term with security seeing the highest relative growth. We expect overall revenue growth to have a continuing value around 2%, which is in line with our long-term real GDP growth expectations. Our 2021 revenue estimates are in line with consensus, and 2022 and 2023 estimates are slightly above. The main reason for this is because we are more bullish on security growth going forward.

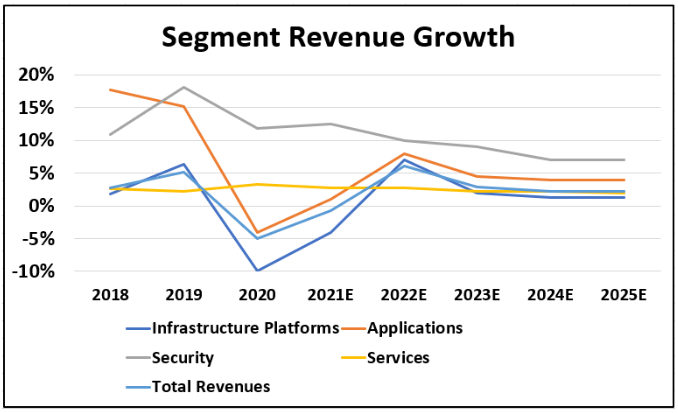


Figure 26
Source: HF Forecast and CSCO 10k

Cost of Sales and Operating Expenses

Cost of sales for products and services have historically been about 34% of respective product and service revenues. We expect cost of sales to slightly decrease due to the shift to SaaS, as noted in our company description section.

Research and Development is forecast as a percentage of total revenues. Although many technology companies spend a certain dollar amount on R&D or grow it by a fixed amount yearly, Cisco seems to spend about 12.75% of revenue on R&D every year.

Investments

Cisco's short-term investments have declined from about $58.8 billion in 2016 to $17.6 billion in 2020, but we are not forecasting them to decrease further. The proceeds that caused the decline were mainly used for repurchases in 2018 and 2019. Their investments consist of high-quality, investment-grade securities. We are basing investment growth on the 10-year treasury rate.

Payouts

Cisco pays dividends and repurchases shares consistently, with an intention to return minimum 50% of free cash flow to shareholders annually. Their historical dividend payout ratio has been about 48% over the last 10 years, and they have paid $6 billion in dividends each of the past three years. We expect dividends to grow by about 2% annually through our forecast horizon, similar to consensus estimates. Earnings per share is likely to take a hit in their fiscal 2021 due to the pandemic, but will rebound in 2022 and onward, as shown in Figure 27. Our earnings estimates are slightly above FactSet consensus estimates in 2021 and 2022, and just below consensus in 2023.

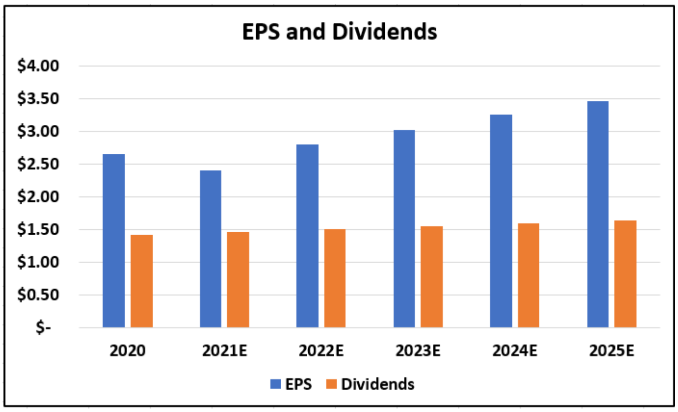


Figure 27
Source: HF Forecast

Cisco's stock repurchase program has been in effect since 2001, and they increase the amount in the program every few years to keep it going. We expect stock repurchases of $3.2 billion in 2021, which is slightly higher than their 2020 repurchases. After that, we have Cisco repurchasing about $4.5 billion of shares per year, which is consistent with a historical average. Cisco has a 96% average total payout ratio over the last 10 years, even excluding 2018 and 2019 when they had abnormal net income and repurchased more stock than usual.

Debt Maturity Analysis

Cisco does not give a target capital structure going forward, but their structure is typically 90-95% equity and

0-10% debt. The debt maturity schedule below shows Cisco's upcoming payments due. All their outstanding debt is issued as notes and bonds. Cisco consistently has adequate cash to pay down its debt and has an A1 rating from Moody's with a stable outlook going forward.[25]

Five-Year Debt Maturity Schedule

Fiscal Year	Payment ($mil)
2021	$5,000
2022	500
2023	1,250
2024	1,000
2025	500
Thereafter	6,250
Total	$14,500

Figure 28
Source: CSCO 10K

Capital Expenditures

We grew capital expenditures in our first forecast year by a historical average, which has been about $1 billion. After that, capital expenditures increase by our forecasted inflation rate which stays around 2%. Management has not provided guidance on capital expenditures going forward.

We split depreciation and amortization apart and used historical levels of PPE and Intangible Assets, respectively, to forecast them. Cisco breaks down amortization between operating costs and cost of goods sold, which we reflected in the model.

Balance Sheet

For deferred revenue, we used a percentage of sales higher than the historical average because of Cisco's shift to more SaaS. Income taxes payable have dramatically increased since the tax law change in 2018. We forecast income taxes payable as a historical percentage of income taxes, only using the years since the change.

Discounted Cash Flow and Economic Profit

Our DCF and EP models return a price of $64. These models incorporate a WACC of 6.47%, which is based on the following assumptions:

- 2.36% risk-free rate based on the 20-year Treasury
- 0.91 beta based on 5, 2, and 1 year monthly and weekly betas[4]
- Henry Fund-estimated Equity risk premium of 4.90%
- 2.79% pre-tax cost of debt based on a CSCO 30-year bond[4]
- 93.01% market value weight of equity and 6.99% market value weight of debt

We believe these models give an accurate intrinsic value of the company based on its operating profits and invested capital. A breakdown of our DCF and EP calculations can be found in the appendix.

Dividend Discount Model

Our DDM model yields a price of $58. We are also using this model for Cisco's target price range as it is based on the dividend growth that we highlighted in the Payouts section. The 2% continuing value of EPS we used is based on a long-term growth rate of the economy. We have CV year ROE of 31.01% and used a 6.80% cost of equity.

Relative Valuation

We used a Price-to-Earnings multiple to find the relative value of Cisco's stock. We compared six competitors that Cisco competes with directly to come up with relative values of $68 and $60 for 2021 and 2022, respectively. Cisco's P/E is on the low end compared to competitors, likely because a lot of their competition is newer to the industry and have been growing faster in recent years.

Conclusion

Cisco has continued to shift their business offerings to more SaaS and subscription based. They have remained a behemoth in the networking equipment industry, maintaining high market share for many of the product segments they compete in. As the subindustries they compete in mature and product innovation accelerates, Cisco faces more intense competition within each of their segments. We believe with their scale and strong financial position, along with a shifting strategy and cybersecurity presence, Cisco will take advantage of secular trends and remain an industry leader.

KEYS TO MONITOR

Tailwinds

- Accelerated business digitization and cloud investments in wake of the pandemic