



Broadcom Inc.  
NASDAQ: AVGO  
Recommendation: **BUY**

Ben Crockett,  
Hamilton Sateri, &  
Robert Batistich  
Fall 2023



# Company Overview

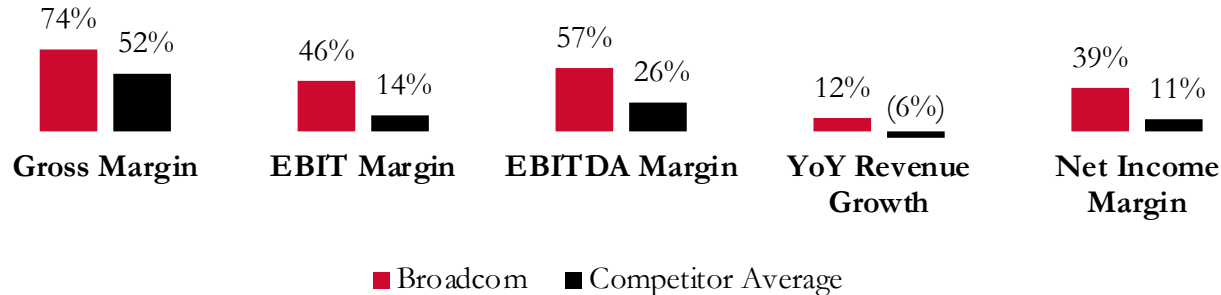
**Broadcom holds a dominant and innovative brand proposition. The firm maintains sizable contracts across industries. Their top five end customers account for 35% of net revenue**

## Sales Overview

<b>Semiconductor</b>	Networking chips, wireless communication chips, and storage components
<b>Network</b>	Packaged semiconductor technology that works for WIFI, ethernet devices, network adapters, and Bluetooth
<b>Software and Services</b>	Enterprise software tools, cybersecurity, and software implementation support



## Margin Comparison



## Sizable Existing Contracts

### Enterprise and Data Center



### Consumer Electronics



### Telecommunication Service Providers



### Aerospace and Defense



### Financial Services



### Retail and E-commerce





# Chip & Software Overview

Primary research within the ND College of Engineering unveiled key differences among chip types

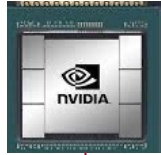
## CPU Chip

Central Processing Units (CPUs) which act as a control center connecting the internal circuitry of a computer



## GPU Chip

Graphics Processing Units (GPUs) which allow for the visual rendering of graphics on the screen



## Networking Chip

**Broadcom** specializes in networking chips that connect one device to another



## Software

Enterprise solutions that include mainframes, cybersecurity, and payment security



## The Broadcom Niche

Brand	Specialty
	Networking Chips
	CPU Chips
	Wireless
	GPU Chips & Software
	GPU Chips & Software



# Value Chain

## Supply lines with valuable strategic outsourcing

Internally designed with some domestic manufacturing



Technology is sold to wide array of companies across all different industries. 35% of net revenue in FY '22 and FY '21 came from top five end customer contracts

1

2

3



~90% of wafers are outsourced to providing accelerated and cost-effective production



Outsource to **TSMC** and **Foxconn**

Specialize in **designing and selling the chips** to businesses

Shifting to expand their **software and service capabilities** (VMware merger)

# Investment Thesis



1

**Experienced leadership** maintaining and driving appealing **organic growth** avenues

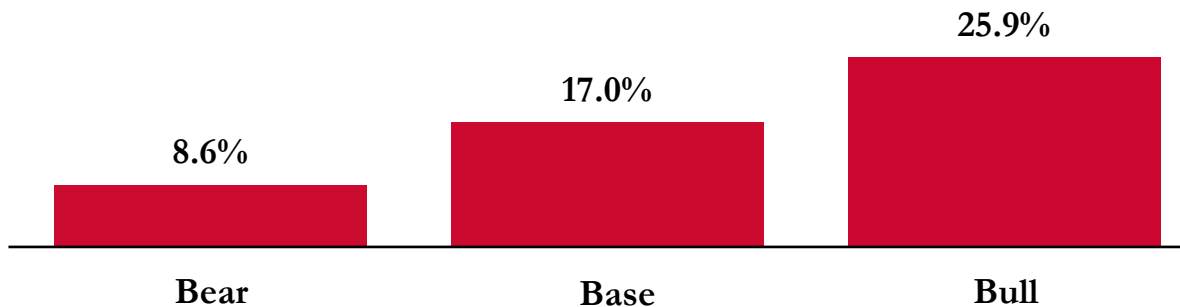
2

Emphasis on continuous strategic acquisitions, including the upcoming VMware deal, deliver an **impenetrable economic moat and software expansion**

3

Strategically positioned for **technology needs of tomorrow**

Projected Return Profile (2-3 Years)



Current Price: \$830.58  
Price Target: \$971.75  
17% Implied Upside

# Thesis Point 1



1

**Experienced leadership** maintaining and driving appealing **organic growth** avenues



# Legendary Leadership

Hock Tan continuously grows Broadcom to new heights, running his business like a portfolio company and constantly prioritizing shareholders

## Executive Leadership

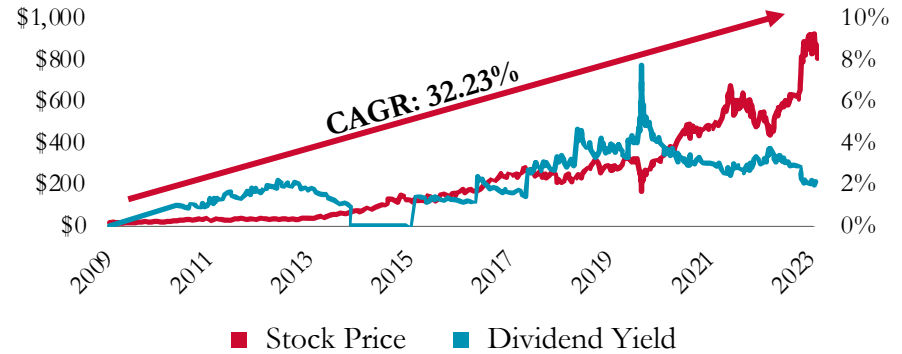
Hock E. Tan, *President & Chief Executive Officer*



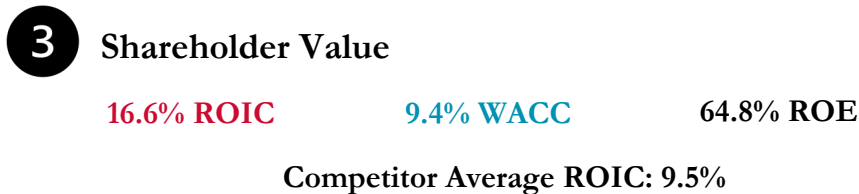
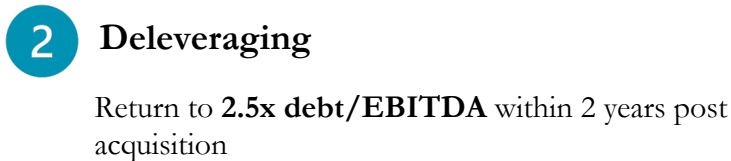
- Born in poverty in Malaysia
- Educated at Harvard and MIT
- Hired as CEO in 2005 following the creation of Avago
- Previous experience at GM, Pepsi, Commodore, & IDT



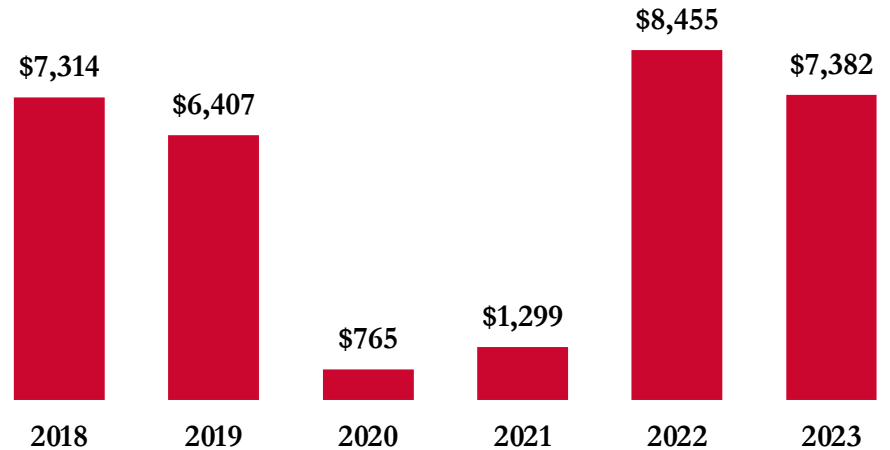
## Stock Price & Dividend Yield



## Key Management Objectives



## Share Repurchase Program (\$M)



Dividends expected to grow at a 38% CAGR and reach \$18.40 per share in FY23



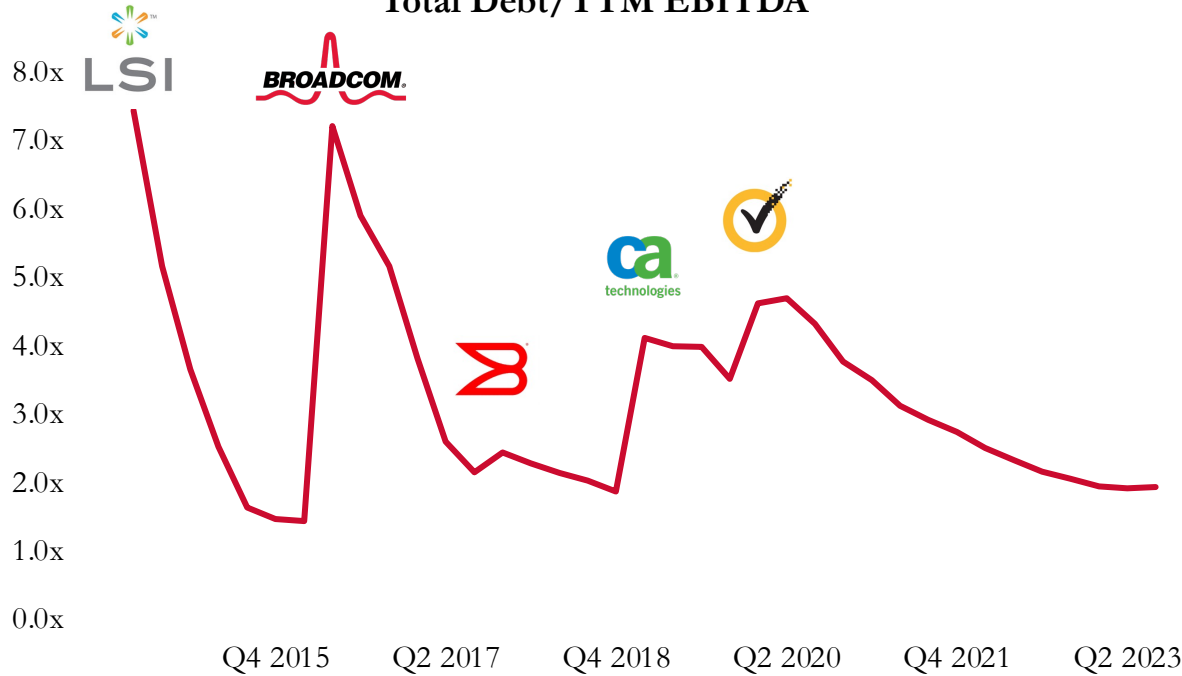
# Case Study: Deleveraging & Cutting Costs

Management has proven its ability to cut costs dramatically and quickly de-lever after deals by lowering the employee count and streamlining essential operations

## Deleveraging

## Cutting Costs

Total Debt/TTM EBITDA



61% decrease in SG&A



51% decrease in SG&A



69% decrease in SG&A



53% decrease in SG&A

Hock Tan has a proven history of successfully deleveraging in the wake of large acquisitions that will likely continue in the future

\*Broadcom purchased by Avago in May 2015





# US Base Reinforces Long-Term Mission

**Broadcom maintains their two-way supplier relationships abroad while growing US manufacturing with their contemporary base in the United States**

## Previous Setback



\$117B planned hostile takeover of Qualcomm in 2018 was blocked over US national security concerns. Stock dropped 13.4%

## CEO Took Swift Action



Cash invested to build factories in the United States



HQ moved from Singapore to San Jose, CA in 2018. Gross profit margins have increased from 66.3% to 74.3% since then

**Diversifies revenue to combat fluctuating prices, builds confidence from US lawmakers, allows them to capitalize on US Acts, and maintains relationships abroad**

## Contemporary Domestic Base

3 US Factories across CA, CO, & PA



6 International Factories



4 factories in Singapore, one factory in Penang, Malaysia, and one in Sao Paulo, Brazil



**2022 CHIPS and Science Act**  
\$280 billion in new funding to boost domestic research and manufacturing of semiconductors in the United States

# Thesis Point 2



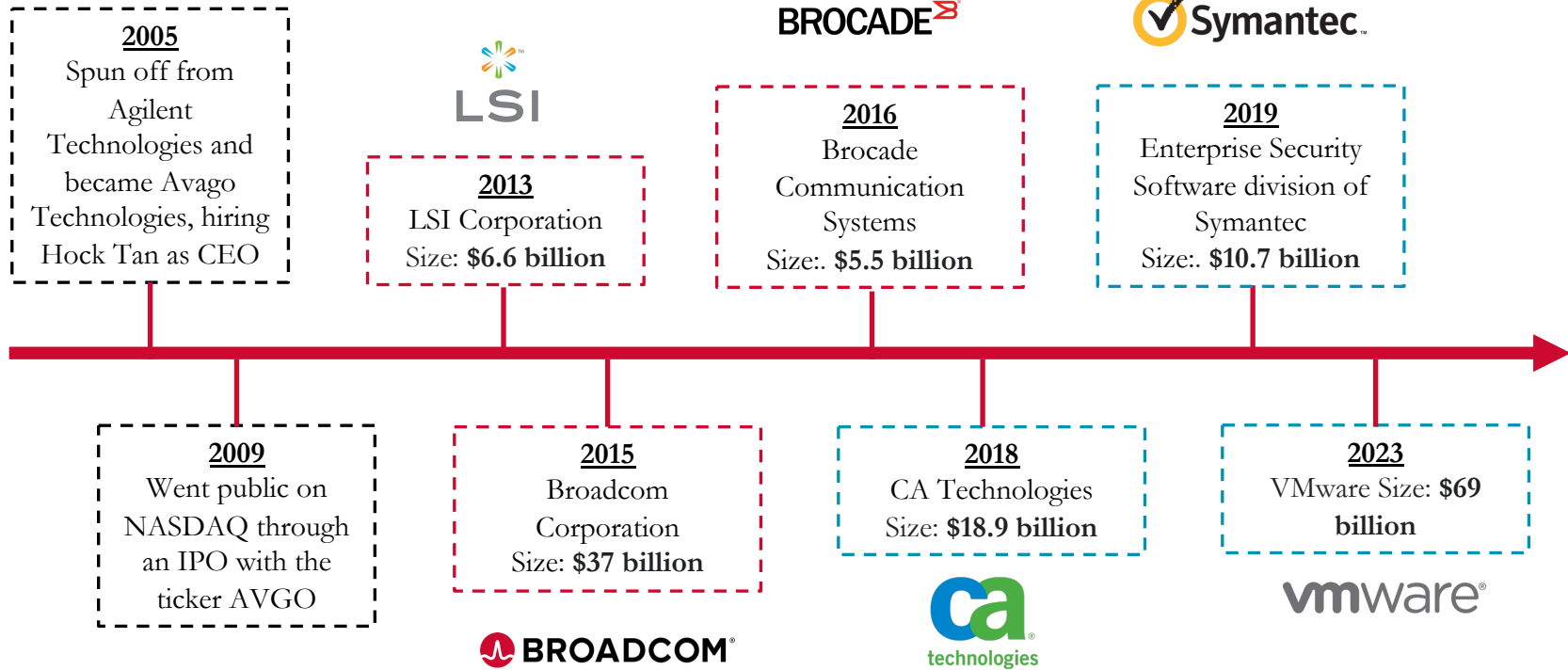
2

Emphasis on continuous strategic acquisitions, including the upcoming VMware deal, deliver an **impenetrable economic moat and software expansion**



# Shifting Focus Towards Software M&A

A recurring history of successful strategic acquisitions have gradually been shifting towards a focus on accretive software expansion. There are no “snap-on” deals



### Legend:

- General Company Info
- Hardware Acquisition
- Software Acquisition

“ We fuel growth by offering more and better products so customers are using more of our entire portfolio of technology products, rather than just one or two

**Hock E. Tan, President & CEO** ”

# VMware Company Overview

VMware is one of the largest software companies in the world



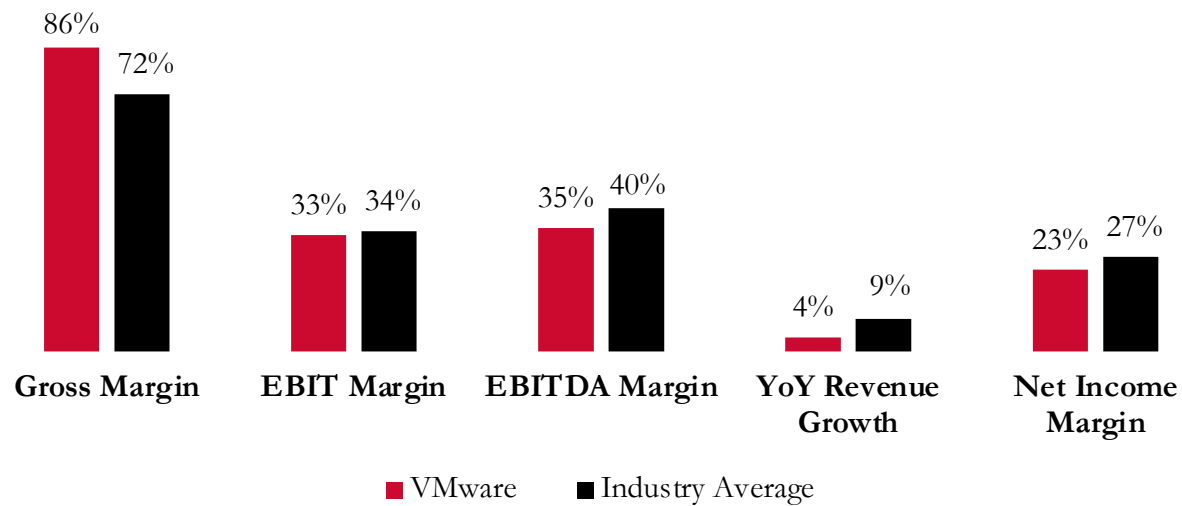
## Key Facts

<b>Founding</b>	VMware was founded in 1998. It was made a subsidiary of EMC in 2004. As of 2016, it is subsidiary of Dell
<b>Business Model</b>	Licenses software to help companies manage data centers, operations, and finances
<b>Industry Position</b>	13 <sup>th</sup> largest software service company by revenue

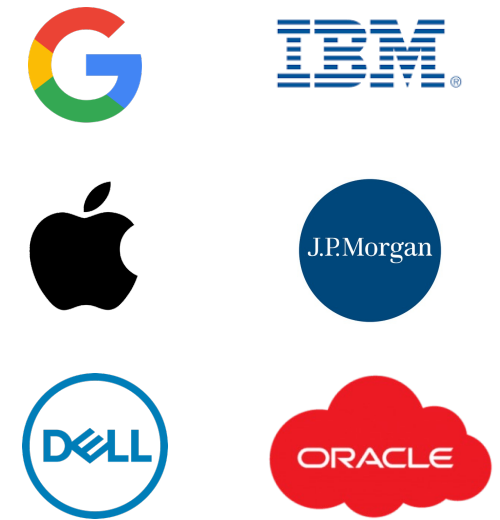
## Oasis of Software Solutions

- Application Modernization
- Cloud Management
- Cloud Infrastructure
- Networking
- Security

## Margin Comparison



## Key Partnerships




# VMware Acquisition Overview




**Broadcom is poised to significantly expand its software portfolio. Its successful history with M&A and proven ability to de-lever post-acquisition increase the likelihood of success for this transaction**

## Transaction Details

Expected to close by October 29<sup>th</sup>, as regulatory approval is finalized in China

 **\$61 billion** in cash and stock assuming **\$8 billion** of debt from VMware

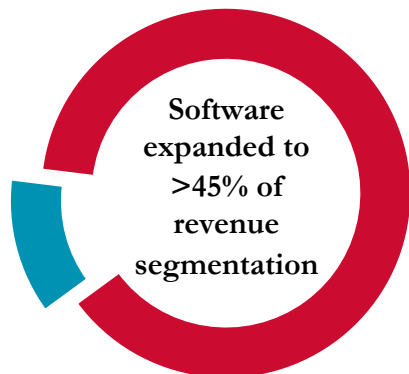
 VMware Shares exchanged for **\$142.50** or **0.252 shares** of Broadcom common stock with dividend policy unchanged

Estimated 24.7x TEV/EBITDA purchase multiple. VMware TEV/LTM EBITDA multiple is 25.5x

## Ownership Overview Post Merger

88% Broadcom

12% VMware



## Added Value to Broadcom

### 1 Best in Class Product Portfolio

App Modernization



VMware Tanzu

Networking



Cloud Management



VMware Aria™

Security



Cloud Infrastructure



Anywhere Workspace



Workspace ONE

### 2 Entry into Private Cloud Infrastructure

**46%**

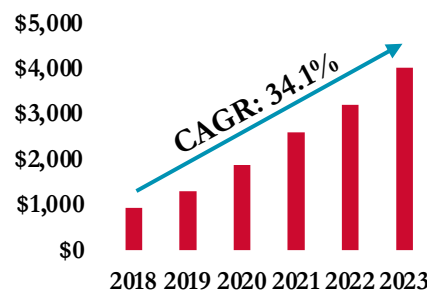
Of private clouds are run using VMware software

**52%**

Is the market share for VMware in the virtualization subsegment

### 3 Operational Efficiency

SaaS Revenue (\$M)



VMware has shifted its focus from perpetual licensing, which has seen a mere 1.53% CAGR, to SaaS (now 30% of net revenue) resulting in recurring revenues and bolstered revenue growth

# A Catalyst For Further Growth



Investing in VMware, along with synergies from the merger will catalyze revenue growth. VMware currently has a market capitalization of \$71.88 billion

## Strategy

Broadcom plans to invest an incremental \$2 billion a year in VMware to better unlock customer value

### 1 Strategy

#### R&D

Next-generation software-defined data centers in private clouds, instead of a mixed cloud environment, through virtualization

#### Professional Services

Plans to build capabilities for enterprises to deploy private clouds through a significant investment in professional services

### 2 Impact

**\$8.5 Billion**

In EBITDA contribution targeted within 3 years of the merger 80% more than their current EBITDA

## Impact: Data Center Expansion

### Today:

Only offering critical components in this industry

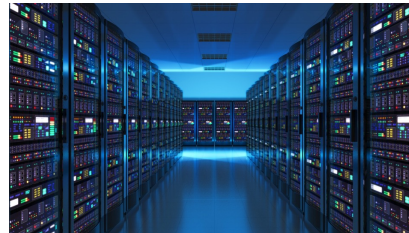


Strong economic moat from set of expanded software offerings



Adding VMware's cloud and virtualization software

### Tomorrow:



Offering End-to-End solutions in a \$75 Billion industry

# Thesis Point 3



3

Strategically positioned for **technology needs of tomorrow**



# Industry Expansion

Broadcom operates in a rapidly evolving industry set to absorb new tailwinds to grow their software and networking chip revenue

## Networking Chips on the Rise

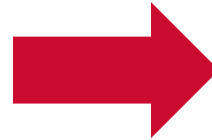
Networking chips are used in **more and more technologies** now since all of our electronic devices need to be connected



This positions Broadcom well to capture these emerging markets as they **dominate the networking chip industry**



Switching from Broadcom is difficult since clients would be forced to design proprietary hardware and software. They would need access to manufacturing abroad, which Broadcom holds strong relationships with, to compete effectively on pricing

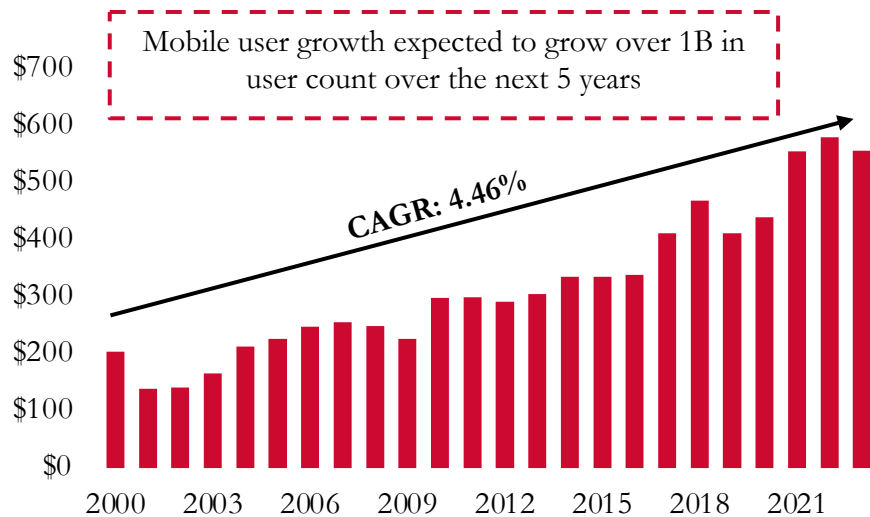


As of September 21, 2023, Google plans to continue to buy from Broadcom in wake of rumors that they would cut ties



Apple continues to renew their Broadcom contract despite sitting on cash they could use to build their own silicon

## Semiconductor Industry Growth (\$B)



## Emphasis on Software and Services



64% of companies are planning to implement an **ERP** in the next three years



Broadcom's Symantec Enterprise Cloud delivers data-centric hybrid security



The VMware expected acquisition shows a trend in acquisitions and focus



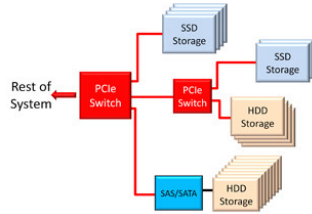


# Diversification of Products

Broadcom uses its scale to hold a diverse portfolio of innovative products and act as a one-stop-shop for their customers

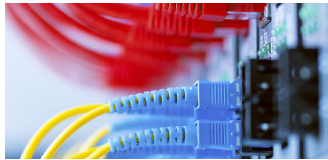
## Diverse Product Types

Storage and Systems



Wireless

Wired Connectivity



Optical Products

Enterprise Software



Mainframe Software

Cybersecurity



## Diverse Specifications

Storage Adapters

Fibre Channel Networking

PCI Switch

LED Displays

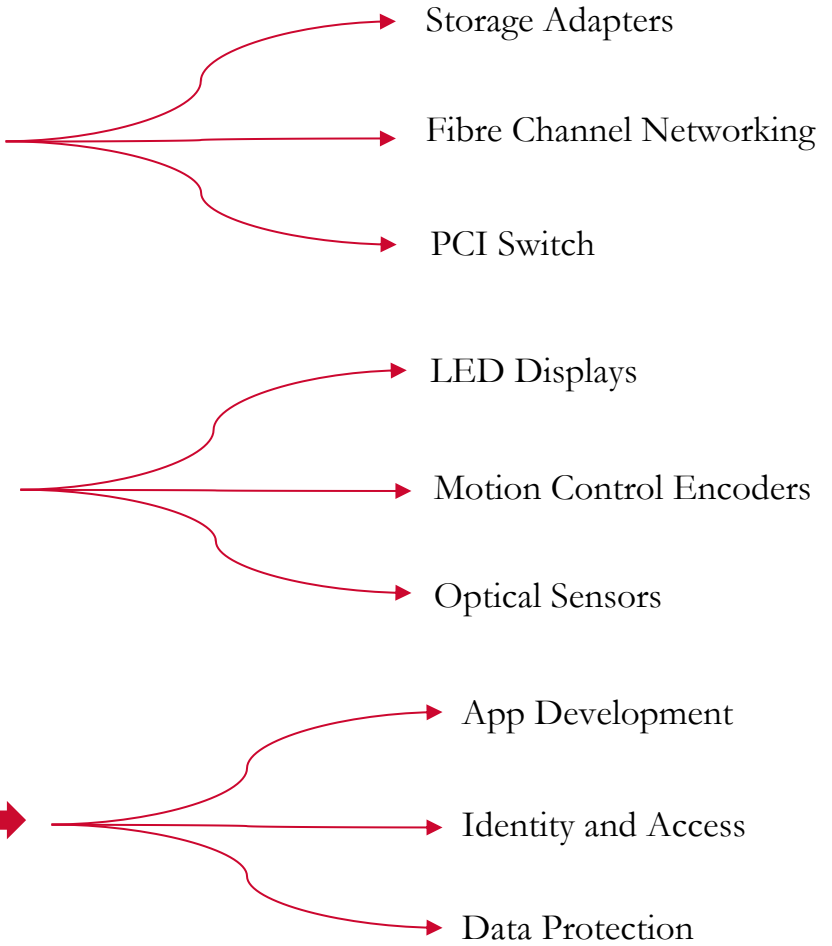
Motion Control Encoders

Optical Sensors

App Development

Identity and Access

Data Protection





# Valuation Drivers

Each thesis point ultimately boils down to confidence in expected software expansion. This sets Broadcom up for future revenue growth and should be reflected in a more attractive multiple

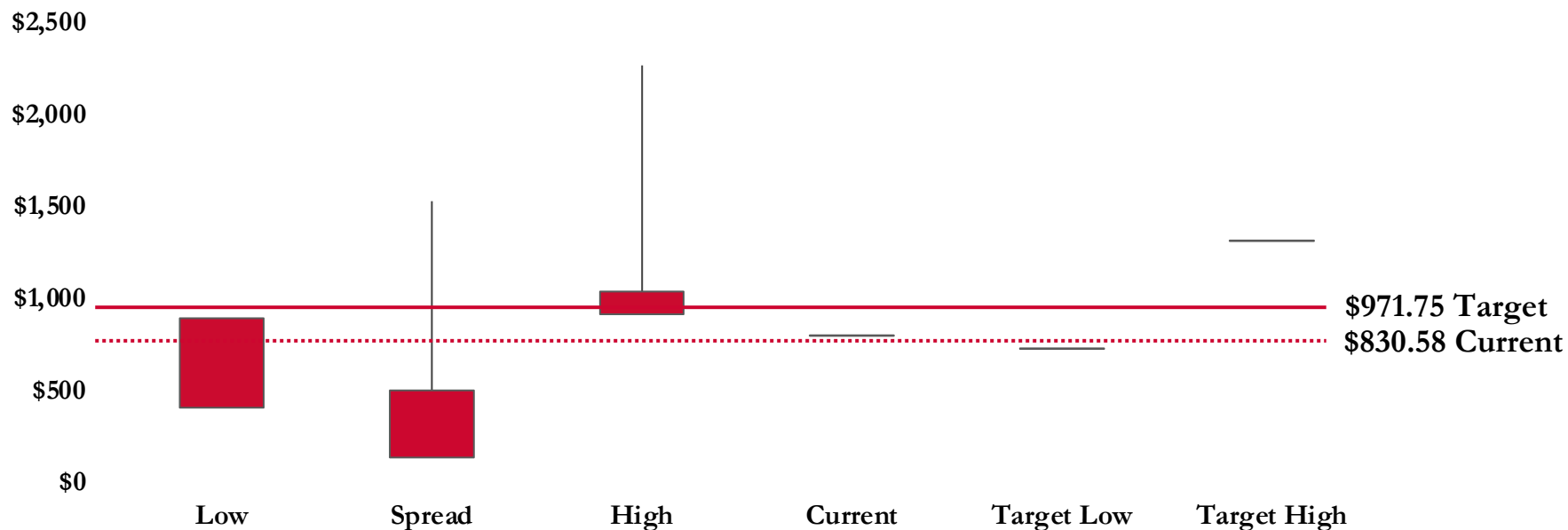


Why Buy Now?

# Football Field Valuation Analysis



Method	Low	Spread	High	Current	Target Low	Target High
52 Week High/Low	\$415	\$509	\$924	\$808	\$739	\$1,324
Analyst Price Targets	\$900	\$150	\$1,050	\$808	\$739	\$1,324
Comparable Companies EV/EBITDA	\$739	\$1,537	\$2,276	\$808	\$739	\$1,324
DCF Exit Multiple Method	\$902	\$144	\$1,046	\$808	\$739	\$1,324

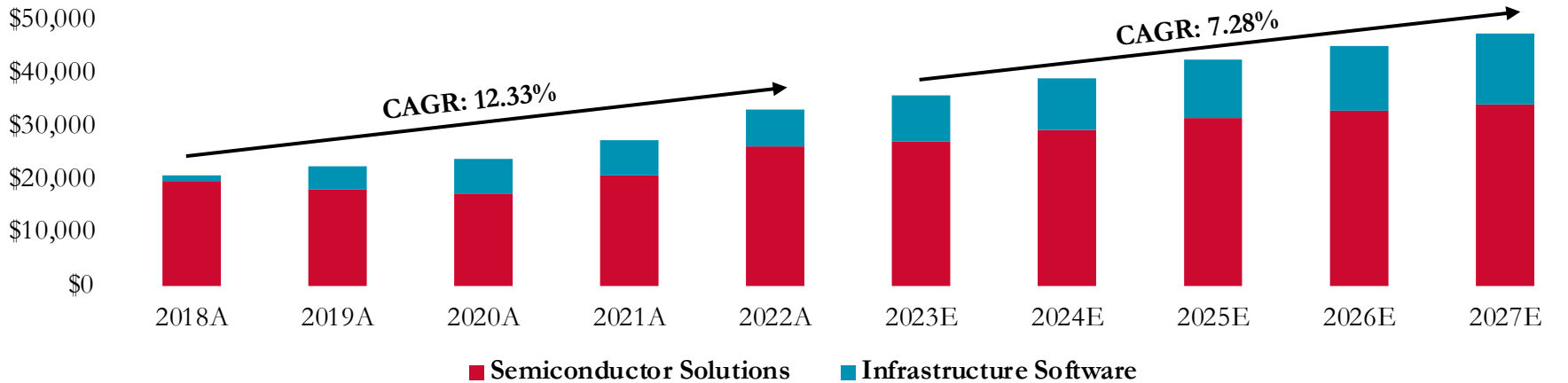




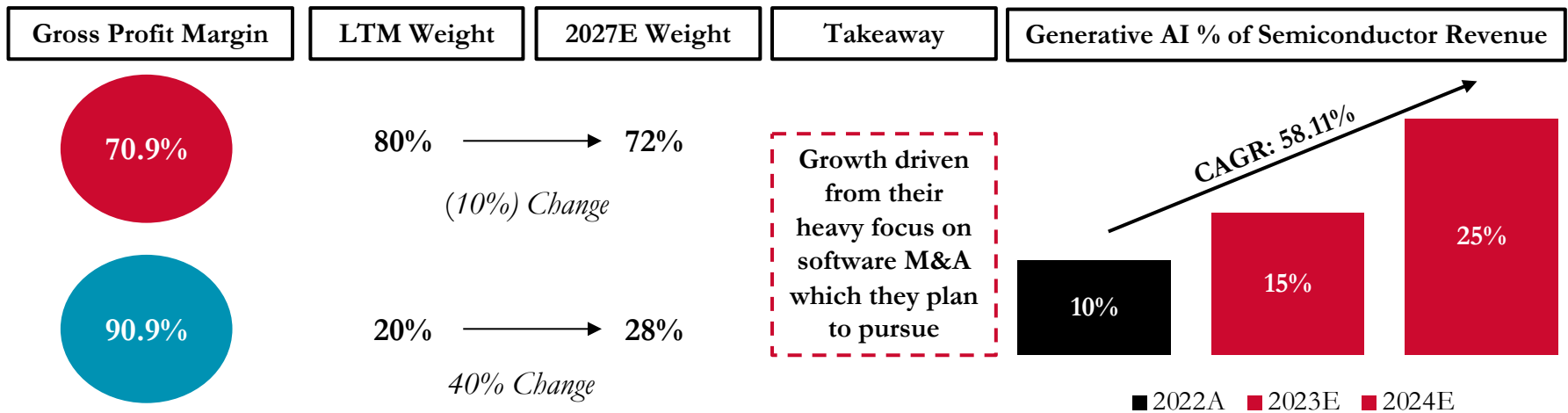
# Growth in Software Drives Revenue

Management's push to grow software will translate into broader revenue growth

## Segmented Revenue (\$M)



## Software Profitability, Weight, and “Innovation” Factor behind Growth Rationale





# DCF (Base Case)

For Fiscal Year Ending	2023E	2024E	2025E	2026E	2027E
<i>\$ in millions, unless per share data</i>					
<i>Free Cash Flow Build</i>					
<b>Revenue</b>	\$35,859	\$39,122	\$42,683	\$45,244	\$47,506
% growth		9.1%	9.1%	6.0%	5.0%
(-) COGS	\$10,758	\$11,737	\$12,378	\$12,668	\$12,827
(-) Operating Expense	\$8,493	\$8,566	\$8,643	\$8,459	\$8,648
(+) Depreciation & Amortization	(\$3,489)	(\$3,559)	(\$3,612)	(\$3,540)	(\$3,646)
<b>EBITDA</b>	<b>\$20,097</b>	<b>\$22,378</b>	<b>\$25,274</b>	<b>\$27,656</b>	<b>\$29,677</b>
% margin	56.0%	57.2%	59.2%	61.1%	62.5%
(-) D&A	(\$3,489)	(\$3,559)	(\$3,612)	(\$3,540)	(\$3,646)
<b>EBIT</b>	<b>\$16,608</b>	<b>\$18,820</b>	<b>\$21,662</b>	<b>\$24,116</b>	<b>\$26,031</b>
% margin	46.3%	48.1%	50.8%	53.3%	54.8%
(-) Income Tax Expense	\$1,014	\$1,106	\$1,207	\$1,280	\$1,343
<b>EBIAT</b>	<b>\$15,594</b>	<b>\$17,713</b>	<b>\$20,455</b>	<b>\$22,837</b>	<b>\$24,687</b>
(+) D&A	\$3,489	\$3,559	\$3,612	\$3,540	\$3,646
(-) Change in NWC	(\$386)	(\$386)	(\$386)	(\$386)	(\$386)
(-) Capex	(\$424)	(\$424)	(\$424)	(\$424)	(\$424)
<b>Unlevered Free Cash Flow</b>	<b>\$18,273</b>	<b>\$20,462</b>	<b>\$23,257</b>	<b>\$25,567</b>	<b>\$27,523</b>
WACC	9.43%				
Discount Period	0.17	1.17	2.17	3.17	4.17
Discount Factor	0.99	0.90	0.82	0.75	0.69
<b>Present Value of FCF</b>	<b>\$18,002</b>	<b>\$18,421</b>	<b>\$19,132</b>	<b>\$19,220</b>	<b>\$18,907</b>

1

EBITDA margin expansion is driven by revenue growth mixed with relatively steady COGS

2

CapEx remains steady and in line with management expectations

3

Discounted cash flows at a WACC of 9.43% based on Broadcom's capital structure

## Blended Implied Share Price

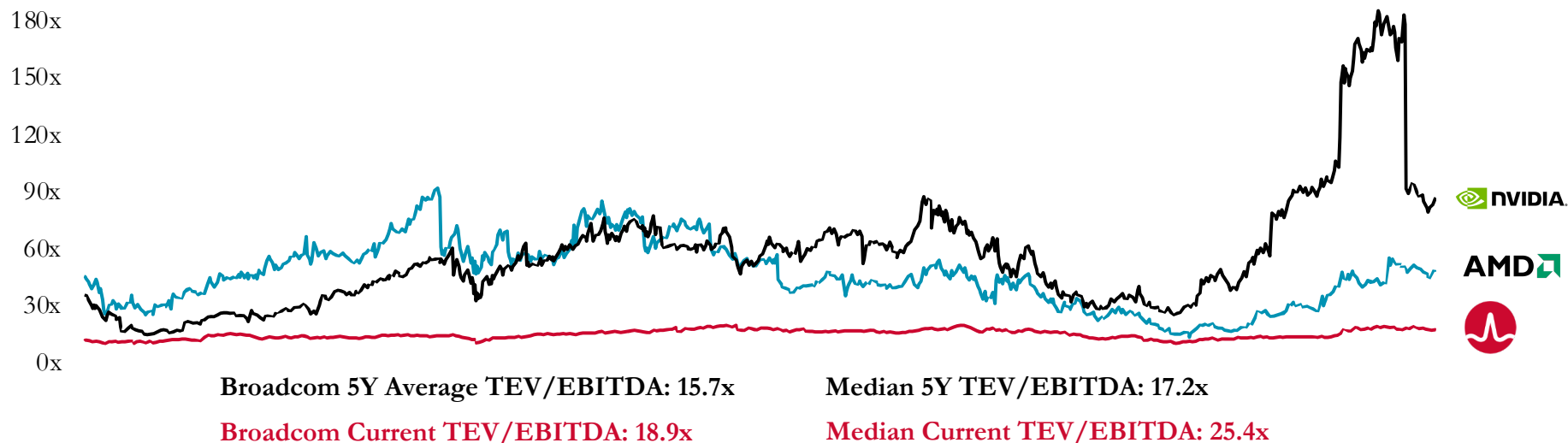
Method	Weight	Price
DCF	100%	\$971.75
Exit Multiple Method	0%	\$0.00
<b>Fair Value Estimate</b>		<b>\$971.75</b>
<i>Upside / Downside</i>		<i>17.0%</i>

# Historical Multiple Analysis

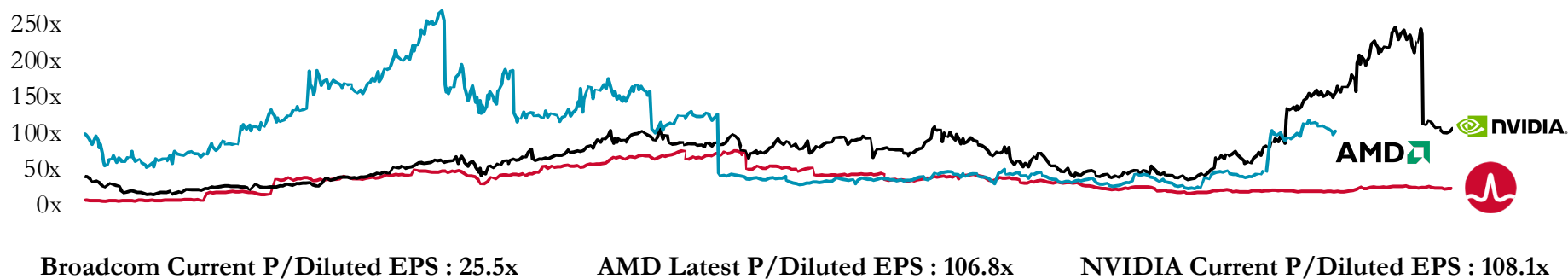
Competitors trade at higher multiples due to software prioritization



## 5Y TEV/EBITDA



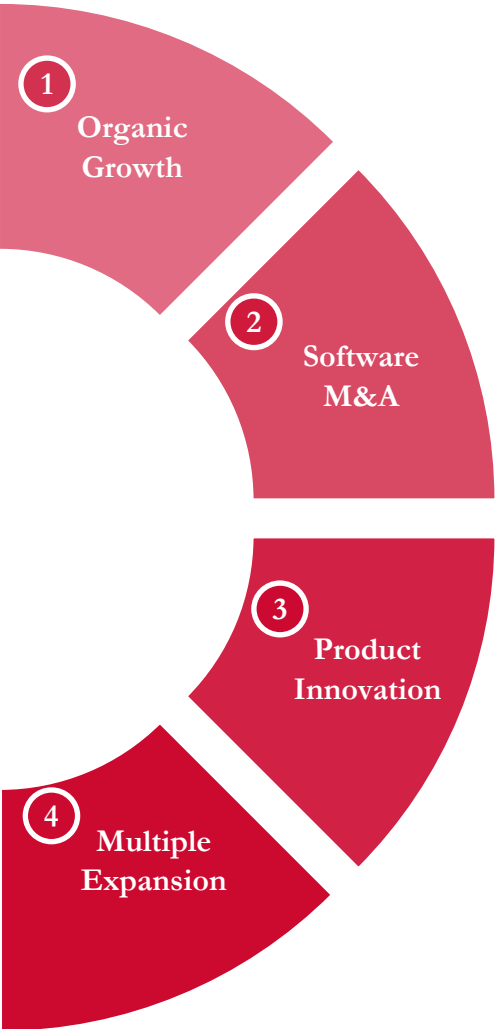
## P/Diluted EPS Comparison










# Conclusion

As Broadcom assumes a higher portion of revenue from software, their multiples will rise to meet their competitors, AMD and NVIDIA, who hold a software-heavy portfolio



Brand	Software % of Revenue	TEV/LTM EBITDA
 BROADCOM	19.9%	18.2x
 intel	24.1%	18.5x
 Qualcomm	15.9%	9.7x
 AMD	25.6%	49.2x
 NVIDIA	55.8%	87.3x

Current Price: \$830.58

Price Target: \$971.73

17% Implied Upside

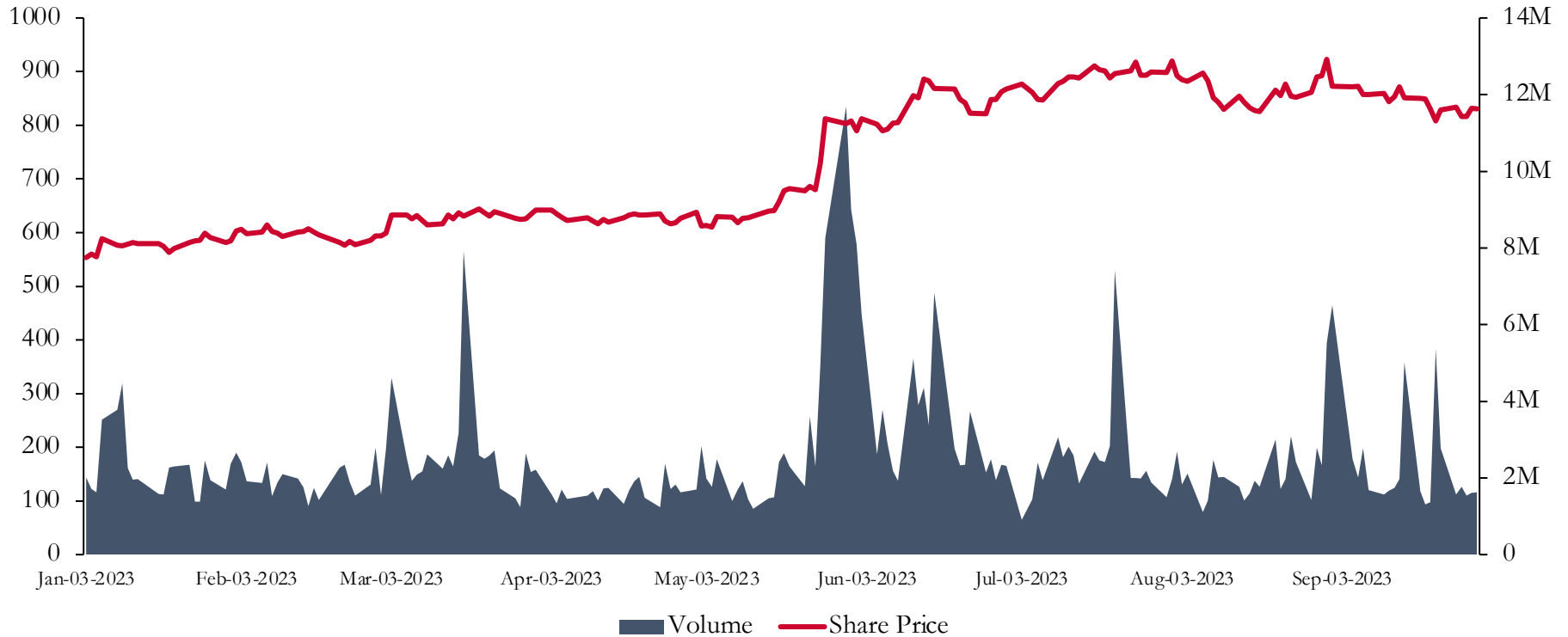


## Appendix

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TE1450 P10  
437698-63 N3 W



# YTD Stock Chart



## LTM Key Financials (\$M)

<b>Market Capitalization</b>	<b>\$342,809</b>	<b>EBITDA</b>	<b>\$20,329</b>
<b>Estimated 5Y Beta</b>	<b>1.13</b>	<b>EBIT</b>	<b>16,202</b>
<b>Revenue</b>	<b>\$35,454</b>	<b>Net Income</b>	<b>\$2,724</b>
<b>Gross Profit</b>	<b>\$26,333</b>	<b>Gross Profit Margin</b>	<b>74.3%</b>

# VMware Management Team



**Raghu Raghuram, *CEO***

“  
Raghu Raghuram joined VMware in 2003 and currently serves as the company’s CEO. Prior to VMware, Raghuram held product management and marketing roles at AOL, Bang Networks and Netscape  
”



**Karen Dykstra, *CFO***

“  
Karen Dykstra became Chief Financial Officer in June 2023. Dykstra formerly made a transition from service on a board of directors to CFO while at AOL, Inc., where she served on the AOL board of directors. Before AOL, Dykstra was a partner of Plainfield Asset Management LLC  
”



**Sumit Dhawan, *President***

“  
Sumit Dhawan leads the company’s go-to-market functions including WW Sales, Customer Experience and Success, Strategic Ecosystem and Industry Solutions, Marketing, and Communications. Sumit is a seasoned executive with a proven track record of building and running market-leading businesses  
”

# Broadcom Income Statement



For Fiscal Year Ending	2018A	2019A	2020A	2021A	2022A
<i>\$ in millions, unless per share data</i>					
Revenue	20,848	22,597	23,888	27,450	33,203
<b>Total Revenue</b>	<b>20,848</b>	<b>22,597</b>	<b>23,888</b>	<b>27,450</b>	<b>33,203</b>
Cost Of Goods Sold	7,021	6,723	6,518	7,162	8,256
<b>Gross Profit</b>	<b>13,827</b>	<b>15,874</b>	<b>17,370</b>	<b>20,288</b>	<b>24,947</b>
Selling General & Admin Exp.	1,027	1,708	1,821	1,347	1,383
R & D Exp.	3,768	4,696	4,968	4,854	4,919
Depreciation & Amortization	4,081	5,808	6,905	6,041	4,984
<b>Other Operating Exp., Total</b>	<b>8,876</b>	<b>12,212</b>	<b>13,694</b>	<b>12,242</b>	<b>11,286</b>
<b>Operating Income (EBIT)</b>	<b>5,487</b>	<b>4,258</b>	<b>4,361</b>	<b>8,684</b>	<b>14,286</b>
Interest Expense	(628)	(1,444)	(1,777)	(1,885)	(1,737)
Interest and Invest. Income	114	98	53	16	100
<b>Net Interest Exp.</b>	<b>(514)</b>	<b>(1,346)</b>	<b>(1,724)</b>	<b>(1,869)</b>	<b>(1,637)</b>
Other Non-Operating Inc. (Exp.)	27	(18)	2	16	16
<b>EBT Excl. Unusual Items</b>	<b>4,464</b>	<b>2,298</b>	<b>1,954</b>	<b>6,193</b>	<b>12,040</b>
Restructuring Charges	(226)	(746)	(214)	(149)	(55)
Merger & Related Restruct. Charges	(99)	-	(110)	-	-
Gain (Loss) On Sale Of Invest.	(103)	145	31	99	(169)
Asset Write-down	(13)	(67)	(19)	(16)	(7)
Legal Settlements	(14)	-	-	-	-
Other Unusual Items	-	-	116	-	-
<b>EBT Incl. Unusual Items</b>	<b>4,009</b>	<b>1,630</b>	<b>1,758</b>	<b>6,127</b>	<b>11,809</b>
Income Tax Expense	(8,084)	(510)	(518)	29	939
<b>Earnings from Cont. Ops.</b>	<b>12,093</b>	<b>2,140</b>	<b>2,276</b>	<b>6,098</b>	<b>10,870</b>
Earnings of Discontinued Ops.	(19)	(12)	(1)	-	-
<b>Net Income to Company</b>	<b>12,074</b>	<b>2,128</b>	<b>2,275</b>	<b>6,098</b>	<b>10,870</b>
Minority Int. in Earnings	(351)	-	-	-	-
<b>Net Income</b>	<b>11,723</b>	<b>2,128</b>	<b>2,275</b>	<b>6,098</b>	<b>10,870</b>
Pref. Dividends and Other Adj.	-	29	297	299	272
<b>NI to Common Incl Extra Items</b>	<b>11,723</b>	<b>2,099</b>	<b>1,978</b>	<b>5,799</b>	<b>10,598</b>
<b>NI to Common Excl. Extra Items</b>	<b>11,742</b>	<b>2,111</b>	<b>1,979</b>	<b>5,799</b>	<b>10,598</b>
Depreciation & Amortization	4,081	5,808	6,905	6,041	4,984
<b>EBITDA</b>	<b>9,032</b>	<b>9,470</b>	<b>10,581</b>	<b>14,087</b>	<b>18,645</b>
<b>Per Share Items</b>					
Basic EPS	\$28.05	\$5.27	\$4.92	\$14.14	\$25.91
Basic EPS Excl. Extra Items	\$28.09	\$5.30	\$4.92	\$14.14	\$25.91

# Broadcom Balance Sheet



For Fiscal Year Ending	2018A	2019A	2020A	2021A	2022A
<i>\$ in millions, unless per share data</i>					
<b>ASSETS</b>					
Cash And Equivalents	3,756	4,459	6,933	11,525	11,791
<b>Total Cash &amp; ST Investments</b>	<b>3,756</b>	<b>4,459</b>	<b>6,933</b>	<b>11,525</b>	<b>11,791</b>
Accounts Receivable	3,325	3,259	2,297	2,071	2,958
<b>Total Receivables</b>	<b>3,325</b>	<b>3,259</b>	<b>2,297</b>	<b>2,071</b>	<b>2,958</b>
Inventory	1,124	874	1,003	1,297	1,925
Prepaid Exp.	243	302	387	539	864
Other Current Assets	123	427	590	516	341
<b>Total Current Assets</b>	<b>8,571</b>	<b>9,321</b>	<b>11,210</b>	<b>15,948</b>	<b>17,879</b>
Gross Property, Plant & Equipment	4,259	4,896	5,920	6,132	6,344
Accumulated Depreciation	(1,894)	(2,331)	(2,822)	(3,196)	(3,604)
<b>Net Property, Plant &amp; Equipment</b>	<b>2,365</b>	<b>2,565</b>	<b>3,098</b>	<b>2,936</b>	<b>2,740</b>
Goodwill	26,913	36,714	43,447	43,450	43,614
Other Intangibles	10,762	17,554	16,782	11,374	7,111
Deferred Tax Assets, LT	284	50	-	-	-
Other Long-Term Assets	423	693	711	1,224	1,280
<b>Total Assets</b>	<b>49,318</b>	<b>66,897</b>	<b>75,248</b>	<b>74,932</b>	<b>72,624</b>
<b>LIABILITIES</b>					
Accounts Payable	811	855	836	1,086	998
Accrued Exp.	1,041	641	877	1,348	1,595
Curr Port. of LT Debt	-	2,787	807	264	403
Curr Port. of Leases	-	-	120	109	111
Curr Income Taxes Payable	162	229	440	541	680
Unearned Revenue, Current	164	1,501	2,620	2,619	2,931
Other Current Liabilities	160	886	671	314	334
<b>Total Current Liabilities</b>	<b>2,338</b>	<b>6,899</b>	<b>6,371</b>	<b>6,281</b>	<b>7,052</b>
Long-Term Debt	17,493	30,011	40,187	39,401	39,053
Long-Term Leases	-	-	575	499	411
Unearned Revenue, Non-Current	-	307	823	566	410
Other Non-Current Liabilities	3,636	5,306	4,076	3,834	3,614
<b>Total Liabilities</b>	<b>23,467</b>	<b>42,523</b>	<b>52,032</b>	<b>50,581</b>	<b>50,540</b>
Pref. Stock, Other	-	29	27	27	-
<b>Total Pref. Equity</b>	<b>-</b>	<b>29</b>	<b>27</b>	<b>27</b>	<b>-</b>
Additional Paid In Capital	23,285	25,081	23,982	24,330	21,159
Retained Earnings	3,487	-	-	748	1,604
Comprehensive Inc. and Other	(115)	(140)	(108)	(116)	(54)
<b>Total Common Equity</b>	<b>26,657</b>	<b>24,941</b>	<b>23,874</b>	<b>24,962</b>	<b>22,709</b>
<b>Total Equity</b>	<b>26,657</b>	<b>24,970</b>	<b>23,901</b>	<b>24,989</b>	<b>22,709</b>
<b>Total Liabilities And Equity</b>	<b>50,124</b>	<b>67,493</b>	<b>75,933</b>	<b>75,570</b>	<b>73,249</b>

# Broadcom Statement of Cash Flows



For Fiscal Year Ending	2018A	2019A	2020A	2021A	2022A
<i>\$ in millions, unless per share data</i>					
<b>Net Income</b>	<b>11,723</b>	<b>2,128</b>	<b>2,275</b>	<b>6,098</b>	<b>10,870</b>
Depreciation & Amort.	515	569	570	539	529
Amort. of Goodwill and Intangibles	3,566	5,239	6,335	5,502	4,455
<b>Depreciation &amp; Amort., Total</b>	<b>4,081</b>	<b>5,808</b>	<b>6,905</b>	<b>6,041</b>	<b>4,984</b>
(Gain) Loss On Sale Of Invest.	106	-	-	-	-
Asset Writedown & Restructuring Costs	21	133	44	38	13
Stock-Based Compensation	1,227	2,185	1,976	1,704	1,533
Other Operating Activities	(7,858)	(969)	(917)	(628)	365
Change in Acc. Receivable	(652)	486	981	210	(870)
Change In Inventories	417	250	(31)	(294)	(627)
Change in Acc. Payable	(325)	(42)	(3)	243	(79)
Change in Other Net Operating Assets	(396)	(878)	146	(286)	(78)
<b>Cash from Operations</b>	<b>8,344</b>	<b>9,101</b>	<b>11,376</b>	<b>13,126</b>	<b>16,111</b>
Capital Expenditure	(635)	(432)	(463)	(443)	(424)
Sale of Property, Plant, and Equipment	239	88	-	-	-
Cash Acquisitions	(4,800)	(16,033)	(10,872)	(8)	(246)
Divestitures	773	957	218	45	-
Invest in Marketable & Equity Secur	(249)	-	-	169	-
Other Investing Activities	(2)	(2)	8	(8)	3
<b>Cash from Investing</b>	<b>(4,674)</b>	<b>(15,422)</b>	<b>(11,109)</b>	<b>(245)</b>	<b>(667)</b>
Long-Term Debt Issued	-	30,034	27,802	9,904	1,935
<b>Total Debt Issued</b>	<b>-</b>	<b>30,034</b>	<b>27,802</b>	<b>9,904</b>	<b>1,935</b>
Long-Term Debt Repaid	(973)	(16,800)	(20,099)	(11,495)	(2,361)
<b>Total Debt Repaid</b>	<b>(973)</b>	<b>(16,800)</b>	<b>(20,099)</b>	<b>(11,495)</b>	<b>(2,361)</b>
Issuance of Common Stock	212	253	276	170	114
Repurchase of Common Stock	(7,314)	(6,407)	(765)	(1,299)	(8,455)
Issuance of Pref. Stock	-	3,679	-	-	-
Common Dividends Paid	(2,998)	(4,235)	(5,235)	(5,913)	(6,733)
Pref. Dividends Paid	-	-	(299)	(299)	(299)
<b>Total Dividends Paid</b>	<b>(2,998)</b>	<b>(4,235)</b>	<b>(5,534)</b>	<b>(6,212)</b>	<b>(7,032)</b>
Other Financing Activities	(45)	(36)	(69)	(42)	(17)
<b>Cash from Financing</b>	<b>(11,118)</b>	<b>6,488</b>	<b>1,611</b>	<b>(8,974)</b>	<b>(15,816)</b>
<b>Net Change in Cash</b>	<b>(7,448)</b>	<b>167</b>	<b>1,878</b>	<b>3,907</b>	<b>(372)</b>
Beginning Cash Balance	11,204	4,292	5,055	7,618	12,163
<b>Ending Cash Balance</b>	<b>3,756</b>	<b>4,459</b>	<b>6,933</b>	<b>11,525</b>	<b>11,791</b>



# DCF (Base Case)

## Blended Implied Share Price

Method	Weight	Price
DCF	100%	\$971.75
Exit Multiple Method	0%	\$0.00
<b>Fair Value Estimate</b>		<b>\$971.75</b>
<i>Upside / Downside</i>		<i>17.0%</i>

## Exit Multiple Method

Terminal Value:	
2027 EBITDA	\$29,676.9
Exit Multiple	15.5x
<b>Terminal Value</b>	<b>\$459,991.3</b>
Period	4.2
<b>PV of Terminal Value</b>	<b>\$315,988.2</b>

## Value Distribution:

PV of Period Cash Flows	\$36,423.9
PV of Terminal Cash Flows	\$315,988.2
<b>Total</b>	<b>\$352,412.1</b>
Period Cash Flows	10.3%
Terminal Cash Flows	89.7%
<b>Total</b>	<b>100.0%</b>

## Implied Share Price:

<b>Enterprise Value</b>	<b>\$352,412.1</b>
(-) Total Debt	39,075.0
(+) Cash	11,791.0
<b>Equity Value</b>	<b>\$403,278.1</b>
Shares Outstanding	415.0
<b>Share Price</b>	<b>\$971.75</b>
<i>Upside/Downside</i>	<i>17.0%</i>

# DCF (Bull Case)



For Fiscal Year Ending	2023E	2024E	2025E	2026E	2027E
<i>\$ in millions, unless per share data</i>					
<b>Free Cash Flow Build</b>					
<b>Revenue</b>	\$36,523	\$40,577	\$45,081	\$48,688	\$52,096
<i>% growth</i>		11.1%	11.1%	8.0%	7.0%
(-) COGS	\$10,957	\$12,173	\$13,074	\$13,633	\$14,066
(-) Operating Expense	\$8,719	\$8,968	\$9,229	\$9,217	\$9,607
(+) Depreciation & Amortization	(\$3,588)	(\$3,732)	(\$3,863)	(\$3,863)	(\$4,056)
<b>EBITDA</b>	\$20,436	\$23,168	\$26,642	\$29,701	\$32,479
<i>% margin</i>					
(-) D&A	(\$3,588)	(\$3,732)	(\$3,863)	(\$3,863)	(\$4,056)
<b>EBIT</b>	\$16,847	\$19,436	\$22,779	\$25,839	\$28,423
<i>% margin</i>	46.1%	47.9%	50.5%	53.1%	54.6%
(-) Income Tax Expense	\$1,014	\$1,116	\$1,227	\$1,350	\$1,485
<b>EBIAT</b>	\$15,833	\$18,320	\$21,552	\$24,489	\$26,938
(+) D&A	\$3,588	\$3,732	\$3,863	\$3,863	\$4,056
(-) Change in NWC	(\$386)	(\$386)	(\$386)	(\$386)	(\$386)
(-) Capex	(\$416)	(\$407)	(\$399)	(\$391)	(\$383)
<b>Unlevered Free Cash Flow</b>	\$18,620	\$21,259	\$24,630	\$27,574	\$30,225
<b>WACC</b>	9.43%				
<b>Discount Period</b>	0.17	1.17	2.17	3.17	4.17
<b>Discount Factor</b>	0.99	0.90	0.82	0.75	0.69
<b>Present Value of FCF</b>	\$18,342	\$19,137	\$20,260	\$20,726	\$20,760



# DCF (Bull Case)

## Blended Implied Share Price

Method	Weight	Price
DCF	100%	\$1,046.08
Exit Multiple Method	0%	\$0.00
<b>Fair Value Estimate</b>		<b>\$1,046.08</b>
<i>Upside / Downside</i>		<i>25.9%</i>

## Exit Multiple Method

Terminal Value:	
2027 EBITDA	\$32,478.7
Exit Multiple	15.5x
<b>Terminal Value</b>	<b>\$503,420.2</b>
Period	4.2
<b>PV of Terminal Value</b>	<b>\$345,778.2</b>

## Value Distribution:

PV of Period Cash Flows	\$37,479.0
PV of Terminal Cash Flows	\$345,778.2
<b>Total</b>	<b>\$383,257.2</b>
Period Cash Flows	9.8%
Terminal Cash Flows	90.2%
<b>Total</b>	<b>100.0%</b>

## Implied Share Price:

<b>Enterprise Value</b>	<b>\$383,257.2</b>
(-) Total Debt	39,075.0
(+) Cash	11,791.0
<b>Equity Value</b>	<b>\$434,123.2</b>
Shares Outstanding	415.0
<b>Share Price</b>	<b>\$1,046.08</b>
Upside/Downside	25.9%





# DCF (Bear Case)

For Fiscal Year Ending	2023E	2024E	2025E	2026E	2027E
<i>\$ in millions, unless per share data</i>					
<b>Free Cash Flow Build</b>					
Revenue	\$35,195	\$37,694	\$40,370	\$41,985	\$43,245
% growth		7.1%	7.1%	4.0%	3.0%
(-) COGS	\$10,559	\$11,308	\$11,707	\$11,756	\$11,676
(-) Operating Expense	\$8,268	\$8,173	\$8,082	\$7,749	\$7,767
(+) Depreciation & Amortization	(\$3,389)	(\$3,389)	(\$3,372)	(\$3,237)	(\$3,270)
<b>EBITDA</b>	<b>\$19,758</b>	<b>\$21,602</b>	<b>\$23,953</b>	<b>\$25,718</b>	<b>\$27,071</b>
% margin					
(-) D&A	(\$3,389)	(\$3,389)	(\$3,372)	(\$3,237)	(\$3,270)
<b>EBIT</b>	<b>\$16,369</b>	<b>\$18,213</b>	<b>\$20,580</b>	<b>\$22,480</b>	<b>\$23,802</b>
% margin	46.5%	48.3%	51.0%	53.5%	55.0%
(-) Income Tax Expense	\$1,052	\$1,199	\$1,367	\$1,558	\$1,776
<b>EBIAT</b>	<b>\$15,317</b>	<b>\$17,014</b>	<b>\$19,214</b>	<b>\$20,922</b>	<b>\$22,025</b>
(+) D&A	\$3,389	\$3,389	\$3,372	\$3,237	\$3,270
(-) Change in NWC	(\$386)	(\$386)	(\$386)	(\$386)	(\$386)
(-) Capex	(\$432)	(\$441)	(\$450)	(\$459)	(\$468)
<b>Unlevered Free Cash Flow</b>	<b>\$17,888</b>	<b>\$19,576</b>	<b>\$21,750</b>	<b>\$23,315</b>	<b>\$24,441</b>
<b>WACC</b>	9.43%				
Discount Period	0.17	1.17	2.17	3.17	4.17
Discount Factor	0.99	0.90	0.82	0.75	0.69
<b>Present Value of FCF</b>	<b>\$17,621</b>	<b>\$17,622</b>	<b>\$17,891</b>	<b>\$17,525</b>	<b>\$16,787</b>



# DCF (Bear Case)

## Blended Implied Share Price

Method	Weight	Price
DCF	100%	\$901.97
Exit Multiple Method	0%	\$0.00
<b>Fair Value Estimate</b>		<b>\$901.97</b>
<i>Upside / Downside</i>		8.6%

## Exit Multiple Method

Terminal Value:	
2027 EBITDA	\$27,071.2
Exit Multiple	15.5x
<b>Terminal Value</b>	<b>\$419,604.2</b>
Period	4.2
<b>PV of Terminal Value</b>	<b>\$288,208.5</b>

## Value Distribution:

PV of Period Cash Flows	\$35,243.0
PV of Terminal Cash Flows	\$288,208.5
<b>Total</b>	<b>\$323,451.5</b>
Period Cash Flows	10.9%
Terminal Cash Flows	89.1%
<b>Total</b>	<b>100.0%</b>

## Implied Share Price:

<b>Enterprise Value</b>	<b>\$323,451.5</b>
(-) Total Debt	39,075.0
(+) Cash	11,791.0
<b>Equity Value</b>	<b>\$374,317.5</b>
Shares Outstanding	415.0
<b>Share Price</b>	<b>\$901.97</b>
Upside/Downside	8.6%

# Sensitivity Analysis (Base Case)



## DCF Sensitivity Analysis: Share Price

		WACC				
		7.43%	8.43%	9.43%	10.43%	11.43%
Exit Multiple	17.5x	\$1139.63	\$1103.92	\$1069.86	\$1037.35	\$1006.31
	16.5x	\$1086.58	\$1052.88	\$1020.73	\$990.05	\$960.76
	15.5x	\$1033.54	\$1001.84	\$971.61	\$942.76	\$915.21
	14.5x	\$980.49	\$950.80	\$922.48	\$895.46	\$869.65
	13.5x	\$927.44	\$899.76	\$873.36	\$848.16	\$824.10

# Sensitivity Analysis (Bull Case)



## DCF Sensitivity Analysis: Share Price

		WACC				
		7.43%	8.43%	9.43%	10.43%	11.43%
Exit Multiple	17.5x	\$1230.03	\$1190.98	\$1153.73	\$1118.18	\$1084.25
	16.5x	\$1171.98	\$1135.12	\$1099.97	\$1066.42	\$1034.39
	15.5x	\$1113.92	\$1079.26	\$1046.21	\$1014.66	\$984.54
	14.5x	\$1055.86	\$1023.40	\$992.44	\$962.89	\$934.68
	13.5x	\$997.80	\$967.55	\$938.68	\$911.13	\$884.83

# Sensitivity Analysis (Bear Case)



## DCF Sensitivity Analysis: Share Price

		WACC				
		7.43%	8.43%	9.43%	10.43%	11.43%
Exit Multiple	17.5x	\$1055.40	\$1022.80	\$991.70	\$962.02	\$933.68
	16.5x	\$1007.01	\$976.24	\$946.89	\$918.87	\$892.13
	15.5x	\$958.62	\$929.68	\$902.08	\$875.73	\$850.57
	14.5x	\$910.23	\$883.12	\$857.26	\$832.58	\$809.02
	13.5x	\$861.83	\$836.56	\$812.45	\$789.44	\$767.46

# Operating Build & Key Assumptions



## Broadcom Growth Rates and Margins

Revenue Growth	14.9%	21.0%	8.0%	9.1%	9.1%	6.0%	5.0%
Gross Profit Margin	74.0%	75.2%	70.0%	70.0%	71.0%	72.0%	73.0%
SG&A of Sales	4.5%	-12.0%	-6.0%	-3.0%	-3.0%	-3.0%	-3.0%
Tax Rate	13.6%	13.1%	13.9%	14.0%	14.0%	14.0%	14.0%

Broadcom Revenue	\$20,848	\$22,597	\$23,888	\$27,450.0	\$33,203.0	\$35,859.2	\$39,122.4	\$42,682.6	\$45,243.5	\$47,505.7
% Growth		8.4%	5.7%	14.9%	21.0%	8.0%	9.1%	9.1%	6.0%	5.0%
Base						8.0%	9.1%	9.1%	6.0%	5.0%
Bull						10.0%	11.1%	11.1%	8.0%	7.0%
Bear						6.0%	7.1%	7.1%	4.0%	3.0%

Revenue	\$20,848	\$22,597	\$23,888	\$27,450	\$33,203	\$35,859	\$39,122	\$42,683	\$45,244	\$47,506
% Growth		8.4%	5.7%	14.9%	21.0%	8.0%	9.1%	9.1%	6.0%	5.0%
Cost of Revenue	\$7,021	\$6,723	\$6,518	\$7,162.0	\$8,256.0	\$10,757.8	\$11,736.7	\$12,377.9	\$12,668.2	\$12,826.5
% Growth		(4.2%)	(3.0%)	9.9%	15.3%	30.3%	9.1%	5.5%	2.3%	1.3%
Gross Profit	\$13,827	\$15,874	\$17,370	\$20,288	\$24,947	\$25,101.47	\$27,385.70	\$30,304.63	\$32,575.34	\$34,679.16

SG&A	\$1,027	\$1,708	\$1,821	\$1,347	\$1,383	\$1,217.0	\$1,144.0	\$1,109.7	\$1,076.4	\$1,044.1
% Growth		66.3%	6.6%	(26.0%)	2.7%	(12.0%)	(6.0%)	(3.0%)	(3.0%)	(3.0%)
Base						-12.0%	-6.0%	-3.0%	-3.0%	-3.0%
Bull						-10.0%	-4.0%	-1.0%	-1.0%	-1.0%
Bear						-14.0%	-8.0%	-5.0%	-5.0%	-5.0%

R&D	\$3,768	\$4,696	\$4,968	\$4,854	\$4,919	\$3,787.6	\$3,863.4	\$3,921.3	\$3,842.9	\$3,958.2
% Growth		24.6%	5.8%	(2.3%)	1.3%	(23.0%)	2.0%	1.5%	(2.0%)	3.0%
Base						-23.0%	2.0%	1.5%	-2.0%	3.0%
Bull						-21.0%	4.0%	3.5%	0.0%	5.0%
Bear						-25.0%	0.0%	-0.5%	-4.0%	1.0%

D&A	\$4,081	\$5,808	\$6,905	\$6,041	\$4,984	\$3,488.8	\$3,558.6	\$3,612.0	\$3,539.7	\$3,645.9
% Growth		42.3%	18.9%	(12.5%)	(17.5%)	(30.0%)	2.0%	1.5%	(2.0%)	3.0%
Base						-30.0%	2.0%	1.5%	-2.0%	3.0%
Bull						-28.0%	4.0%	3.5%	0.0%	5.0%
Bear						-32.0%	0.0%	-0.5%	-4.0%	1.0%

Operating Expenses	\$8,876	\$12,212	\$13,694	\$12,242	\$11,286	\$8,493	\$8,566	\$8,643	\$8,459	\$8,648
% Growth		37.6%	12.1%	(10.6%)	(7.8%)	(24.7%)	0.9%	0.9%	(2.1%)	2.2%
EBIT	\$5,487	\$4,258	\$4,361	\$8,684	\$14,286	\$16,608	\$18,820	\$21,662	\$24,116	\$26,031
% Growth		(22.4%)	2.4%	99.1%	64.5%	16.3%	13.3%	15.1%	11.3%	7.9%

# Operating Build & Key Assumptions



<b>Interest Expense</b>	<b>(\$628)</b>	<b>(\$1,444)</b>	<b>(\$1,777)</b>	<b>(\$1,885)</b>	<b>(\$1,737)</b>	<b>(\$1,646.1)</b>	<b>(\$1,560.0)</b>	<b>(\$1,478.4)</b>	<b>(\$1,401.1)</b>	<b>(\$1,327.8)</b>
<i>% of Long Term Revenue</i>	-3.0%	-6.4%	-7.4%	-6.9%	-5.2%	(5.2%)	(5.2%)	(5.2%)	(5.2%)	(5.2%)
Base						-5.2%	-5.2%	-5.2%	-5.2%	-5.2%
Bull						-7.2%	-7.2%	-7.2%	-7.2%	-7.2%
Bear						-3.2%	-3.2%	-3.2%	-3.2%	-3.2%
<b>Interest and Invest. Income</b>	<b>\$114</b>	<b>\$98</b>	<b>\$53</b>	<b>\$16</b>	<b>\$100</b>	<b>\$100.0</b>	<b>\$100.0</b>	<b>\$100.0</b>	<b>\$100.0</b>	<b>\$100.0</b>
<i>% of Long Term Revenue</i>	0.5%	0.4%	0.2%	0.1%	0.3%	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
Bear						2.0%	2.0%	2.0%	2.0%	2.0%
<b>Net Interest Exp.</b>	<b>(\$514)</b>	<b>(\$1,346)</b>	<b>(\$1,724)</b>	<b>(\$1,869)</b>	<b>(\$1,637)</b>	<b>(\$1,546)</b>	<b>(\$1,460)</b>	<b>(\$1,378)</b>	<b>(\$1,301)</b>	<b>(\$1,228)</b>
<b>Other Non-Operating Inc. (Exp.)</b>	<b>\$27</b>	<b>(\$18)</b>	<b>\$2</b>	<b>\$16</b>	<b>\$16</b>	<b>\$16.0</b>	<b>\$16.0</b>	<b>\$16.0</b>	<b>\$16.0</b>	<b>\$16.0</b>
<i>% Growth</i>		(166.7%)	(111.1%)	700.0%	-	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
Bear						2.0%	2.0%	2.0%	2.0%	2.0%
<b>EBT Excl. Unusual Items</b>	<b>\$5,000</b>	<b>\$2,894</b>	<b>\$2,639</b>	<b>\$6,831</b>	<b>\$12,665</b>	<b>\$15,078</b>	<b>\$17,376</b>	<b>\$20,299</b>	<b>\$22,831</b>	<b>\$24,819</b>
<i>% Growth</i>		(42.1%)	(8.5%)	158.8%	85.4%	19.1%	15.2%	16.8%	12.5%	8.7%

# Operating Build & Key Assumptions



<b>Restructuring Charges</b>	<b>(\$226)</b>	<b>(\$746)</b>	<b>(\$214)</b>	<b>(\$149)</b>	<b>(\$55)</b>	<b>(\$60.5)</b>	<b>(\$67.8)</b>	<b>(\$75.9)</b>	<b>(\$85.0)</b>	<b>(\$95.2)</b>
% Growth		230.1%	(71.3%)	(30.4%)	(63.1%)	10.0%	12.0%	12.0%	12.0%	12.0%
Base						10.0%	12.0%	12.0%	12.0%	12.0%
Bull						12.0%	14.0%	14.0%	14.0%	14.0%
Bear						5.0%	10.0%	10.0%	10.0%	10.0%
<b>Merger &amp; Related Restruct. Charges</b>	<b>(\$99)</b>	<b>\$0</b>	<b>(\$110)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
% Growth		(100.0%)	-	(100.0%)	-	10.0%	12.0%	12.0%	12.0%	12.0%
Base						10.0%	12.0%	12.0%	12.0%	12.0%
Bull						12.0%	14.0%	14.0%	14.0%	14.0%
Bear						5.0%	10.0%	10.0%	10.0%	10.0%
<b>Gain (Loss) On Sale Of Invest.</b>	<b>(\$103)</b>	<b>\$145</b>	<b>\$31</b>	<b>\$99</b>	<b>(\$169)</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
% Growth		(240.8%)	(78.6%)	219.4%	(270.7%)	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						2.0%	2.0%	2.0%	2.0%	2.0%
Bear						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
<b>Asset Writedown</b>	<b>(\$13)</b>	<b>(\$67)</b>	<b>(\$19)</b>	<b>(\$16)</b>	<b>(\$7)</b>	<b>(\$7.0)</b>	<b>(\$7.0)</b>	<b>(\$7.0)</b>	<b>(\$7.0)</b>	<b>(\$7.0)</b>
% Growth		415.4%	(71.6%)	(15.8%)	(56.3%)	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						2.0%	2.0%	2.0%	2.0%	2.0%
Bear						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
<b>Legal Settlements</b>	<b>(\$14)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
% Growth		(100.0%)	-	-	-	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						2.0%	2.0%	2.0%	2.0%	2.0%
Bear						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
<b>Other Unusual Items</b>	<b>\$0</b>	<b>\$0</b>	<b>\$116</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
% Growth		-	-	(100.0%)	-	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						2.0%	2.0%	2.0%	2.0%	2.0%
Bear						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
<b>EBT Incl. Unusual Items</b>	<b>\$4,545</b>	<b>\$2,226</b>	<b>\$2,443</b>	<b>\$6,765</b>	<b>\$12,434</b>	<b>\$15,010</b>	<b>\$17,301</b>	<b>\$20,216</b>	<b>\$22,739</b>	<b>\$24,717</b>
% Growth		(51.0%)	9.7%	176.9%	53.8%	20.7%	15.3%	16.9%	12.5%	5.7%



# Operating Build & Key Assumptions



<b>Income Tax Expense</b>	<b>(\$8,084)</b>	<b>(\$510)</b>	<b>(\$518)</b>	<b>\$29</b>	<b>\$939</b>	<b>\$1,032.9</b>	<b>\$1,156.8</b>	<b>\$1,295.7</b>	<b>\$1,451.2</b>	<b>\$1,625.3</b>
<i>% Growth</i>	(93.7%)	1.6%	(103.6%)	3,137.9%		10.0%	12.0%	12.0%	12.0%	12.0%
Base						10.0%	12.0%	12.0%	12.0%	12.0%
Bull						5.0%	10.0%	10.0%	10.0%	10.0%
Bear						12.0%	14.0%	14.0%	14.0%	14.0%
<b>Earnings from Cont. Ops.</b>	<b>\$12,629</b>	<b>\$2,736</b>	<b>\$2,961</b>	<b>\$6,736</b>	<b>\$11,495</b>	<b>\$13,977</b>	<b>\$16,144</b>	<b>\$18,921</b>	<b>\$21,288</b>	<b>\$23,092</b>
<i>% Growth</i>	(75.3%)	8.2%	127.5%	70.7%		21.6%	15.5%	17.2%	12.5%	8.5%
<b>Earnings of Discontinued Ops.</b>	<b>(\$19)</b>	<b>(\$12)</b>	<b>(\$1)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
<i>% Growth</i>	(36.8%)	(91.7%)	(100.0%)	-	-	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						2.0%	2.0%	2.0%	2.0%	2.0%
Bear						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
<b>Net Income to Company</b>	<b>\$12,610</b>	<b>\$2,724</b>	<b>\$2,960</b>	<b>\$6,736</b>	<b>\$11,495</b>	<b>\$13,977</b>	<b>\$16,144</b>	<b>\$18,921</b>	<b>\$21,288</b>	<b>\$23,092</b>
<i>% Growth</i>	(78.4%)	8.7%	127.6%	70.7%		21.6%	15.5%	17.2%	12.5%	8.5%
<b>Minority Int. in Earnings</b>	<b>(\$351)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>
<i>% Growth</i>	(100.0%)	-	-	-	-	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						2.0%	2.0%	2.0%	2.0%	2.0%
Bear						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
<b>Net Income</b>	<b>\$12,259</b>	<b>\$2,724</b>	<b>\$2,960</b>	<b>\$6,736</b>	<b>\$11,495</b>	<b>\$13,977</b>	<b>\$16,144</b>	<b>\$18,921</b>	<b>\$21,288</b>	<b>\$23,092</b>
<i>% Growth</i>	(77.8%)	8.7%	127.6%	70.7%		21.6%	15.5%	17.2%	12.5%	8.5%
<b>Prof. Dividends and Other Adj.</b>	<b>\$0</b>	<b>\$29</b>	<b>\$297</b>	<b>\$299</b>	<b>\$272</b>	<b>\$299.2</b>	<b>\$335.1</b>	<b>\$375.3</b>	<b>\$420.4</b>	<b>\$470.8</b>
<i>% Growth</i>	-	924.1%	0.7%	(9.0%)		10.0%	12.0%	12.0%	12.0%	12.0%
Base						10.0%	12.0%	12.0%	12.0%	12.0%
Bull						12.0%	14.0%	14.0%	14.0%	14.0%
Bear						5.0%	10.0%	10.0%	10.0%	10.0%
<b>NI to Common Inc Extra Items</b>	<b>\$12,259</b>	<b>\$2,695</b>	<b>\$2,663</b>	<b>\$6,437</b>	<b>\$11,223</b>	<b>\$13,678</b>	<b>\$15,809</b>	<b>\$18,545</b>	<b>\$20,868</b>	<b>\$22,621</b>
<b>NI to Common Excl. Extra Items</b>	<b>\$12,278</b>	<b>\$2,707</b>	<b>\$2,664</b>	<b>\$6,437</b>	<b>\$11,223</b>	<b>\$13,678</b>	<b>\$15,809</b>	<b>\$18,545</b>	<b>\$20,868</b>	<b>\$22,621</b>

# Operating Build & Key Assumptions



<b>Depreciation &amp; Amortization</b>	<b>\$4,081</b>	<b>\$5,808</b>	<b>\$6,905</b>	<b>\$6,041</b>	<b>\$4,984</b>	<b>\$3,488.8</b>	<b>\$3,558.6</b>	<b>\$3,612.0</b>	<b>\$3,539.7</b>	<b>\$3,645.9</b>
<i>% Growth</i>		42.3%	18.9%	(12.5%)	(17.5%)	(0.0%)	(3.0%)	(3.0%)	(3.0%)	(3.0%)
Base						-6.0%	-3.0%	-3.0%	-3.0%	-3.0%
Bull						-8.0%	-5.0%	-5.0%	-5.0%	-5.0%
Bear						-4.0%	-1.0%	-1.0%	-1.0%	-1.0%
<b>Capital Expenditures</b>	<b>(\$635)</b>	<b>(\$432)</b>	<b>(\$463)</b>	<b>(\$443)</b>	<b>(\$424)</b>	<b>(\$424.0)</b>	<b>(\$424.0)</b>	<b>(\$424.0)</b>	<b>(\$424.0)</b>	<b>(\$424.0)</b>
<i>% Growth</i>		(32.0%)	7.2%	(4.3%)	(4.3%)	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
Bear						2.0%	2.0%	2.0%	2.0%	2.0%
<b>EBITDA</b>	<b>\$9,568</b>	<b>\$10,066</b>	<b>\$11,266</b>	<b>\$14,725</b>	<b>\$19,270</b>	<b>\$20,097</b>	<b>\$22,378</b>	<b>\$25,274</b>	<b>\$27,656</b>	<b>\$29,677</b>
<i>% Growth</i>		5.2%	11.9%	30.7%	30.9%	4.3%	11.4%	12.9%	9.4%	7.3%
<b>Change in NWC</b>	<b>\$6,525</b>	<b>\$3,811</b>	<b>(\$2,417)</b>	<b>(\$4,828)</b>	<b>(\$1,160)</b>	<b>(\$386.0)</b>	<b>(\$386.0)</b>	<b>(\$386.0)</b>	<b>(\$386.0)</b>	<b>(\$386.0)</b>
<i>% Growth</i>		(41.6%)	(163.4%)	99.8%	(76.0%)	-	-	-	-	-
Base						0.0%	0.0%	0.0%	0.0%	0.0%
Bull						2.0%	2.0%	2.0%	2.0%	2.0%
Bear						-2.0%	-2.0%	-2.0%	-2.0%	-2.0%

# Comparable Companies Analysis



Date:

9/30/2023

Valuation Metrics Company Name	% of Enterprise Value				EV/Revenue		EV/EBITDA		P/E		D/EBITDA	
	Market Cap	EV	Debt	Equity	LTM	NTM	LTM	NTM	LTM	NTM	Net Debt	LTM
NVIDIA	1,074,425	1,069,356	1.0%	2.6%	32.7x	15.0x	84.8x	31.8x	156.7x	29.2x	(5,069)	0.9x
QUALCOMM Inc	123,943	130,756	11.8%	15.8%	3.4x	3.6x	9.7x	10.0x	18.3x	13.1x	6,813	1.2x
Advanced Micron Devices	166,123	162,698	1.8%	33.9%	7.4x	6.5x	48.9x	46.9x	NM	30.6x	(3,425)	0.9x
Intel Corporation	148,883	175,831	27.9%	59.4%	3.3x	3.1x	18.5x	11.8x	NM	29.3x	23,494	5.6x

<b>Broadcom Inc.</b>	<b>342,810</b>	<b>370,096</b>	<b>10.6%</b>	<b>6.0%</b>	<b>10.4x</b>	<b>9.8x</b>	<b>18.1x</b>	<b>15.4x</b>	<b>36.5x</b>	<b>18.6x</b>	<b>27,286</b>	<b>1.9x</b>
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Minimum	123,943	130,756	1.0%	2.6%	3.3x	3.1x	9.7x	10.0x	18.3x	13.1x	(5,069)	0.9x
40th Percentile	136,413	146,727	1.4%	9.2%	3.3x	3.4x	14.1x	10.9x	21.1x	21.1x	(4,247)	0.9x
Mean	378,344	384,660	10.6%	27.9%	11.7x	7.1x	40.5x	25.1x	87.5x	25.5x	5,453	2.1x
Median	137,503	345,096	17.4%	40.7%	12.9x	11.6x	52.2x	37.2x	124.0x	58.4x	8,507	2.2x
60th Percentile	166,123	175,831	11.8%	33.9%	7.4x	6.5x	48.9x	31.8x	129.0x	29.3x	6,813	1.2x
Maximum	1,074,425	1,069,356	27.9%	59.4%	32.7x	15.0x	84.8x	46.9x	156.7x	30.6x	23,494	5.6x

Operating Metrics Company Name	Revenue		EBITDA		Unlevered FCF		Margins		
	LTM	NTM	LTM	NTM	LTM	NTM	Gross	EBITDA	Unlevered FCF
NVIDIA	32,681	71,192	12,379	33,617	10,118	34,338	64.6%	37.9%	31.0%
QUALCOMM Inc	38,584	36,054	13,225	13,050	7,562	9,231	56.3%	34.3%	19.6%
Advanced Micron Devices	21,876	24,887	3,100	3,469	3,651	3,960	50.0%	14.2%	16.7%
Intel Corporation	54,044	55,861	8,780	14,909	(9,057)	(1,009)	38.3%	16.2%	(16.8%)

<b>Broadcom Inc.</b>	<b>35,454</b>	<b>35,454</b>	<b>20,329</b>	<b>23,996</b>	<b>14,830</b>	<b>19,868</b>	<b>74.3%</b>	<b>57.3%</b>	<b>41.8%</b>
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Minimum	21,876	24,887	3,100	3,469	(9,057)	(1,009)	38.3%	14.2%	(16.8%)
40th Percentile	33,790	33,694	10,220	13,794	5,215	6,068	52.5%	23.5%	17.9%
Mean	36,528	44,689	11,563	17,808	5,421	13,278	56.7%	32.0%	18.5%
Median	35,454	36,054	12,379	14,909	7,562	9,231	56.3%	34.3%	19.6%
60th Percentile	37,332	47,938	12,887	20,362	9,095	15,613	61.3%	36.4%	26.4%
Maximum	54,044	71,192	20,329	33,617	14,830	34,338	74.3%	57.3%	41.8%

<b>Broadcom Inc. Valuation</b>
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Case 1: 20th Percentile	
Implied Multiple	14.1x
2022 EBITDA	18,645
Enterprise Value	263,182
Less: Debt	39,075
Plus: Cash	11,791
Equity Value	314,048
Diluted Shares Outstanding	423.0
Implied Share Price	\$742.43
Upside / Downside	(10.6%)

Case 2: Mean	
Implied Multiple	40.5x
2022 EBITDA	18,645
Enterprise Value	755,021
Less: Debt	39,075
Plus: Cash	11,791
Equity Value	803,887
Diluted Shares Outstanding	423.0
Implied Share Price	\$1,905.17
Upside / Downside	129.4%

Case 3: 60th Percentile	
Implied Multiple	48.9x
2022 EBITDA	18,645
Enterprise Value	912,334
Less: Debt	39,075
Plus: Cash	11,791
Equity Value	963,200
Diluted Shares Outstanding	423.0
Implied Share Price	\$2,277.07
Upside / Downside	174.2%



# WACC Calculation

Capital Structure	
Debt-to-Total Capitalization	10.18%
Equity-to-Total Capitalization	89.82%
Cost of Debt	
Cost of Debt	4.33%
Tax Rate	7.6%
After-Tax Cost of Debt	4.00%
Cost of Equity	
Risk-free Rate	4.4%
Market Risk Premium	5%
Estimated Beta	1.13
Cost of Equity	10.05%
<b>WACC</b>	<b>9.43%</b>

Current Share Price	\$	830.57
Current Shares Outstanding		415
Equity Value	\$	344,686.55
<b>Total Debt</b>	\$	<b>39,075</b>
<b>Total Equity</b>	\$	<b>344,687</b>

Debt Outstanding	Amount	Effective Interest Rate	% of Total	Weighted
<b>April 2022 Senior Notes</b>				
Due April 2029	750	4.17%	1.9%	0.1%
Due April 2032	1,200	4.30%	3.1%	0.1%
Due May 2037	2,500	5.33%	6.4%	0.3%
<b>September 2021 Senior Notes</b>				
Due November 2035	3,250	4.23%	8.3%	0.4%
Due November 2036	2,750	4.79%	7.0%	0.3%
<b>March 2021 Senior Notes</b>				
Due April 2033	2,250	4.66%	5.8%	0.3%
Due April 2034	3,250	4.63%	8.3%	0.4%
<b>January 2021 Senior Notes</b>				
Due February 2028	750	2.10%	1.9%	0.0%
Due February 2031	2,750	2.56%	7.0%	0.2%
Due February 2033	1,750	2.70%	4.5%	0.1%
Due February 2041	3,000	3.60%	7.7%	0.3%
Due February 2051	1,750	3.84%	4.5%	0.2%
<b>June 2020 Senior Notes</b>				
Due September 2026	752	4.19%	1.9%	0.1%
Due September 2028	1,118	5.02%	2.9%	0.1%
<b>May 2020 Senior Notes</b>				
Due November 2023	105	2.40%	0.3%	0.0%
Due November 2025	900	3.29%	2.3%	0.1%
Due November 2030	1,856	4.27%	4.7%	0.2%
Due November 2032	2,000	4.39%	5.1%	0.2%
<b>April 2020 Senior Notes</b>				
Due April 2025	-	4.88%	0.0%	0.0%
Due April 2030	606	5.18%	1.6%	0.1%
<b>April 2019 Senior Notes</b>				
Due October 2024	622	3.98%	1.6%	0.1%
Due October 2026	-	4.54%	0.0%	0.0%
Due April 2029	1,655	4.95%	4.2%	0.2%
<b>2017 Senior Notes</b>				
Due January 2022	-	3.21%	0.0%	0.0%
Due January 2023	260	2.78%	0.7%	0.0%
Due January 2024	829	3.74%	2.1%	0.1%
Due January 2025	495	3.23%	1.3%	0.0%
Due January 2027	2,922	4.02%	7.5%	0.3%
Due January 2028	777	3.60%	2.0%	0.1%
<b>Assumed CA Senior Notes</b>				
Due August 2023	143	4.10%	0.4%	0.0%
Due March 2027	215	5.15%	0.6%	0.0%
<b>Other Senior Notes</b>				
Due August 2022	-	2.59%	0.0%	0.0%
Due August 2024	7	3.55%	0.0%	0.0%
Due August 2034	6	4.55%	0.0%	0.0%
Current Portion of Principal Amount Outstanding	403			
Short-term finance lease liabilities	37			
Total current portion of long-term debt	440			
Non-current portion of principal amount outstanding	40,815			
Long-term finance lease liabilities	22			
Unamortized discount and issuance costs	(1,762)			
<b>Total Debt</b>	<b>\$ 39,075</b>			<b>4.33%</b>

Current Share Price	\$	830.57
Current Shares Outstanding		415
Equity Value	\$	344,686.55
<b>Total Debt</b>	\$	<b>39,075</b>
<b>Total Equity</b>	\$	<b>344,687</b>

