International Business Machines

NYSE: IBM

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Company Overview

IBM provides cloud-based services and infrastructure, including tools and consulting, to other businesses

Company Focus

- Products include tools and services across IaaS, PaaS, and SaaS
- Cloud Service: Offers a wide range of tools on its cloud platforms and infrastructures, notably IBM Cloud Pak and Red Hat OpenShift
- Services offered include IBM Consulting, zSystems, Optimization Studio, IBM Aspera, IBM TRIRIGA, IBM CICS, IBM ILOG for companies on the platform

Geographic Breakdown

19%
51%
30%
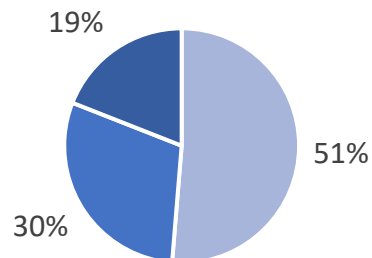
- Americas
- Europe/Middle East/Africa
- Asia Pacific

Growth Strategy

- Form partnerships with companies poised to hold a large market share in the growing cloud industry. Partnering companies can help IBM through R&D and utilizing IBM's services. Notable Partners include:
  - Cloud: AWS, Microsoft, Oracle, Salesforce, Samsung
  - Service: Adobe, KPMG, Kyndryl, SAP, ServiceNow, Workday
  - Infrastructure: Cisco

- Build and create unique tools for users on IBM Cloud to encourage businesses to join when transferring from private to public network

Software

IBM software serves as IBM's SaaS/PaaS product platform and contains the majority of AI R&D

Product Advantages and Dynamics

- Offers the hybrid cloud software that helps companies to automate and modernize through AI and access to data
- Integrates WatsonX and other AI related tools for platform users
- Various regression analysis models available for subscription
- Connective features from public cloud whilst keeping private cloud level of security
- 3% market share of cloud market, public and private
- 41% of IBM's revenue with increasing trends and reinvestment

Acquisitions

- Acquired Red Hat in 2019 for $34 billion
  - Created Red Hat OpenShift and maintained Red Hat's commitment to be open source
  - Integration between IBM Cloud and Red Hat enabled a hybrid multicloud platform
  - Utilized scale of Red Hat's users to deploy IBM's tools and product packages
  - Completed full cloud product package, enabling companies to use IBM as a one-stop shop to convert to the cloud in anticipation of using AI in operations
- Acquired Apptio in 2023 for $4.6 billion
  - Gives WatsonX access to Apptio's $450 billion anonymized IT spend data

Consulting

IBM Consulting is a service provided to companies to efficiently integrate IBM's software and move to cloud

Product Advantages

- Offers consulting services for both IBM products as well as any software/cloud platform
  - One of only cloud companies that also offers consulting services
- Focus on helping companies integrate AI into their operations, specifically
  - Holistic AI: integrate AI securely through extensive testing and evaluation
  - Generative AI: integrate AI that can generate and produce content of all forms, including but not limited to, text, image, video, audio

Partnership Dynamic

- Ability to consult for other clouds/platforms enables partnerships with companies with larger market shares
- Trusted business strategy consulting is important for any company trying to convert to cloud and AI to minimize concerns over:
  - Security
  - Scalability
  - Productivity

Infrastructure

IBM Infrastructure provides the OS for companies interested in a system with AI-friendly features

Product Advantages

- Integrates extremely well with IBM cloud and promises up to 2.5x more value than using public cloud alone
  - Reduces carbon footprint
- Entire hardware and software system one-stop shop package to reduce hassle

Recent Developments

- Newly integrated WatsonX capabilities on IBM Z infrastructure help clients to implement enterprise AI efficiently
- IBM Z Platform upgraded with new features and datasets for companies to use

Infrastructure Market Share

Pie chart values: 8%, 22%, 13%, 9%, 9%, 9%, 5%, 3%, 24%

Legend:
- IBM
- OpenStack
- Presidio
- Oracle Cloud Infrastructure
- Oracle Cloud Services
- Google App Engine
- Google Compute Engine
- Verizon Cloud
- Other
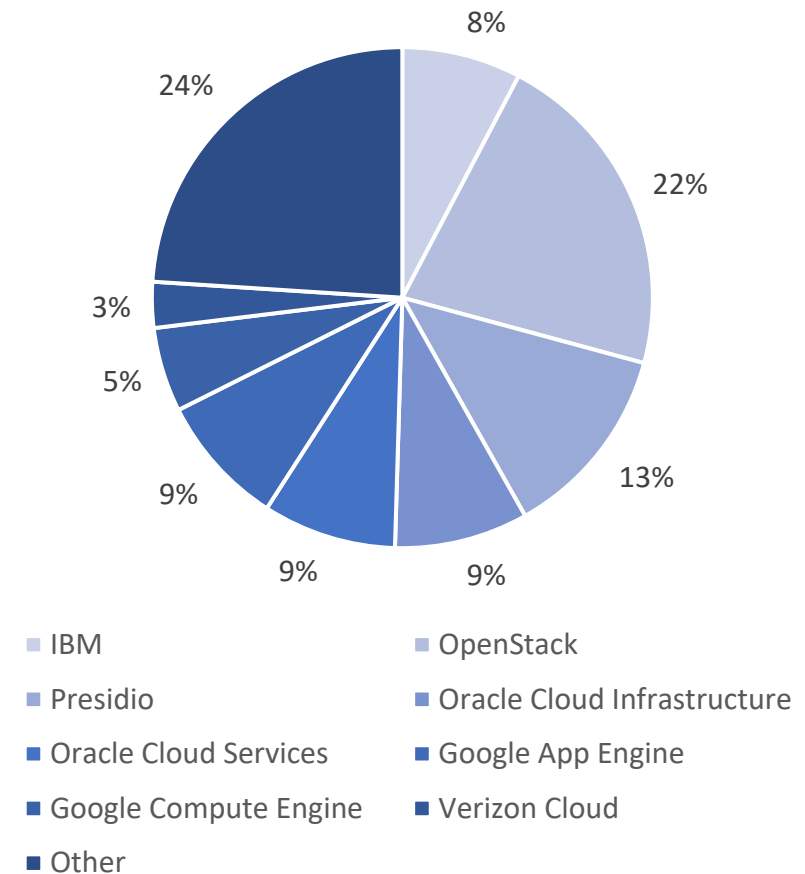
Industry Overview - Cloud

Competitors

- Main competitors include: AWS, Microsoft Azure, Google Cloud, Alibaba Cloud, Salesforce, Oracle, Tencent Cloud
- Most competitors operate on a hybrid cloud basis, combining private and public platforms

Industry Dynamic

- IBM holds a relatively small market share individually, owning just 3%
- IBM's partnerships, including AWS, Azure, Salesforce, and Oracle, account for more than 60% of the market, indicating areas where IBM Consulting can operate with minimal competition
- Projected CAGR of 16.6% annually from 2022 to 2031, or a size of around $2.5 trillion in 2031

Cloud Market Share

Pie chart values: 3%, 32%, 22%, 11%, 4%, 3%, 2%, 2%, 21%

Legend: IBM, AWS, Azure, Google Cloud, Alibaba Cloud, Salesforce, Oracle, Tencent, Other
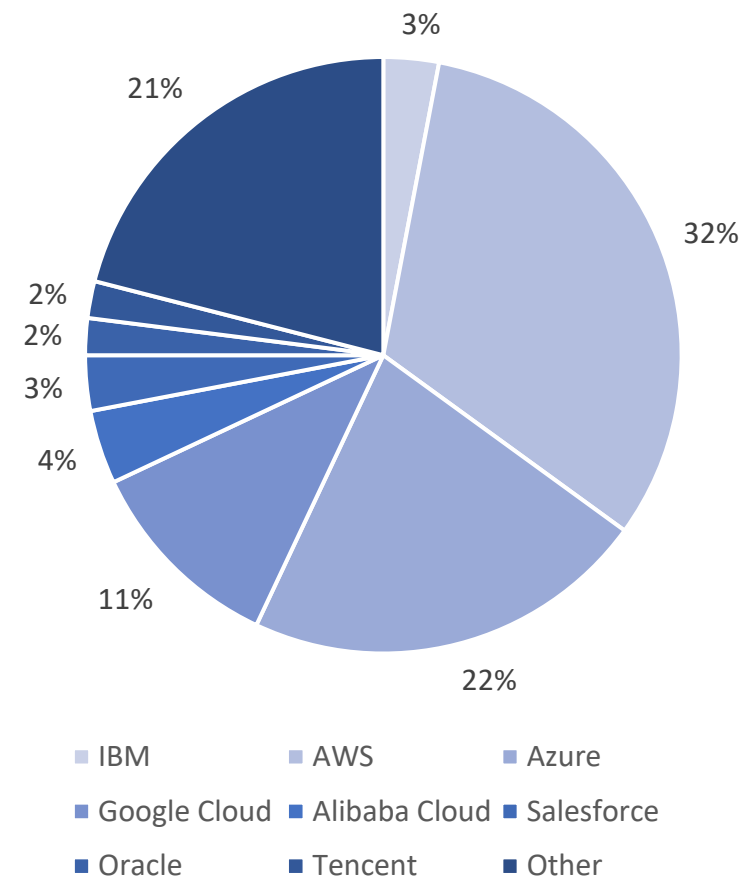
Industry Overview - Consulting

Industry Dynamic

- Global Business Management Consulting market size valued at $198.4 billion, with an expected CAGR of between 6.24% and 8%, reaching $285.3 billion by 2028.
- Competitors include: McKinsey, Capgemini, EY, KPMG, Altman Solon, Accenture, BCG, PwC, Bain
  - Narrowed down to Accenture, Infosys, Capgemini, NTT Data, Cognizant, HCL, Wipro, Fujitsu under IT Consulting
- IBM primarily falls under both Business Management Consulting and IT Consulting, especially as IBM focuses more on cloud services for companies interested in integrating AI

2023 IT Services Brand Value ($B)

Legend: 2021, 2022, 2023
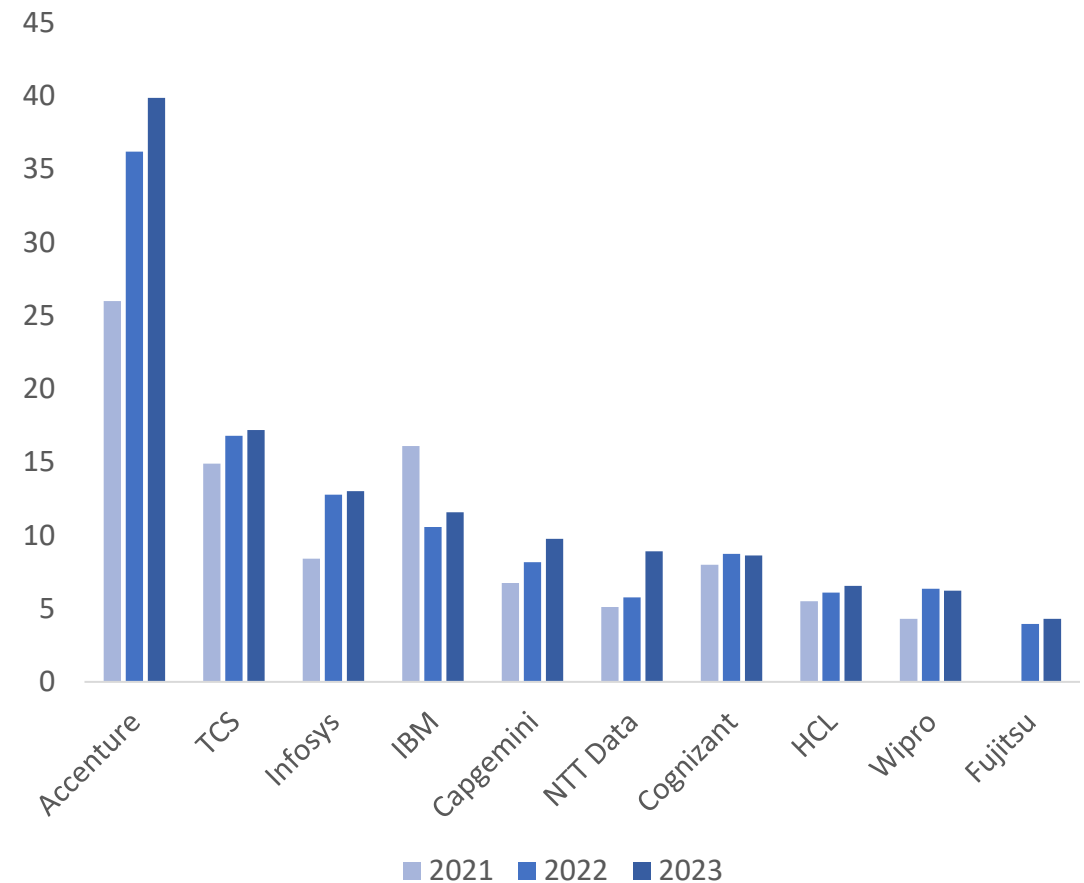
Industry Overview - AI

Industry Dynamic

- Uses of AI for businesses are separated into:
  - AI as a product: the R&D in the AI is what customers pay for, whether its B2B or B2C
  - AI as a tool: AI is used to increase a company's efficiency through analyzing consumer trends or simplifying complex tasks
- IBM sells AI as a product so that businesses can use it as a tool through WatsonX on the IBM Cloud
- Generative AI could raise global GDP by 7%, or around $7 trillion and increase productivity by 1.5% over a 10-year period
- Numerous catalysts for AI to enter various industries, mainly driven by technological breakthroughs in generative AI

Market Trend in AI

Market Interest in Artificial Intelligence

Share of companies that mention AI on Russel 3000 earnings calls
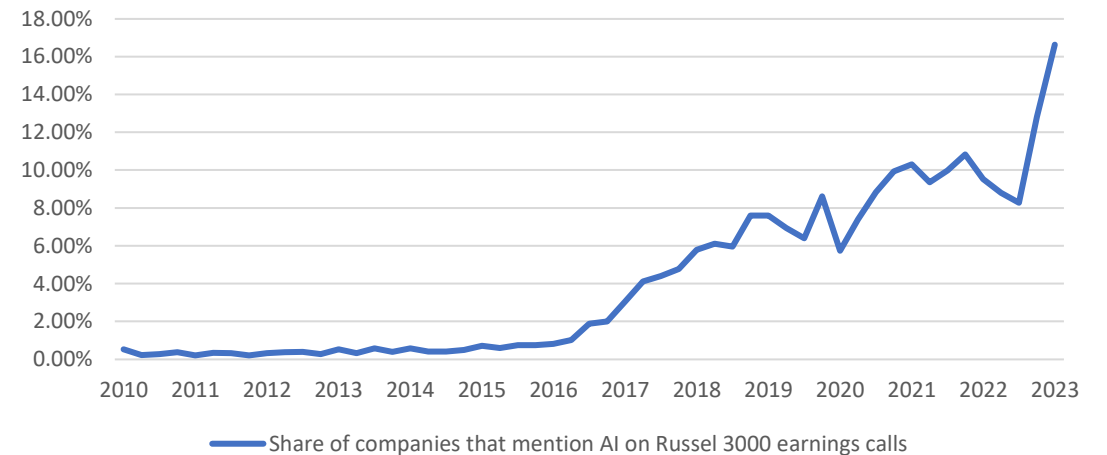
- Mentions of AI in Russel 3000 earnings calls have increased exponentially since 2016, reaching 15% for the first time in 2023
- Upwards trend likely to continue as AI provides computational advantages

Thesis 1: IBM's Red Hat acquisition completes IBM's full backend service as its core product of a one-stop shop for companies interested in integrating AI

Overview of Acquisition

- Acquisition moved IBM away from pure closed source development, keeping Red Hat's open source promise
- Enables IBM to offer all 3 clouds/IT services: IaaS, PaaS, SaaS
  - Strengthening hybrid cloud position to offer both as a trusted partner and infrastructure manager
- Red Hat is under IBM Software and operates apart from automation, data & AI, security, and transaction processing
  - IBM created Red Hat OpenShift and in 2023 Q2, it grew 11%, leading the 7.2% increase in overall software revenue

IBM's Revenue Since Acquisition

Legend: Software · Consulting · Infrastructure

Competitive Analysis

IBM Cloud versus AWS

IBM	AWS
• Extremely flexible servers that are built to customize memory and compute types, as well as public versus dedicated virtual servers (scalability versus control)	• Easy installation of virtual machines within the cloud as well as easy scalability through activating/deactivating instances
• Targeted towards backup solutions and application usage	• Targeted towards data backup, repositories for static files, applications, and more

IBM

- Extremely flexible servers that are built to customize memory and compute types, as well as public versus dedicated virtual servers (scalability versus control)
- Targeted towards backup solutions and application usage
    - Generally safer with storage classes, resiliency, and encryption key management
- More scalable database platform, higher processing power, better at real-time analytics
- Similar CDN to AWS, but 2200 points of presence (PoP) through partnership with Akamai
- Proprietary services (IBM Consulting, WatsonX)
- Switching costs moat plays a factor for companies that already have IBM software integrated as the differences in quality of product are minimal

AWS

- Easy installation of virtual machines within the cloud as well as easy scalability through activating/deactivating instances
- Targeted towards data backup, repositories for static files, applications, and more
- Versatile database package that is securely managed and efficiently run
- Amazon Cloudfront provides fast service for delivering content whilst maintaining Amazon's high level of security and provides 400 points of presence (PoP)
- Biggest advantage of AWS: a serverless option that offers ease-of-use paired with consistent quality
- Access to IBM's proprietary services

Competitive Analysis

IBM Cloud versus Azure

IBM	Microsoft Azure

- Quick installation and ease-of-use
- Powerful cloud with flexible servers and possibilities
- Tends to be relatively reasonably priced for most businesses interested
- No mention of ROI
- IBM Consulting and services like WatsonX
- Can easily integrate into other clouds to create hybrid cloud
- Better for more independent companies that don't require extra engineer and expert assistance
- Switching costs moat is in effect again as switching from IBM software to IBM cloud is an easier process with more guidance available

- Relatively easy installation that can get complex depending on the scope
- Flexible usage as well, but boasts stronger security
- More expensive than advertised typically, although the quality of the product (e.g. security) is higher in certain aspects
- Significant ROI when integrating Azure
- Comparable services, although IBM Consulting is also available to Azure users
- Helpful for companies that require strong IT support throughout the integration process

AI Integration Expectations

Long-term Dynamics

- Steady increase in IoT devices leads to an increase in data available to companies to utilize AI on
- Increases in all segments of cloud market to support AI growth, especially in the past 5 years:
  - Edge computing has grown 117%
  - Cloud gaming has grown ~1300%
  - Cloud computer security has grown 48%
  - Multi-cloud has grown 48%
    - Notably 94% of large enterprises (>5,000 employees) utilize multi-cloud to some extent
  - Hybrid-cloud has grown 247% (10 years)
- Growth in each segment of the cloud market and IBM's unique offerings to a specific portion of the market gives positive future indications as the market continues to grow to fulfill AI requirements

2023 IT Services Brand Value ($B)

Legend: IoT Devices (billions) — IoT Devices as a % of Total Devices
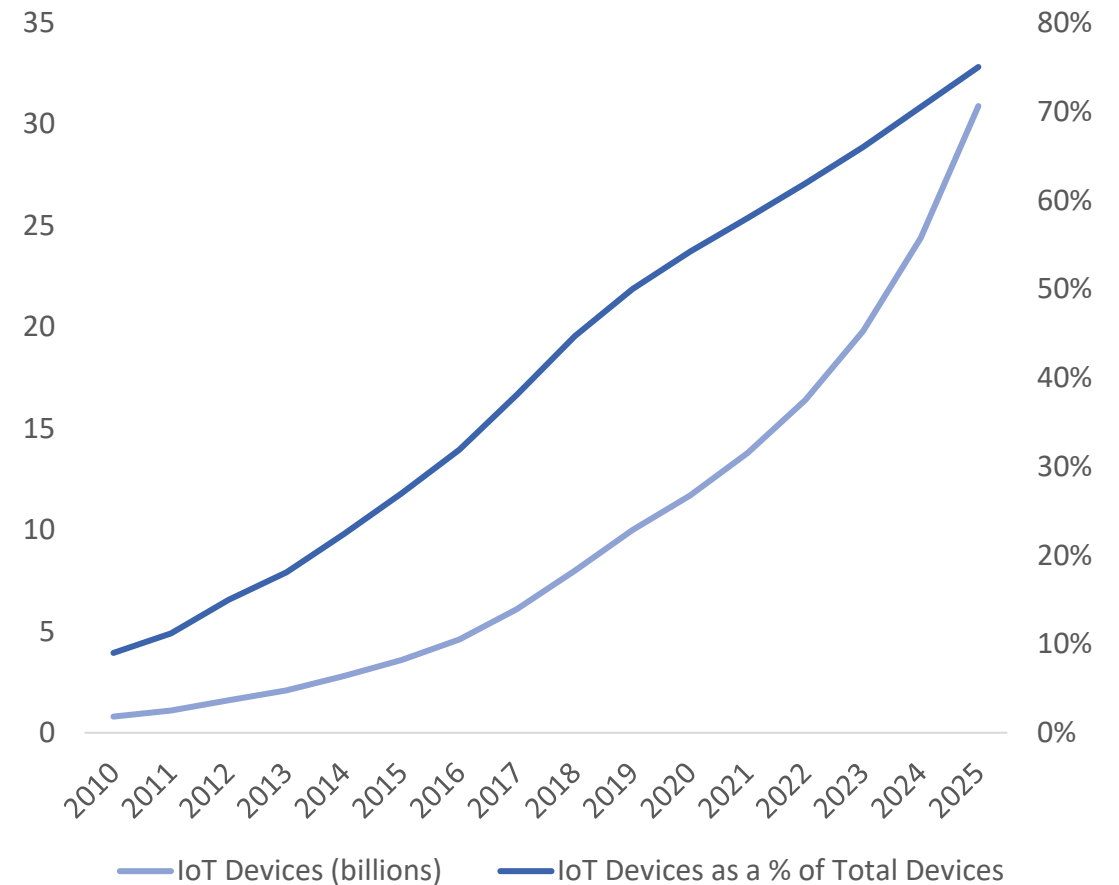
Thesis 2: The Watson AI failed venture in 2011 allow IBM to learn valuable lessons that will help IBM to take advantage of the huge industry R&D investments in LLMs

IBM's New Strategy

- Moved from implementing Watson as an independent product to integrating Watson as part of its PaaS offering
- Created strategic partnerships with competitors to broaden the base of its proprietary services and gain quality recognition for its products
- Focused on a specific portion of the cloud market under hybrid cloud instead of attempting to monopolize the whole market (Watson Health)
- Moved to acquire proven technologies to integrate into products to increase reliability and security (Red Hat, WDG, Nordcloud, myInvenio, Apptio)

Notable Partner Services

- AWS: integrate IBM Security with AWS Cloud and get access to IBM's large reserve of Data and Automation SaaS solutions
- Microsoft (Azure): Combination of Azure and IBM Cloud to maximize SAP
  - SAP: Accelerate SAP cloud ERP deployment and integrating consulting services
- Oracle: IBM services available on Oracle platforms to maximize machine learning, IoT, blockchain
- Salesforce: IBM iX integrated with Salesforce to better serve its business customers
- ServiceNow: Global Elite and Technology Partner increasing industry and domain expertise as well as enterprise wide ServiceNow offerings

Management Quality

- Prior to becoming CEO, Arvind Krishna was the SVP for IBM's cloud and cognitive software, the company's current focus
- On becoming CEO in 2020, Krishna was tasked with reversing the declining state of the company, and after revamping IBM's software and infrastructure business, profits have taken a positive turn

- Mohamad Ali, the SVP for IBM Consulting, a major player in IBM's future success, was previously CEO for IDG and Carbonite, both companies in the technology and information industries
- Ali's experience as CSO of HP to turn around its declining state gives promising prospects as IBM finds its position in the cloud and consulting markets

SVP: Mohamad Ali

CEO: Arvind Krishna

Long-term dynamics: Increased Demand

Demand Trends

- Roughly a 20.4% CAGR is expected for public cloud spending
  - Compared to 17.5% CAGR in 2019, spending is accelerating
- IBM increasing price for storage services by 26%, as well as smaller increases in IaaS and PaaS products
- Computational increases in generative AI leads to larger processing requirements for algorithms
  - Processing requirements is directly related to amount of GPUs, a limited resource as NVIDIA is the only reliable supplier
  - Expected exponential growth on further breakthrough due to the large number of possible applications in industry

Global Public Cloud Services Spending

Legend: ■ 2021 ■ 2022 ■ 2023
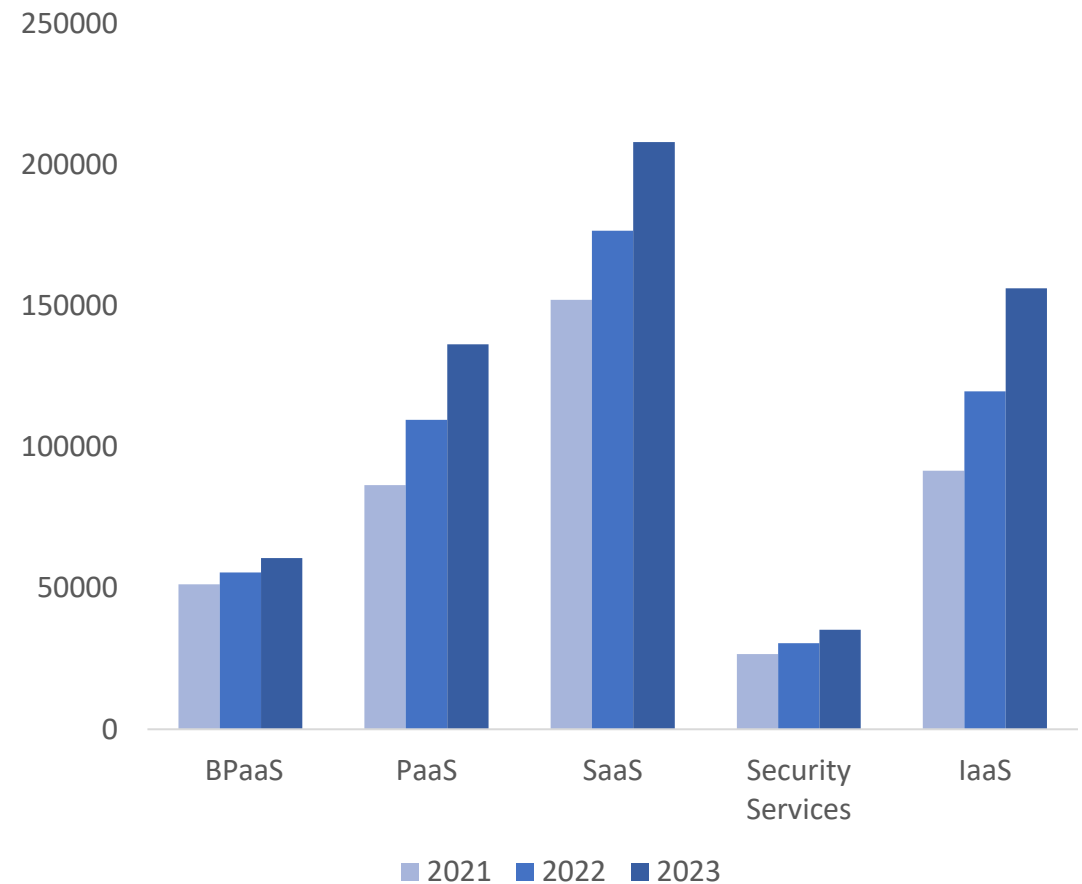
Long-term Dynamics: Supply Constraints

AWS, Azure Partnership

- With the enormous project growth in the cloud industry, it is likely that the industry reaches a state where there is far more demand for companies to try and integrate hybrid-cloud than resources available from the industry leaders in AWS and Azure
  - While AWS and Azure reach physical capacity, IBM's strategic partnership allows them to migrate workloads and manage businesses' AWS cloud environment remotely
  - The agnostic outlook, enabling these partnerships, serves to benefit all involved parties as every company trying to integrate modern technology in generative AI must upgrade to a cloud environment first

GPU Supply Dynamics

- NVIDIA remains the dominant force in the GPU market, controlling 60-70% of the global supply
  - Announced $10.3 billion of sales in 2023 Q2, a year-over-year increase by 171%
  - Sales continue to beat outpace expectations and a shortage in AI chips could become a reality soon as demand continues to increase but the supply chain struggles to keep up
- IBM, like many of its cloud competitors, use NVIDIA DGX systems to reach optimal performance

Thesis 3: IBM's position as a high dividend stock and proven endurance in the technology market reduces the exposure to the risk of the possible tech bubble bursting

Historical Endurance

- IBM has existed since 1911 and transformed as a company multiple times to keep up with relevant technological trends
- While IBM has historically failed to take advantage of its first-mover advantages in areas like Watson AI and IBM Health, IBM has generally created a reliable product with healthy end markets, even in recessions
- IBM's ability to adapt to both market trends and identify key changes to its business model to succeed have enabled IBM to stay alive
  - Key recent changes include: acquiring an open-source company, forming numerous partnerships with competitors, hiring its cloud SVP as CEO, revamping all of its product offerings to create a one-stop shop product

Financial Health

- Although IBM is currently highly leveraged, especially due to its recent acquisition of Red Hat, the high debt ratio is caused by the amount of treasury stock IBM currently owns, much higher than its competitors
- Additionally, as a consulting and software provider company, its peer ratios in either industry are not representative of IBM's financial health
  - Because IBM stands somewhere between both, we can say that with a healthy balance of operations between software and consulting, IBM's liquidity and solvency ratios are not concerning despite falling outside of both industry ranges
- IBM's credit rating of A- further cements IBM's current financial health

IBM is a Dividend Aristocrat

Dividend Reliability

- As an official dividend aristocrat, it means that IBM has been able to consistently generated relatively substantial returns to continue to increase dividends annually for 25 years
  - Additionally, under new CEO Arvind Krishna, IBM has been pushing for higher margins and greater profitability, generated more free cash flow as a result
  - While Krishna has only been CEO for under 3 years, IBM is already generating more FCF yield than its base consulting and software solution competitors, a gap that is likely to increase if IBM's partnerships pan out as planned

Dividend Ratio
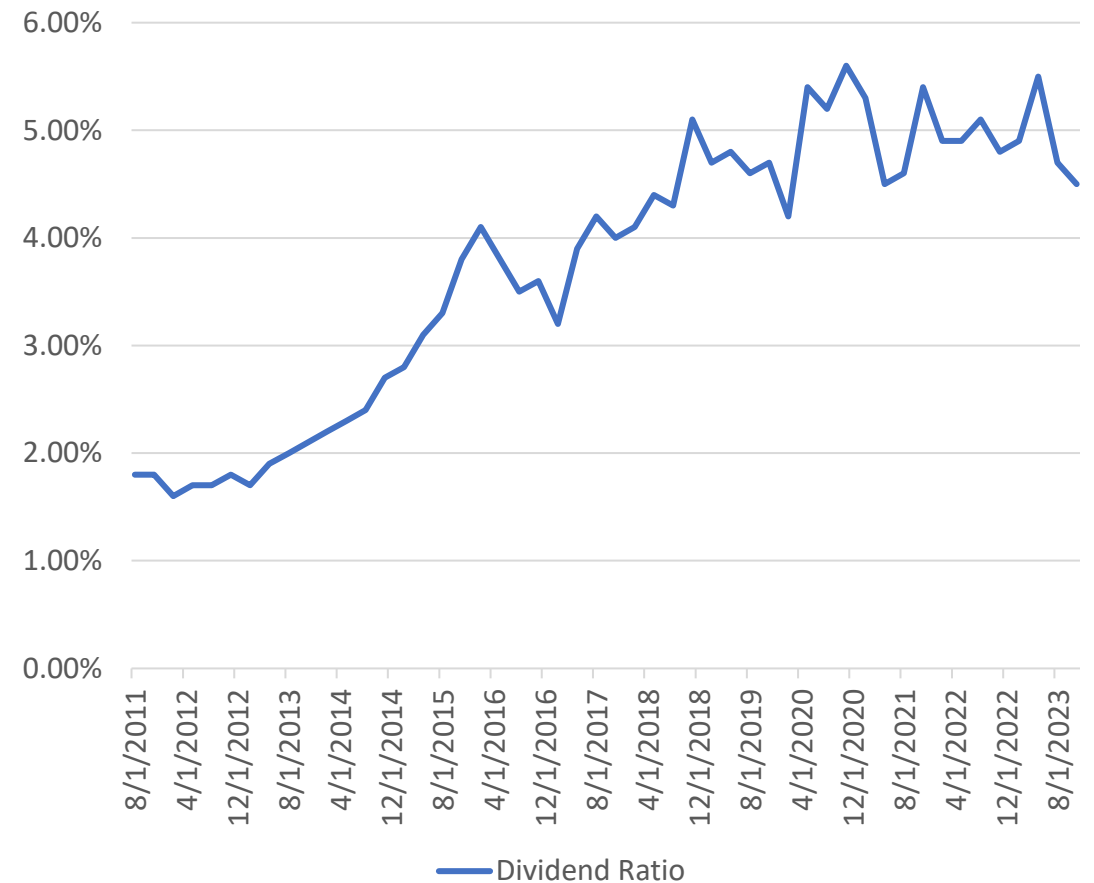
End Market Sustainability

- As a B2B company, IBM's end markets lie in the contract agreements with its companies
  - Under consulting, IBM offers its services to both IBM software and cloud products as well as other companies' products like AWS and Azure
    - The constant need for support for integrating cloud will remain as long as AI is a factor in business operations
    - Additionally, maintaining an infrastructure and upgrading to cloud boosts productivity through access to critical data and enterprise processes regardless of the presence of AI

- Under cloud software, IBM operates under long-term contracts and is protected by the switching costs moat
  - Transferring the data from a private server to a cloud server is a main reason both cost and time-wise for why companies haven't already made the switch to cloud
  - This expense is avoided by staying with IBM and continuing the contract, especially since the platform that IBM offers differs only minimally compared to its competitors
  - The hardware required to run the cloud servers are useful for computation, regardless, of the success of the cloud industry

Valuation: Drivers

Projecting volume growth in alignment with AI expansion and successful contract dynamics

Areas of Growth

- Projecting growth in revenue from Hybrid Platform & Solutions under Software to match growth in cloud industry
- Projecting growth in all segments of consulting: business transformations, technology consulting, application operations to match the increased use of cloud and relevant software platforms globally
- Projecting growth in revenue from Hybrid Infrastructure under Infrastructure to match the move to integrating full IBM infrastructure and cloud for maximum efficiency

Other Areas

- Projecting downturn in Transaction Processing under Software as IBM turns more to cloud software and service as its sole product
- Projecting downturn in Infrastructure Support under Infrastructure as companies begin to utilize the proprietary tools and resources available to integrate newer infrastructure systems
- Projecting less movement in margins and IBM doesn't have room to increase margins drastically in a market where it only controls 3% of the market share
- Projecting downturn in Financing and Other Sales as IBM focuses more on its cloud and consulting segments

Valuation: Sales Build

Cases and Assumptions								
Hybrid Platform & Solutions	15518	17036	17866	19205.95	20934.486	23027.934	25791.286	27080.85
Transaction Processing	6606	6390	7171	6812.45	6471.8275	6148.2361	5840.8243	5548.7831
Software Sales	22,124	23,426	25,037	26,018	27,406	29,176	31,632	32,630
Hybrid Platform & Solutions YoY Growth (%)		9.8%	4.9%	7.5%	9.0%	10.0%	12.0%	5.0%
Transaction Processing YoY Growth (%)		(3.3%)	12.2%	(5.0%)	(5.0%)	(5.0%)	(5.0%)	(5.0%)
Software YoY Growth (%)		5.9%	6.9%	3.9%	5.3%	6.5%	8.4%	3.2%
Business Transformation	7193	8284	8834	9540.72	10303.978	11128.296	11962.918	12800.322
Technology Consulting	5931	6095	6508	7028.64	7590.9312	8198.2057	8813.0711	9429.9861
Application Operations	3133	3466	3765	4066.2	4350.834	4611.884	4842.4782	5036.1774
Consulting Sales	16,257	17,845	19,107	20,636	22,246	23,938	25,618	27,266
Business Transformation YoY Growth (%)		15.2%	6.6%	8.0%	8.0%	8.0%	7.5%	7.0%
Technology Consulting YoY Growth (%)		2.8%	6.8%	8.0%	8.0%	8.0%	7.5%	7.0%
Application Operations YoY Growth (%)		10.6%	8.6%	8.0%	7.0%	6.0%	5.0%	4.0%
Consulting YoY Growth (%)		9.8%	7.1%	8.0%	7.8%	7.6%	7.0%	6.4%
Hybrid Infrastructure	8415	8167	9451	11813.75	12995.125	13904.784	14600.023	15330.024
Infrastructure Support	6118	6021	5837	5545.15	5267.8925	5004.4979	4754.273	4516.5593
Infrastructure Sales	14,533	14,188	15,288	17,359	18,263	18,909	19,354	19,847
Hybrid Infrastructure YoY Growth (%)		(2.9%)	15.7%	25.0%	10.0%	7.0%	5.0%	5.0%
Infrastructure Support YoY Growth (%)		(1.6%)	(3.1%)	(5.0%)	(5.0%)	(5.0%)	(5.0%)	(5.0%)
Infrastructure YoY Growth (%)		(2.4%)	7.8%	13.5%	5.2%	3.5%	2.4%	2.5%
Financing	975	774	645					
Other	1291	1119	453					
Financing & Other Sales	2,266	1,893	1,098	824	618	463	347	261
Financing & Other Sales YoY Growth (%)		(16.5%)	(42.0%)	(25.0%)	(25.0%)	(25.0%)	(25.0%)	(25.0%)

Valuation: Revenue, BS, CFS Projections

IBM Income Statement
Base Case

US$ and shares outstanding in Millions except per share amounts

>>>>>>>>>Estimates>>>>>>>>>

Income Statement	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Net sales	55,179	57,350	60,530	64,836	68,533	72,487	76,952	80,003
(-) Cost of products sold	(24,314)	(25,865)	(27,842)	(30,406)	(32,633)	(34,934)	(37,440)	(39,220)
Gross profit	30,865	31,485	32,688	34,430	35,899	37,553	39,512	40,784
Operating expenses:								
(-) Selling, general and administrative expenses	(20,561)	(18,745)	(18,609)	(19,451)	(19,874)	(20,296)	(21,162)	(21,601)
(-) Research and development expenses	(6,262)	(6,488)	(6,567)	(7,132)	(7,539)	(7,974)	(8,465)	(8,800)
(-) Intellectual Property and custom development income	620	612	663	713	754	797	846	880
Total Operating Expenses	(26,203)	(24,621)	(24,513)	(25,870)	(26,659)	(27,473)	(28,780)	(29,521)
Operating income (loss)	4,662	6,864	8,175	8,560	9,240	10,081	10,732	11,262
Other income (expense):								
(-) Interest expense	(1,288)	(1,155)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)	(1,216)
(+) Other, net	(802)	(873)	(5,803)	(5,803)	(5,803)	(5,803)	(5,803)	(5,803)
Income (loss) before income taxes	2,572	4,836	1,156	1,541	2,221	3,062	3,713	4,243
(-) Income tax (benefit) expense	(1,360)	124	(626)	(170)	(244)	(337)	(408)	(467)
Net income (loss)	3,932	4,712	1,782	1,711	2,466	3,399	4,121	4,710
(-) Income/(loss) from discontinued operations, net of tax	1,658	1,030	(143)	(142)	(141)	(140)	(139)	(138)
Net income (loss) available to common stockholders	5,590	5,742	1,639	1,569	2,325	3,259	3,982	4,572
Shares Outstanding:								
Basic		890	896	903	903	903	903	903	903
Assuming dilution		897	905	912	917	921	926	931	935
Diluted EPS	$ 6.23	$ 6.35	$ 1.80	$ 1.71	$ 2.52	$ 3.52	$ 4.28	$ 4.89
Source Links:	Source	Source	Source					

Cases and Assumptions								
COGS Margin (%)	(44.1%)	(45.1%)	(46.0%)	(46.9%)	(47.6%)	(48.2%)	(48.7%)	(49.0%)
COGS Margin Net Operating Improvements	0.0%	(1.0%)	(0.9%)	(0.9%)	(0.7%)	(0.6%)	(0.5%)	(0.4%)
COGS Margin Improvement Decay Rate			20%	20%	20%	20%	20%	20%
SG&A Margin (%)	(37.3%)	(32.7%)	(30.7%)	(30.0%)	(29.0%)	(28.0%)	(27.5%)	(27.0%)
R&D Margin (%)	(11.3%)	(11.3%)	(10.8%)	(11.0%)	(11.0%)	(11.0%)	(11.0%)	(11.0%)
Intellectual Property and custom development income Margin	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Effective Tax Rate	52.9%	(2.6%)	54.2%	(11.0%)	(11.0%)	(11.0%)	(11.0%)	(11.0%)

IBM Balance Sheet
Base Case

US$ and shares outstanding in Millions except per share amounts

>>>>>>>Estimates>>>>>>>

Balance Sheet	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Current Assets:								
Cash and cash equivalents	13,188	6,650	7,886	7,849	8,774	10,517	13,347	15,026
Restricted cash	463	307	103	-	-	-	-	-
Marketable securities	600	600	852	-	-	-	-	-
Trade accounts receivable, net	5,790	6,754	6,541	7,006	7,406	7,833	8,316	8,645
Other accounts receivable	695	1,002	817	-	-	-	-	-
Inventories	1,812	1,649	1,552	1,695	1,819	1,947	2,087	2,186
Assets held for sale	383	793	939	-	-	-	-	-
Assets held for investment	10,509	7,221	6,851	-	-	-	-	-
Deferred costs	1,018	1,097	967	-	-	-	-	-
Prepaid expenses and other current assets	4,707	3,466	2,611	2,611	2,611	2,611	2,611	2,611
Total Current Assets	39,165	29,539	29,119	19,161	20,610	22,908	26,361	28,469
Non-Current Assets:								
Property, plant and equipment, net	6,205	5,694	5,334	5,713	6,039	6,388	6,781	7,050
Goodwill	53,765	55,643	55,949	55,949	55,949	55,949	55,949	55,949
Other intangible assets, net	13,739	12,511	11,184	10,318	9,394	8,558	7,825	7,067
Deferred tax assets	8,404	7,370	6,256	6,256	6,256	6,256	6,256	6,256
Other long-term assets	34,693	21,244	19,403	20,783	21,968	23,236	24,667	25,645
Total Assets	155,971	132,001	127,245	118,181	120,217	123,295	127,839	130,376
Current Liabilities:								
Current debt obligations	7,116	6,787	4,760	-	-	-	-	-
Accounts payable	4,933	3,955	4,051	4,424	4,748	5,083	5,448	5,706
Accrued expenses	5,632	3,892	4,111	4,297	4,391	4,484	4,675	4,772
Other current liabilities	23,089	18,985	18,583	19,905	21,040	22,254	23,625	24,561
Total Current Liabilities	39,870	33,619	31,505	28,626	30,179	31,820	33,747	35,040
Non-Current Liabilities:								
Long-term debt	54,217	44,917	46,189	46,189	46,189	46,189	46,189	46,189
Retirement and nonpension postretirement benefit obligations	17,184	14,435	9,596	9,596	9,596	9,596	9,596	9,596
Deferred income	3,758	3,577	3,499	3,499	3,499	3,499	3,499	3,499
Operating lease liabilities	2,720	2,462	2,190	2,190	2,190	2,190	2,190	2,190
Other liabilities	17,497	13,996	12,243	13,114	13,862	14,661	15,565	16,182
Total Liabilities	135,246	113,006	105,222	103,214	105,514	107,956	110,786	112,695
Stockholders' equity:								
Common stock and additional paid-in capital	56,556	57,319	58,343	59,360	60,407	61,485	62,596	63,740
Treasury stock	(169,339)	(169,392)	(169,484)	(169,484)	(169,484)	(169,484)	(169,484)	(169,484)
Accumulated other comprehensive income (loss), net of tax:	(29,337)	(23,234)	(16,740)	(16,740)	(16,740)	(16,740)	(16,740)	(16,740)
Retained earnings	162,717	154,209	149,825	141,754	140,443	140,000	140,604	140,087
Noncontrolling interests	129	95	77	77	77	77	77	77
Total Shareholder's Equity	20,726	18,997	22,021	14,967	14,702	15,339	17,053	17,681
Total Liabilities & Shareholder's Equity	155,972	132,003	127,243	118,181	120,217	123,295	127,839	130,376
Source Links	Source	Source	Source					
Balance Check	1	2	(2)	-	-	-	-	-

Assumptions and Selected Ratios								
				365				
Days Receivable	38.30	43	39	39	39	39	39	39
Days Inventory	27	23	20	20	20	20	20	20
Days Other Current Assets	31	22	16	16	16	16	16	16
Days Payable	(61)	(56)	(53)	(53)	(53)	(53)	(53)	(53)
Days Accrued	(100)	(76)	(81)	(81)	(81)	(81)	(81)	(81)
Days Other Current Liabilities	(153)	(121)	(112)	(112)	(112)	(112)	(112)	(112)
Cash Conversion Cycle	(217)	(164)	(170)	(170)	(170)	(170)	(170)	(170)
Fixed Asset Turnover	8.9x	10.1x	11.3x	11.3x	11.3x	11.3x	11.3x	11.3x
Intangible Asset Turnover	4.0x	4.6x	5.4x	6.3x	7.3x	8.5x	9.8x	11.4x
Intangible Turnover YoY		14.1%	18.1%	16.1%	16.1%	16.1%	16.1%	16.1%
Other Non-Current Asset Turnover	1.6x	2.7x	3.1x	3.1x	3.1x	3.1x	3.1x	3.1x
Other Non-Current Liabilities Turnover	3.2x	4.1x	4.9x	4.9x	4.9x	4.9x	4.9x	4.9x
Weighted Average Interest Expense	(2.1%)	(2.2%)	(2.4%)	(2.2%)	(2.2%)	(2.2%)	(2.2%)	(2.2%)
Net Debt	48,145	45,054	43,063	38,340	37,415	35,672	32,842	31,163
Avg. Net Debt		46,600	45,421	43,651	42,403	41,282	40,076	38,962

IBM Cash Flow Statement
Base Case

US$ and shares outstanding in Millions except per share amounts

>>>>>>>>Estimates>>>>>>>

Cash Flow Statement	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Operating Activities								
Net income (loss)	5,590	5,743	1,639	1,569	2,325	3,259	3,982	4,572
Adjustments to reconcile net income to cash provided by operating activities	-	-	-	-	-	-	-	-
Pension settlement charge	-	-	5,894	-	-	-	-	-
Depreciation and amortization	4,227	3,888	2,407	2,482	2,559	2,639	2,721	2,806
Amortization of intangibles	2,468	2,529	2,395	-	-	-	-	-
Stock-based compensation	937	982	987	1,017	1,047	1,079	1,111	1,144
Deferred taxes	(3,203)	(2,001)	(2,726)	-	-	-	-	-
Net (gain)/loss on asset sales and other	(70)	(307)	(122)	-	-	-	-	-
Change in operating assets and liabilities, net of acquisitions/divestitures	-	-	-	1,322	1,135	1,214	1,371	937
Retirement related	936	1,038	331	-	-	-	-	-
Change In Operating Assets:								
Trade accounts receivable	5,297	1,372	(539)	465	399	427	483	330
Inventories	(209)	138	71	143	124	128	140	99
Accounts payable and accrued expenses	138	85	213	559	418	428	556	356
Other liabilities	2,087	(671)	(115)	2,193	1,882	2,014	2,274	1,554
Cash provided by operating activities	18,198	12,796	10,435	9,750	9,889	11,187	12,638	11,798
Investing Activities								
Payments for property, plant and equipment	(2,618)	(2,062)	(1,346)	(7,982)	(8,039)	(8,609)	(9,075)	(9,300)
Proceeds from disposition of property, plant and equipment	188	387	111	-	-	-	-	-
Investment in software	(612)	(706)	(626)	-	-	-	-	-
Purchases of marketable securities and other investments	(6,246)	(3,561)	(5,930)	-	-	-	-	-
Proceeds from disposition of marketable securities and other investments	5,618	3,147	4,665	-	-	-	-	-
Non-operating finance receivables-net	475	-	-	(939)	-	-	-	-
Acquisition of businesses, net of cash acquired	(336)	(3,293)	(2,348)	-	-	-	-	-
Divestiture of businesses, net of cash transferred	503	114	1,272	-	-	-	-	-
Net Acquisition Payments	167	(3,179)	(1,076)	(866)	(924)	(836)	(733)	(818)
Cash used for investing activities	(3,028)	(5,974)	(4,202)	(9,787)	(8,964)	(9,445)	(9,807)	(10,118)
Financing Activities								
Proceeds from new debt	10,504	522	7,804	-	-	-	-	-
Payments to settle debt	(13,365)	(8,597)	(6,800)	-	-	-	-	-
Short-term borrowings/ (repayments) less than 90 days-net	(853)	(40)	217	-	-	-	-	-
Common stock repurchases for tax withholdings	(302)	(319)	(407)	-	-	-	-	-
Financing-other	92	70	176	-	-	-	-	-
Distribution from Kyndryl	-	879	-	-	-	-	-	-
Cash dividends paid	(5,797)	(5,869)	(5,948)	-	-	-	-	-
Cash provided by (used for) financing activities	(9,721)	(13,354)	(4,958)	-	-	-	-	-
Effect of foreign exchange rates on cash	(87)	(185)	(244)	-	-	-	-	-
Net increase (decrease) in cash, cash equivalents, restricted cash and restricted cash equivalents	5,362	(6,717)	1,031	(37)	926	1,742	2,830	1,680
Cash, cash equivalents, restricted cash and restricted cash equivalents at beginning of period	6,957	13,675	13,675	7,886	7,849	8,774	10,517	13,347
Cash, cash equivalents, restricted cash and restricted cash equivalents at end of period	7,988	6,957	2,253	7,849	8,774	10,517	13,347	15,026

Cases and Assumptions								
Total D&A	4,227	3,888	2,407	2,482	2,559	2,639	2,721	2,806
Depreciation Expense Margin (%)		(8.0%)	(38.1%)	3.1%	3.1%	3.1%	3.1%	3.1%
Total SBC	937	982	987	1,017	1,047	1,079	1,111	1,144
SBC Margin (%)		4.80%	0.51%	3%	3%	3%	3%	3%
Average FDSO	897	905	912	917	921	926	931	935
FDSO Margin (%)		0.90%	0.84%	0.50%	0.50%	0.50%	0.50%	0.50%

Valuation: Output

IBM Valuation Summary

Base Case

EV Calculation	Q4 2021
Current Share Price	$163.32
Shares Outstanding	913
Market Capitalization	**149,131**
(+) Total Debt	58,520
(+) Preferred Equity	150
(-) Cash	(10,980)
Enterprise Value	**196,821**

US$ and shares outstanding in Millions except per share amounts	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Enterprise Value /								
Total Revenue	3.6x	3.4x	3.3x	3.0x	2.9x	2.7x	2.6x	2.5x
Adj. EBIT	42.2x	28.7x	24.1x	23.0x	21.3x	19.5x	18.3x	17.5x
Adj. EBITDA	22.1x	18.3x	18.6x	17.8x	16.7x	15.5x	14.6x	14.0x
UFCF	10.4x	1834.0x	138.4x	104.4x	37.7x	33.0x	27.2x	24.7x
Price / Per Share								
Total Revenue	2.7x	2.6x	2.5x	2.3x	2.2x	2.1x	2.0x	1.9x
UFCF	7.7x	1376.7x	104.8x	90.4x	32.7x	28.9x	24.1x	22.0x
Adj. Net Income	26.2x	25.7x	90.9x	95.4x	64.7x	46.4x	38.2x	33.4x
Earnings Yield	*3.8%*	*3.9%*	*1.1%*	*1.0%*	*1.5%*	*2.2%*	*2.6%*	*3.0%*
FDSO	897	905	912	917	921	926	931	935
Operating Metrics:								
Total Revenue	55,179	57,350	60,530	64,836	68,533	72,487	76,952	80,003
Adj. Operating Income	4,662	6,864	8,175	8,560	9,240	10,081	10,732	11,262
Adj. EBITDA	8,889	10,752	10,582	11,042	11,800	12,720	13,453	14,069
UFCF	18,942	107	1,422	641	1,774	2,027	2,461	2,705
Adj. Net Income	5,590	5,742	1,639	1,569	2,325	3,259	3,982	4,572
Revenue per Share	$61.54	$63.40	$66.35	$70.72	$74.38	$78.28	$82.69	$85.54
UFCF per Share	$21.13	$0.12	$1.56	$0.45	$1.25	$1.41	$1.70	$1.86
Adj. Diluted EPS	$6.23	$6.35	$1.80	$1.71	$2.52	$3.52	$4.28	$4.89

IBM Return Summary

$ mm and shares outstanding in millions, except per share amounts

	2018A	2019A	2020A	Base	2027E
Total Revenue	55,179	57,350	60,530		80,003
Per Share	*61.54*	*63.40*	*66.35*		*85.54*
CAGR From 2020A					*4.1%*
EBIT	4,662	6,864	8,175		11,262
Margin	*8.4%*	*12.0%*	*13.5%*		*14.1%*
EBITDA	8,889	10,752	10,582		14,069
Margin	*16.1%*	*18.7%*	*17.5%*		*17.6%*
EV/EBITDA	22.1x	18.3x	18.6x		17.0x
EV			196,821		239,167
(-) Net Debt			(69,500)		(38,962)
(-) Preferred Equity			(150)		-
Equity Value			149,131		200,206
DSO	897	905	912		935
Price/Share			$163.32		$214.05

		EV/EBITDA				
			2018A	2019A	2020A	Base
Purchase Price						
130.66	(20.0%)		21.0x	17.5x	17.8x	10.4%
146.99	(10.0%)		22.6x	18.8x	19.2x	7.8%
163.32	**0%**		**24.3x**	**20.2x**	**20.6x**	**5.6%**
179.65	10%		25.9x	21.6x	22.1x	3.6%
195.98	20%		27.6x	23.0x	23.5x	1.8%

Driver	IRR Contribution
Sales Growth	5.7%
Margin Expansion	0.1%
Multiple Compression	(1.8%)
DSO	(0.5%)
Net Debt Adjustment	2.0%
Total IRR	5.6%

Case: 1

Base	1
Up	2
Down	3

Ticker	IBM
Closing Price	$ 163.32
Date	12/14/2023

Projected Exit Date	12/13/2028
Years in Investment	5.00
Base Case CAGR	5.6%

Circularity Switch	On

Valuation: DCF

IBM DCF
Base Case

US$ and shares outstanding in Millions except per share amounts	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Free Cash Flow Projections								
CFO	18,198	12,796	10,435	9,750	9,889	11,187	12,638	11,798
Net Interest Expense (1 - t)	3,195	1,976	10,820	6,247	6,247	6,247	6,247	6,247
CapEx	(2,451)	(5,241)	(2,422)	(8,848)	(8,964)	(9,445)	(9,807)	(10,118)
FCFF	18,942	9,531	18,833	7,149	7,173	7,989	9,077	7,926
PV of FCFF				$ 6,584	$ 6,083	$ 6,240	$ 6,530	$ 5,251
Interest Tax Shield	(681)	30	(658)	134	134	134	134	134
PV of ITS				130	126	122	119	115

Discount Rate Estimate	
Peer Unlevered Betas	
Oracle	1.12
Teradata Corp.	0.68
HP Inc.	1.07
Beta	**0.76**
Risk Free Rate (avg. 10 year govt. bond yield)	4.02%
Market Risk Premium	6.00%
Cost of Equity	**8.58%**
Weight of Equity	**71.82%**
Cost of Debt	**3.00%**
Weight of Debt	**28.18%**
WACC	**7.10%**

Enterprise Value - GGM	
Terminal Growth Rate - FCFF	3.0%
Terminal Value - FCFF	198,966
Present value of terminal cash flo	141,177
Present value of forecasted cash f	30,688
Terminal Growth Rate - ITS	2.5%
Terminal Value - ITS	27,421
Present Value of Terminal ITS	23,653
Present Value of Forecasted ITS	613
Enterprise Value	**$ 196,131**

Enterprise Value - Terminal Multiple	
Terminal Year EBITDA	$ 14,069
Exit EV/EBITDA	17x
Terminal Value	239,167
Present Value of Terminal Value	158,443
Present value of Forecasted Cash	30,688
Enterprise Value	**$ 213,397**

Valuation	
Valuation Methodology	GGM
Enterprise Value	$ 196,131
Cash	$ 10,980
Other Non-Operating Assets	$ 7,790
Debt	$ 58,520
Preferred Equity	$ 150
Fair Equity Value	$ 156,231
Shares Outstanding (mm)	913
Fair Value per Share	$ 171.10
Current Share Price	$ 163.32
Upside	4.8%

Risks

Market Share

- IBM's small market share could decrease if AWS or Azure continue to produce superior technology for their respective cloud platforms, minimizing IBM's profits even if the cloud market continues to increase at an unprecedented rate
- Maintaining a 3% market share could be easier than it sounds as IBM will need to actively keep up with the industry projected CAGR of 16.6-18%

Failure in AI Integration

- IBM continues to risk its brand with Watson, even after the failed IBM Health
- If Watson is unable to keep up with other AIs, then IBM may continue to lose its competitive edge if it cannot differentiate in other ways

Decreased Consulting Use

- Consulting as an industry is projected to take a hit in the near future, especially after the boom resulting from Covid
- As generative AI increases in its ability, it may force firms to adapt and change the consulting scene to the companies that apply new changes the most effectively