

International Business Machines Full Research Report

UConn Undergraduate Student Managed Fund

April 18, 2017

Jason Mraz & Sean Elliott

International Business Machines, Inc. (NYSE: IBM)

- **Sector:** Technology
- **Industry:** IT Services
- **Date:** 4/18/17
- **Current Price:** \$161.69
- **Target Price:** \$192.52
- **Recommendation:** **BUY**

Key Financial Metrics

Market Cap: \$160.32B	Operating Margin: 14.36%	Price to FCF: \$12.98
52-Week High: \$182.79	P/E Ratio: 12.33	ROE: 73.04%
52-Week Low: \$142.50	EPS: \$13.59	ROIC: 18.54%
Dividend Yield: 3.30%	FCF/Sh: 14.02	ROA: 10.42%
Gross Margin: 48.38%	FCF Yield: 7.70%	Beta: 1.06

Source: Bloomberg

Business Summary

IBM has five business areas: Global Technology Services, Global Business Services, Software Capabilities, Systems Hardware, and Global Financing. Global Technology Services and Global Business Services together create the IT Services segment, which makes up about 60% of IBM's revenue. Software then makes up about 30% of the revenue, Hardware makes up approximately 9% of the revenue, and Global Financing makes up approximately 1% of the revenue. In IT Services, IBM has about a 7% market share. In software, IBM has a 4.9% market share. For hardware, IBM is losing market share to the competition. Revenue from this area is decreasing by about 5% year over year. Lastly, Global Financing helps customers purchase IBM products and is not a major force in the global financing industry. In 2016, IBM generated \$79.9B in revenue, which was about 1% less than the previous year. On that revenue, IBM made a net income of \$11.9B. In 2016, IBM had 377,757 employees in 175 countries. Recently, IBM has been going through a transformation. The company has started focusing on its Strategic Imperatives in recent years, which consist of: the cloud platform, analytics, mobile, social, and security. Presently, these areas make up about 41% of IBM's revenue and are growing quickly. IBM believes these are the best areas for growth and are increasing research spending in these areas while cutting back on hardware and more commoditized industries. This has led to underperformance relative to the S&P 500 in recent years.

Investment Thesis: IBM is transforming from a hardware and software services company into a solutions provider. This transformation will be powered by development and growth in cloud technology and cognitive computing. Despite recent trends of declining revenue, IBM has maintained profitability. During this transformation, the market has significantly undervalued IBM.

Positives

Changing Revenue Structure: Transforming from a hardware and software services company into a solutions provider. This transformation will be powered by IBM's strategic imperatives: analytics, cloud, mobile, social, and cyber security.

Commitment to Shareholders: Consistently increased dividends for the last twenty years and repurchased shares to return over \$8 billion to shareholders in 2016.

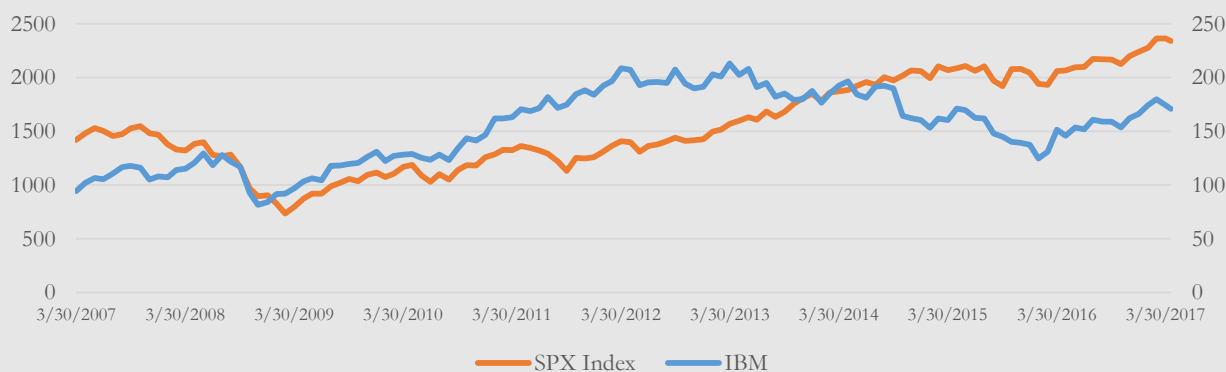
Negatives

Declining Revenue: Faced 13 straight periods of declining revenue. IBM is in the process of growing their data analytics and cloud computing segments.

Strong Competition: IT services industry is highly competitive with strong competitors such as Microsoft, Oracle, Hewlett-Packard, Accenture, and Google.

Cybersecurity: Privacy protection of sensitive data on wireless cloud platforms.

IBM vs. S&P 500 (10YR)



Source: Bloomberg

IBM Business Model

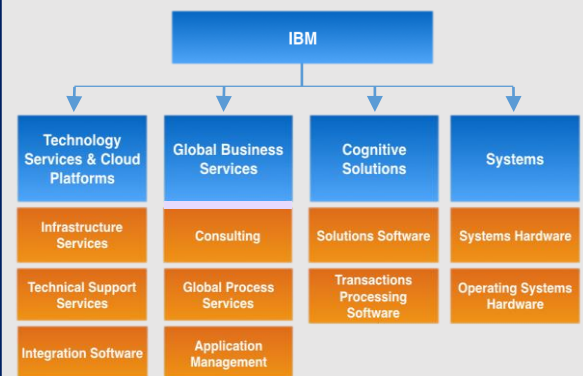
History

IBM was first incorporated in 1911 as the Computing – Tabulating – Recording Company (CTR). This company formed from a merger between Hollerith's Tabulating Machine Company, Computing Scale Company of America, and International Time Recording Company. When CTR was formed, it was a large manufacturing company with six manufacturing plants and approximately 1,300 employees. This proved to be a difficult company to manage given its size, so the leadership at the time looked for outside help. This is when Thomas J. Watson Sr. of the National Cash Register Company was brought in. During his first four years there, Watson created a culture based around his 'THINK' slogan and encouraged employees to take pride in their company through organizing company sports teams, family outings, and even a company band. Watson also expanded IBM throughout the world and more than doubled revenue. Then, in 1924, CTR officially changed its name to International Business Machines Corporation and modern day IBM was formed. Throughout IBM's history, it has been at the forefront of technology, innovations, such as the floppy disk and the automated teller machine (ATM), and continuously reinventing itself along the way. Once again, IBM is at the forefront of technology, transitioning from a hardware company and into an IT services, software, and cognitive solutions company.

Strategy

International Business Machines Corporation (IBM) provides information technology (IT) products, solutions, and services globally. IBM has 4 business segments: Global Services (GS), Software Capabilities Systems Hardware, and Global Financing. Furthermore, Global Services can be broken down between Global Technology Services (GTS) and Global Business Services (GBS). GTS provides IT infrastructure services such as cloud computing, analytics, mobile, security, and social. GBS delivers predictable business outcomes through consulting in strategy, application, and software.

IBM Organizational Chart






*Global Financing is not shown above

Future Outlook

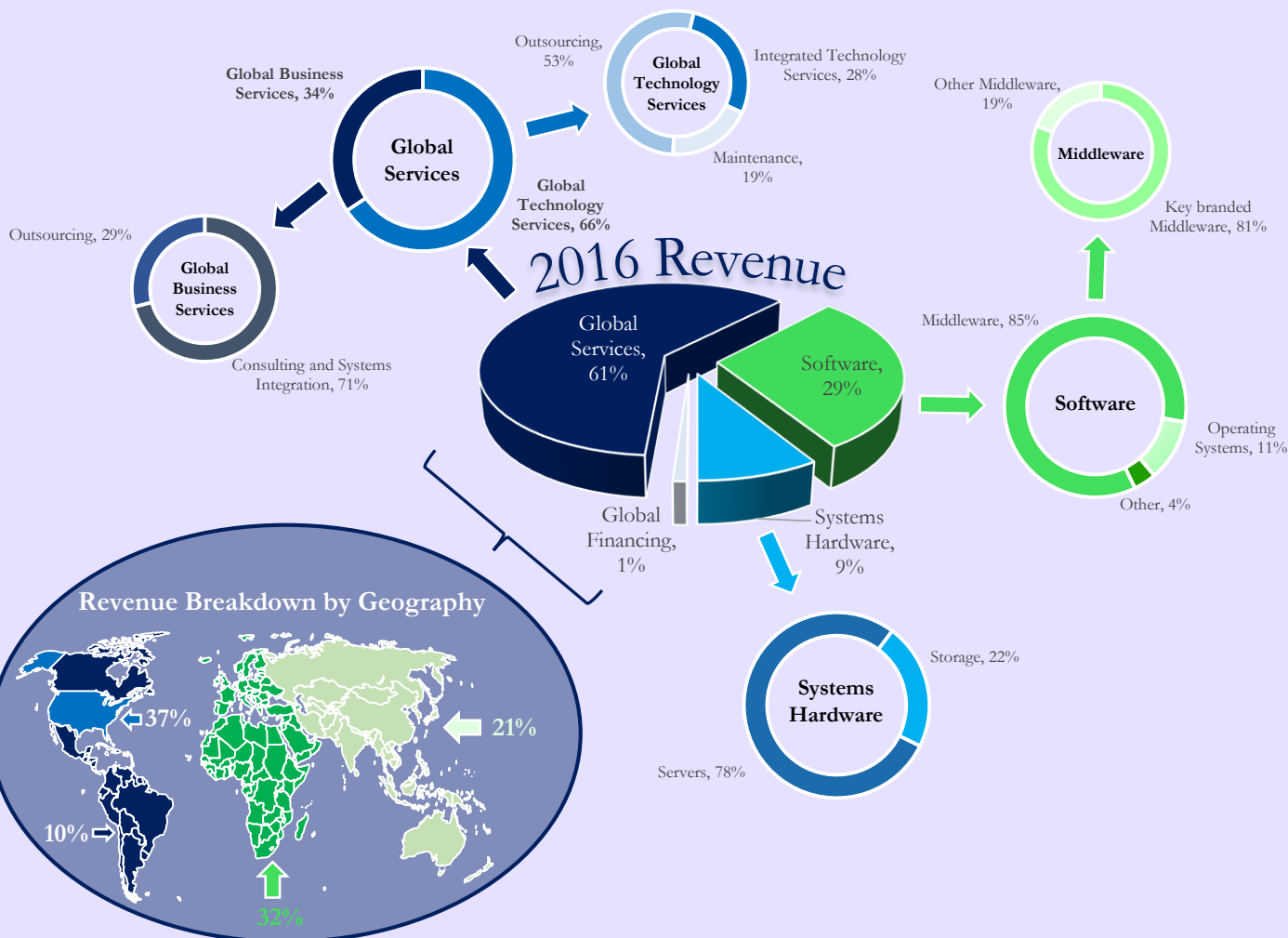
IBM has three goals for the future:

- 1) To maintain and continue its position as a world-class cloud platform for enterprises with an emphasis on security, reliability, scalability, and performance.
- 2) To enable clients to extend their existing IT investments through hybrid cloud technology that combines benefits of public and private cloud technology.
- 3) To build Watson to be a world-class cognitive cloud platform that developers can use in their software offerings to create differentiated customer experiences and to gain powerful insights.

Here is how IBM has been positioning themselves for the future:

Over the last 3 years...			2015 Revenue
 Analytics	>\$6B Investments 13 Acquisitions	200k Developers 1,500 Partners	\$18B
 Cloud	>\$7B Investments 15 Acquisitions	46 Cloud Developers 1M Bluemix users	\$10B
 Engagement	\$3B Investments 6 Acquisitions	~10k Mobile, Security, Social specialists	\$3B Mobile \$2B Security \$1B Social

Revenue Breakdown



Geographical Breakdown

IBM has a global presence in over 175 countries. IBM is investing in key growth markets including India, China, Southeast Asia, Eastern Europe, the Middle East, Africa, and Latin America. However, IBM's major markets are the G7 countries: Canada, France, Germany, Italy, Japan, US, and the UK.

The Americas, Europe/Middle East/Africa, and Asia Pacific saw revenues decline 2.5%, 5%, and increase 2.6% respectively from 2015. Although revenue decreased in key growth areas such as China (2.4%), Brazil (7%), and Mexico (7%), Japan grew 10.5% and India grew 5.2%. IBM has experienced declining revenues during their transformation, but are strengthening their efforts in these growing markets to offset these losses.

*Changes in revenue adjusted for divestitures and currency

Global Services

Global Services consists of GBS and GTS. The revenue from this segment primarily comes from outsourcing and maintenance arrangements. These services are provided based on a fixed-price contract that ranges from 1-10 years in length. Global Services accounted for 61% of IBM's revenue in 2016, a 4% increase from 2015.

Global Business Services consists of systems integration consulting, application management services, and process services to provide business solutions. GBS increased 4% since 2015.

Global Technology Services consists of cloud computing solutions and services, and IT consulting leveraging IBM's analytics. IBM is currently the leader in hybrid cloud services, which drives infrastructure services, and software services. GTS increased 2% since 2015.

Software & Systems Hardware

Software consists primarily of middleware. IBM's middleware portfolio allows integration of unrelated systems, processes, and applications. About 70% of revenue from the software segment derives from license charges, software for service, or ongoing support. The rest of the revenue comes from one time payments where customers provide an up front payment for a perpetual license. Software accounted for 29% of revenue in 2016 a 1% increase from 2015.

Systems Hardware consists of system servers and storage solutions. Under system servers, IBM offers mainframe computers and high-end servers. The storage portfolio offers flash, disk and tape storage solutions. IBM has and continues to downsize their exposure to technology hardware. Systems Hardware accounted for 9% of revenue in 2016, a 2% decrease from 2015.

Industry Overview

Information Technology Overview

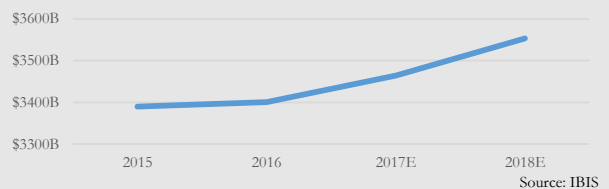
The Information Technology Sector covers the following general areas: Technology Software & Services, including companies that primarily develop software in various fields such as the internet, applications, systems, databases management and/or home entertainment, and companies that provide information technology consulting and services, as well as data processing and outsourced services; secondly Technology Hardware & Equipment, including manufacturers and distributors of communications equipment, computers & peripherals, electronic equipment and related instruments; and thirdly, Semiconductors & Semiconductor Equipment Manufacturers.

Positive Drivers for the IT Sector

Increased technology spending: With productivity relatively weak, companies should look to technology upgrades to improve efficiency. Capital expenditures have been below trend for several years, and a return to more normal spending levels would boost the sector.

Wage increases: Increasing wages could push companies to turn to technology to replace increasingly expensive human workers.

IT Sector Spending



Risks to the IT Sector

Increasing global competition: Competition, especially from areas with low labor costs, will likely continue to compress profit margins.

Capital spending delays: Companies remain hesitant to increase capital investment beyond what is absolutely necessary.

Largest Global Competitors



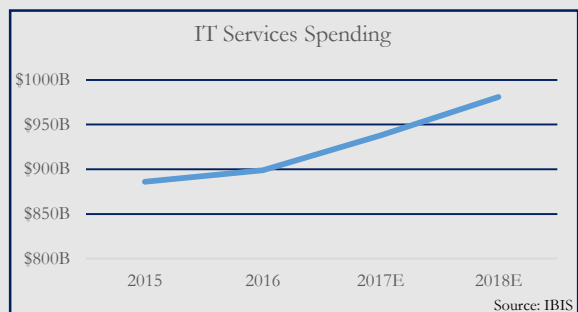
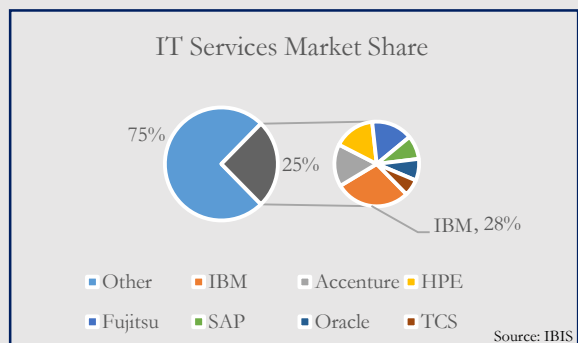
Growth Industry: IT Services

Industry Overview

The IT Services industry aids companies in implementing new software, computer systems, and data processing systems. Since these are mainly consulting services, and technological innovation is continuous, demand for IT services is limited primarily by companies' ability to pay. The biggest drivers of revenue in this industry are computer systems design, development, and integration (35% of revenue), application design and development (25%), and technical support (10%). This is a very fragmented industry with the 50 largest customers making up just 40% of revenue. As shown in the figure to the right, the biggest players are IBM (7% market share by revenue), Accenture (4%), HPE (4%), Fujitsu (4%), SAP (2%), Oracle (2%), and TCS (2%). All other IT Service providers have a less than 2% share of the market.

Through GBS, IBM offers the following: consulting services focused on providing technology and systems architecture solutions for clients; application management services that help clients integrate systems, manage applications, and maintain and support software products; Global Process Services helps businesses outsource general business activities such as finance, procurement, HR, and others. Through these three offerings, IBM is able to add value to corporations' cloud infrastructure, security and privacy, and advanced analytics. Additionally, IBM adds value to clients by helping them transition to state-of-the-art hybrid cloud technology that incorporates IBM's expertise in cognitive computing and system implementation.

Market Share & Sector Spending



Industry Overview (Cont.)

Growth Industry: Software

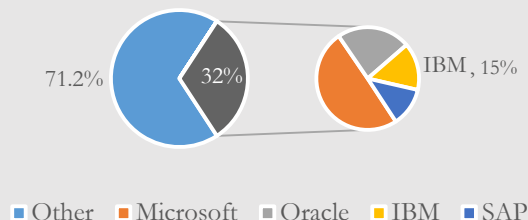
Industry Overview

The software industry creates computer software for both businesses and consumers. Software spending is dependent upon the ability of companies to spend, and the development of software. The main product offerings in this industry are: application software, which make up approximately 45% of industry revenue; system software, which makes up about 20% of revenue; and IT support, which makes up about 10% of revenue. The software industry is relatively concentrated with the 50 largest companies receiving about 75% of industry revenue. The largest players in this industry are Microsoft (16.3% market share by revenue), Oracle (7.6%), IBM (4.9%), and SAP (4%). The rest of the market combines for a 71.2% share of the market.

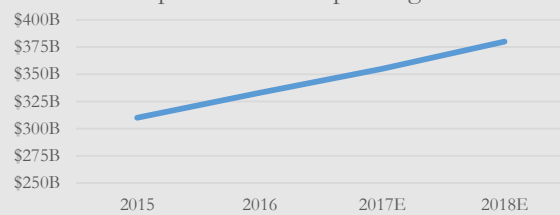
IBM's main driver of revenue are IT services, though they also have a strong presence in software. Big Blue's main software offerings consist of integration software and their operating systems software. Integration software helps clients transition to hybrid cloud technology and improves clients' ability to create applications, connect data, and optimize infrastructure. IBM's operating systems software is a secure and scalable software platform for IBM servers that optimizes IBM's POWER architecture to provide secure, reliable, high-performance computing power to clients.

Market Share and Sector Spending

Software Market Share



Enterprise Software Spending

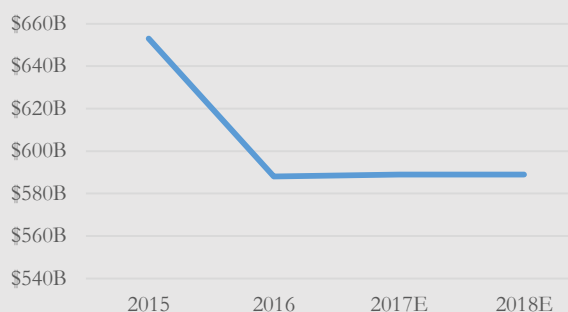


Source: IBIS

Stable Industry: Hardware

Technology hardware is broken down into three industries: communications equipment, technology hardware, storage and peripherals, and electronic equipment, instruments and components. Communications equipment includes routers, telephones and switchboards. Technology hardware, storage and peripherals includes computers, printers and cell phones. Electronic equipment, instruments and components include companies that make equipment like barcode scanners, transformers and security systems, as well as companies that are distributors or Original Equipment Manufacturers (OEM). An OEM is a company that makes parts or components that are used in another company's end product. This industry is becoming increasingly commoditized as countries provide cheaper labor. This is leading to a decline in industry spending.

Devices Spending



Source: IBIS

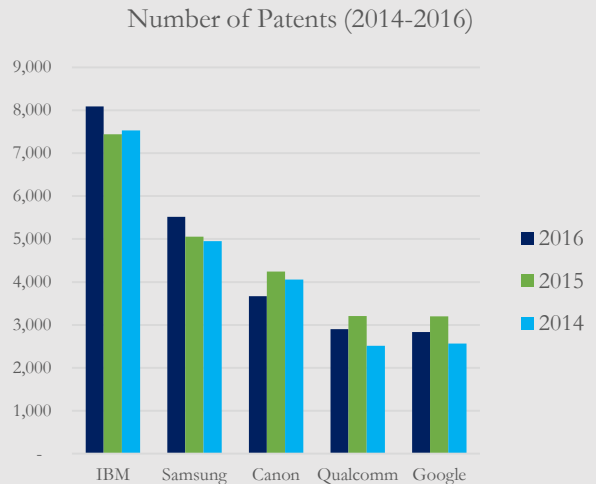
Stable Industry: Global Finance

Global Financing provides client financing, commercial financing, and participates in the remarketing of used equipment. Global Financing's access to capital and its ability to manage increased exposures provide a competitive advantage for the company. The key competitive factors include price, IT product expertise, client service, contract flexibility, ease of doing business, global capabilities and residual values. In client and commercial financing, Global Financing competes with three types of companies in providing financial services to IT customers: other captive financing entities of IT companies such as Cisco and HP, non-captive financing entities of companies such as General Electric Company and banks or financial institutions. In remarketing, the company competes with local and regional brokers plus original manufacturers in the fragmented worldwide used IT equipment market.

Growth Opportunities

Innovation

Due to its size, IBM is capable of spending mass amounts on innovation through research & development and acquisitions. In fact, IBM has been awarded more patents than any other company in the world for 23 years in a row. IBM is currently transitioning away from lower margin products and services and towards higher end, advanced products that command high margins. IBM refers to these new, high growth areas as its “Strategic Imperatives”. These areas include analytics, cloud, mobile, security, and social. IBM believes these areas are the future of technology and invested over \$7B in 2016 to develop new product and service offerings in this area, such as IBM’s Watson Analytics and Hybrid Cloud. These five areas have grown rapidly, growing nearly 20% in 2016 and generating 41% of IBM’s total revenue. The strategic imperatives continue to exhibit promising growth opportunities and will be the future of IBM.



Source: 2016 Annual Report

Example of Innovation: The Weather Company

A prime example of IBM’s acquisitive innovation is its acquisition of The Weather Company. The Weather Company offered IBM two things: an expansive database of weather-related data that IBM could use for analytics, and a dynamic cloud data platform that IBM can use as the ‘backbone’ for IBM’s data services.

Everyday, The Weather Company collects data from around the world to share with customers. Additionally, The Weather Company has the fourth most used daily app in the United States and has 26 billion users daily. To offer this service to that many people, The Weather Company developed one of the world’s most developed, scalable, high performance data platforms. Because of this, The Weather Company is a much more related acquisition than the casual onlooker might realize. The Weather Company has a lot of assets that are highly related to IBM’s cloud computing platform. This data, combined with IBM’s analytics tools, creates synergies that IBM can leverage. For example, IBM is currently ramping up a service offering it has named “Deep Thunder”. This service will provide enterprise clients with customized weather forecasts that companies can use to better run their businesses. Companies will be able to look at weather and customer buying behaviors to see how changes in weather influence consumer preferences. IBM is hoping to offer this service to retailers so that they can better stock their shelves and operate more efficiently. This ability to offer new services is an incredible synergy that came out of The Weather Company Acquisition and shows IBM’s creative strategy in acquiring related companies.

With this acquisition does come with some risk. Unlike IBM’s acquisitions in the cloud space, where the companies were all relatively small, The Weather Company was a \$2 billion acquisition. Plus, while these businesses have some great potential synergies, prior to merging, they both operated rather differently. Because of that, the integration of the two companies could prove difficult and will take time. However, in the end, this could be a lucrative acquisition for IBM because it expands their service offerings and improves their cloud infrastructure.

The Weather Company
An IBM Business

Acquisition

Business Segments Acquired	Business-to-business Cloud-based web Mobile	Licensing for weather forecast data and analytics	Value of acquisition ~\$2B
Mobile App	4 th most-used mobile app	26 billion inquiries to cloud from mobile app	Building on \$3B investment to Internet of Things
Reference Points	3 billion weather forecasts 40 million smartphones	50 thousand airplane flights per day 5 thousand new media clients	82 million unique monthly visitors

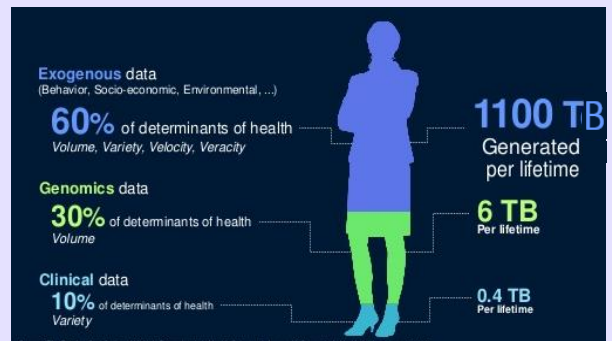
Growth Opportunities (Cont.)

Artificial Intelligence

IBM is an industry leader in Data and Analytics with artificial intelligence products such as Watson, a supercomputer, that combines artificial intelligence and analytical software to provide solutions as a question answering machine. Watson analyzes and interprets data to provide personalized recommendations. Additionally, Watson runs on IBM's industry leading cloud platform. An example of Watson's application to the industry is IBM Watson Health.

Watson Health

Watson Health works on IBM's secure hybrid cloud platform. IBM will use its 100 million records of clinical data, 200 million lives on record for Claims data, social determinants of health, genomics data, and provide clients and partners with solutions to optimize cost of care, and deliver health solutions. Watson Health positions IBM for an expanding data analytic driven healthcare market.



IBM has been investing in Watson Health for the last decade. IBM has been training their application program interface to read electronic health records for the past 5 years. IBM has also been training Watson to read medical images. Watson is trained to not just look at a heart graph but understand the structure of the heart. Watson has been reading static and dynamic cardiac images for the past 10 years. The Watson platform has been transforming into Watson Health. IBM has been tuning the cloud, the data, and the Watson platform to read, understand, and provide solutions in oncology genomics, government provided care, life sciences, value based care, and imaging. Below is a broad spectrum of services Watson Health provides.



Watson for Drug Discovery will also be a growth opportunity to IBM within the healthcare sector. Watson has been trained to read drug patents. IBM has implemented natural language processing tuned to read all types of drug patents. In fact, Watson for Drug Discovery has read every drug patent since 1861. With the help of Watson, Pharmaceutical companies will be able to shorten the front end of drug discovery. Using IBM's Cognitive platform, researchers have been able to discover 5 new genes associated with ALS. This shows the capabilities off Watson Health on an ever evolving industry like healthcare.

Risks to Buy Recommendation

1

Business Transformation

IBM is transforming from a hardware company to a software and IT solutions provider. While IBM Strategic Imperatives revenue has increased 14% in constant currency over the past year, IBM's overall revenues have continued to decrease. IBM is entering a new market, and it is up to IBM to stay ahead of competitors as this new market evolves, which is difficult and risky.

2

Cybersecurity

IBM's products, services, and systems may affect critical third party operations or involve the storage, processing, and transmission of sensitive data, including valuable intellectual property, other proprietary or confidential data, regulated data, and personal information of employees, customers and others. The risks to the company's cybersecurity and privacy includes criminal hackers, hacktivists, state-sponsored intrusions, industrial espionage, employee malfeasance, and human or technological error. The regulatory environment with regard to cybersecurity, privacy and data protection issues is increasingly challenging and may have impacts on the company's business, including increased risk, costs, and expanded compliance obligations. As IBM looks to continue to focus on data, the risk of cybersecurity will grow accordingly. Cyber attacks, data breaches or other security concerns have yet to have an adverse effect on the company thus far.

3

Failure to Innovate

IBM has consistently invested 6%-7% of revenue into research and development, primarily into its Strategic Imperatives. Client adoption rates of new technologies are volatile and difficult to predict. Additionally, if IBM fails to produce innovative, quality products, IBM's brand image could be tarnished. This would negatively impact the image consumers have of IBM and could lead to IBM having a difficult time attracting and retaining customers.

Corporate Social Responsibility

CSR Metric	IBM	Industry Average
ESG Disclosure Score	47.50	42.56
Sustainalytics ESG Score	95.2	81.05
Percent Female Executives	26.32%	15.34%
Women Mgmt. to Employees Ratio	0.84	0.89
Average Exec. Salary + Bonus	\$842.6K	\$755.12K

Valuation

SENSITIVITY ANALYSIS: DCF Model

		WACC				
		8.0%	9.0%	10.0%	11.0%	12.0%
G	1.5%	237.50	201.18	173.39	151.46	133.69
	2.0%	255.21	213.85	182.83	158.69	139.38
	2.5%	276.13	228.48	193.52	166.78	145.66
	3.5%	331.92	265.71	219.84	186.19	160.45
	4.5%	419.60	319.48	255.74	211.58	179.18

SENSITIVITY ANALYSIS: DDM

		WACC				
		9.0%	9.5%	10.0%	10.5%	11.0%
G	0.5%	127.62	119.45	112.17	105.64	99.76
	1.5%	137.50	127.84	119.35	111.83	105.12
	2.5%	150.42	138.63	128.45	119.56	111.74
	3.5%	168.03	153.02	140.35	129.50	120.13
	4.5%	193.47	173.16	156.57	142.76	131.10

1

Discounted Cash Flow Valuation

Based on the data in IBM's 2016 10-K, we estimate the intrinsic value per share of IBM is \$193.52. We projected IBM's revenue to decrease at a slower pace and turn positive over the next 5 years, with a 2.5% long term growth rate. At the same time, we expected gross profit to remain the same. We assumed a 10% WACC since that's the average discount rate for the market over the past 50 years.

2

Dividend Discount Valuation

IBM has paid a dividend for over 100 years and has increased its dividend for 22 consecutive years. Using this data, we calculated a value using the dividend discount model. This valuation method yielded a value that was much lower than the other two valuations. Since IBM is transitioning its business model and heavily reinvesting in the company, we weighted this valuation the least.

Sum-of-the-Parts Valuation

Multiples Value	\$226.13
Conglomerate Discount	9%
IBM Value/Share	\$205.78

3

Sum-of-the-Parts Multiples Valuation

IBM is a conglomerate that operates in the IT Services, Software, Hardware, and Commercial Finance sectors. There are no comparable companies to IBM, so we performed a separate EV/EBITDA valuation for each sector, and then used a weighted average of these valuations based on the weighting of each sector in IBM's revenue make-up. We then applied a 9% conglomerate discount, as Harvard Business School recommends. This gave a value of \$205.78.

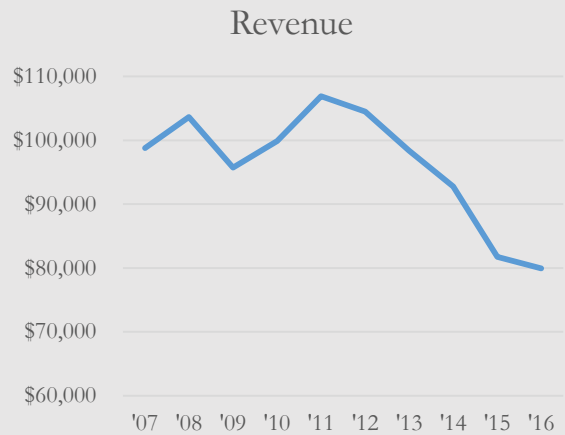
Summary Valuation

Discounted Cash Flow Model	45% Weighting
Sum-of-the-Parts Model	45% Weighting
Dividend Discount Model	10% Weighting
IBM Valuation	\$192.52
Margin of Safety at Current Price	16%
SMF Purchase Price	\$157.22

Appendix A: Historical Financial Trends (\$M)

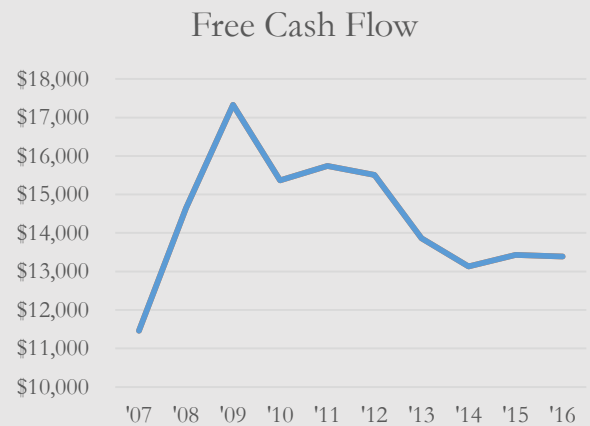
Revenue

In 2016, annual revenue decreased 2.2% to \$79.9 billion. IBM had strong revenue growth in cloud and data analytics. These segments saw 13% growth YoY. The revenue decrease stemmed from a large decrease in Systems. The Systems segment decreased 19.2% due to divestitures of hardware businesses, and a 27% decrease in z Systems (an industrial mainframe computer). These revenues can be expected as IBM divests lower margin business segments in exchange for their strategic imperatives.



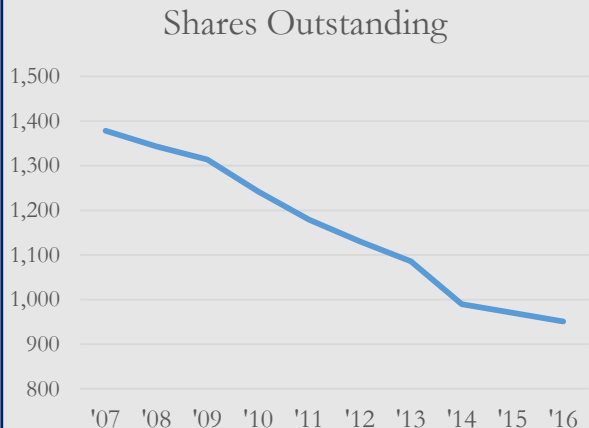
Free Cash Flow

Even though the growth of free cash flow has been hindered by declining revenues, higher margin businesses such as cloud and data analytics will improve the generation of cash flow. As IBM continues to invest in these business segments and divests hardware and software, look for IBM to reinvest in the business and return cash flow to shareholders in dividends and share repurchases. In 2016, IBM generated upwards of \$13 billion of free cash flow and returned almost \$9 billion to shareholders.



Shares Outstanding

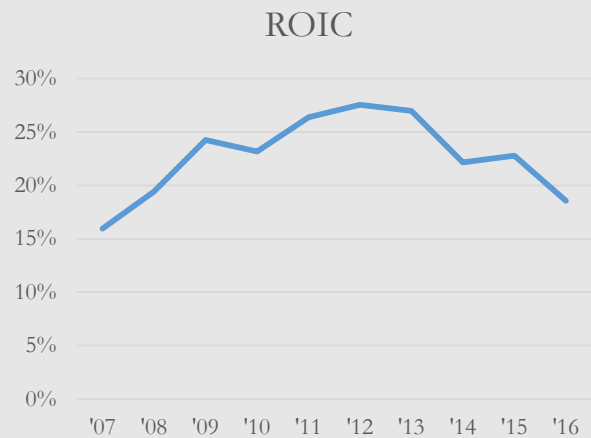
IBM has continually rewarded shareholders through the repurchasing of stock. However, IBM is expected to slow down their repurchasing of shares outstanding. If IBM continues to repurchase stocks at their average rate since 2007, IBM would have no shares outstanding by 2040. This expectation is reflected in our dividend discount model assumptions.



Appendix A: Historical Financial Trends (\$M)

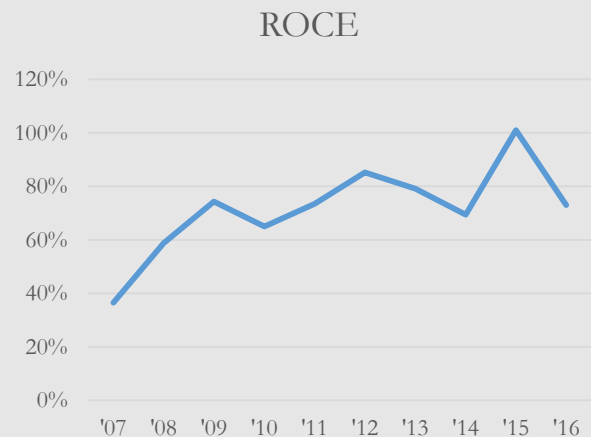
Return on Invested Capital

Return on invested capital (ROIC) measures a company's ability to invest cash in order to generate returns. IBM's ROIC has been trending downward because investments in cloud, data analytics, mobile, and security are long term investments. IBM Watson is still an insignificant portion of the company's revenue. Once investments such as Watson reach their full potential, IBM's return on investment will increase. Also, as IBM decreases their dividend payout, look for more to be reinvested into the business.



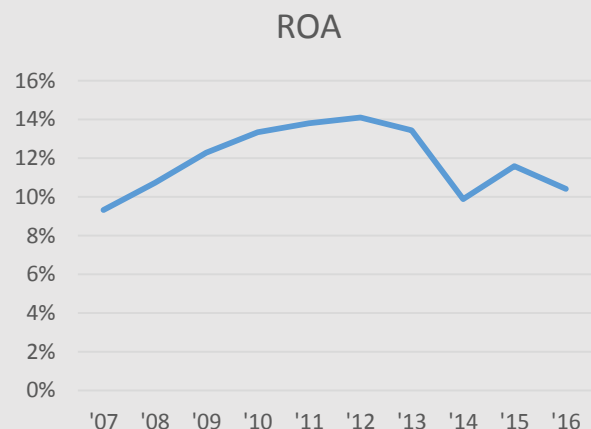
Return on Common Equity

Return on common equity represents a company's ability to return value to common equity shareholders. IBM has decreased share buybacks and dividend payments in exchange for further investments in the business. As IBM continues to acquire cloud and analytic companies, look for dividends and buy backs to continue to decrease and the return on common equity to decrease as well.



Return on Assets

Since 2012, IBM has seen about a 200 bps decline in return on assets. This measures how efficiently IBM utilizes their assets. Because IBM is heavily invested in high growth areas, like their Strategic Initiatives, the company has failed to see high returns on these assets. Fortunately for IBM, a change in business model away from hardware will decrease the assets needed to drive revenue growth, which in turn will lead to an increase in ROA in the future.



Appendix B: Financial Statements

Income Statement (\$B)

Income Statement	2014	2015	2016	2017E	2018E	2019E	2020E	2021E
Total Revenue	92,793	81,741	79,919	78,321	77,537	77,537	78,313	79,879
Cost of Goods Sold	46,386	41,057	41,625	39,761	39,363	39,363	39,757	40,552
Gross Profit	46,407	40,684	38,294	38,560	38,174	38,174	38,556	39,327
Other (income) and expense	(1,938)	(724)	145	(729.12)	(721.82)	(721.82)	(729.04)	(743.62)
Selling, general and administrative	23,180	20,430	21,069	19,926.65	19,727.39	19,727.39	19,924.66	20,323.15
Research, development and engineering (Note O)	5,437	5,247	5,751	5,093.84	5,042.90	5,042.90	5,093.33	5,195.20
Intellectual property and custom development income	(742)	(682)	(1,631)	(959)	(950)	(950)	(959)	(978)
Total other operating expenses	25,937	24,271	25,334	23,332	23,099	23,099	23,330	23,796
EBIT	20,470	16,413	12,960	15,228	15,075	15,075	15,226	15,531
Interest expense (Notes D&J)	484	468	630	511	506	506	511	522
Loss from discontinued operations, net of tax (Note C)	(3,729)	(174)	(9)	(982)	(972)	(972)	(982)	(1,002)
EBT	16,257	15,771	12,321	16,210	16,048	16,048	16,208	16,532
Provision for income taxes (Note N)	4,234	2,581	449	2,488	2,464	2,464	2,488	2,538
Net Income	12,023	13,190	11,872	13,721	13,584	13,584	13,720	13,994

<i>Metrics and assumptions</i>	2014	2015	2016	2017E	2018E	2019E	2020E	2021E
Revenue Growth	-11.2%	-11.9%	-2.2%	-2.0%	-1.0%	0.0%	1.0%	2.0%
Gross Profit Margin	50.0%	49.8%	47.9%	49.2%	49.2%	49.2%	49.2%	49.2%
Other (income) and expense	-2.1%	-0.9%	0.2%	-0.9%	-0.9%	-0.9%	-0.9%	-0.9%
Selling, general and administrative	50.0%	49.8%	50.6%	50.1%	50.1%	50.1%	50.1%	50.1%
Research, development and engineering (Note O)	11.7%	12.9%	15.0%	13.2%	13.2%	13.2%	13.2%	13.2%
Interest expense (Notes D&J)	2.4%	2.9%	4.9%	3.4%	3.4%	3.4%	3.4%	3.4%
Loss from discontinued operations, net of tax (Note C)	-18.2%	-1.1%	-0.1%	-6.4%	-6.4%	-6.4%	-6.4%	-6.4%
Intellectual property and custom development income	-0.8%	-0.8%	-2.0%	-1.2%	-1.2%	-1.2%	-1.2%	-1.2%
Tax Rate	26.0%	16.4%	3.6%	15.4%	15.4%	15.4%	15.4%	15.4%

Appendix B: Financial Statements

Balance Sheet (\$B)

Balance Sheet	2015	2016	2017E	2018E	2019E	2020E	2021E
Cash and cash equivalents	\$ 7,686	\$ 7,826	7,517	7,442	7,442	7,516	7,667
Marketable securities (Note D)	508	701	587	581	581	587	599
Notes and accounts receivable - trade (net of allowances of \$290 in 2016 and \$367 in 2015)	8,333	9,182	8,491	8,406	8,406	8,490	8,660
Short-term financing receivables (net of allowances of \$337 in 2016 and \$490 in 2015) (Note F)	19,020	19,006	18,425	18,241	18,241	18,423	18,792
Other accounts receivable (net of allowances of \$48 in 2016 and \$51 in 2015)	1,201	1,057	1,093	1,082	1,082	1,093	1,115
Inventories (Note E)	1,551	1,553	1,504	1,489	1,489	1,504	1,534
Prepaid expenses and other current assets	4,205	4,564	4,251	4,208	4,208	4,250	4,335
Total Current Assets	42,504	43,889	41,868	41,450	41,450	41,864	42,701
Property, plant and equipment - net (Note G)	10,727	10,830	10,779	10,804	10,791	10,798	10,795
Long-term financing receivables (net of allowances of \$101 in 2016 and \$118 in 2015) (Note F)	10,013	9,021	9,517	9,269	9,393	9,331	9,362
Prepaid pension assets (Note S)	1,734	3,034	2,384	2,709	2,547	2,628	2,587
Deferred taxes (Note N)	4,822	5,224	5,023	5,124	5,073	5,098	5,086
Goodwill (Note I)	32,021	36,199	34,110	35,155	34,632	34,893	34,763
Intangible assets - net (Note I)	3,487	4,688	4,088	4,388	4,238	4,313	4,275
Investments and sundry assets (Note H)	5,187	4,585	4,886	4,736	4,811	4,773	4,792
Total Assets	110,495.00	117,470.00	112,654.34	113,633.16	112,934.41	113,698.28	114,360.87
Taxes (Note N)	2,847	3,235	2,949.08	2,919.59	2,919.59	2,948.79	3,007.77
Short-term debt (Notes D&J)	6,461	7,513	6,776.69	6,708.93	6,708.93	6,776.01	6,911.54
Accounts payable	6,028	6,209	5,930.29	5,870.99	5,870.99	5,929.70	6,048.29
Compensation and benefits	3,560	3,577	3,458.25	3,423.66	3,423.66	3,457.90	3,527.06
Deferred income	11,021	11,035	10,687.07	10,580.20	10,580.20	10,686.00	10,899.72
Other accrued expenses and liabilities	4,353	4,705	4,390.88	4,346.97	4,346.97	4,390.44	4,478.25
Total Current Liabilities	34,270.00	36,274.00	18,536	18,351	18,351	18,534	18,905
Long-term debt (Notes D&J)	33,428	34,655	34,042	34,348	34,195	34,272	34,233
Retirement and nonpension postretirement benefit obligations (Note S)	16,504	17,070	16,787	16,929	16,858	16,893	16,875
Deferred income	3,771	3,600	3,600	3,600	3,600	3,600	3,600
Other liabilities (Note K)	8,099	7,477	7,477	7,477	7,477	7,477	7,477
Total Liabilities	96,072.00	99,076.00	80,441.69	80,704.58	80,480.45	80,776.03	81,090.68
Common stock, par value \$0.20 per share, and additional paid-in capital; Shares authorized: 4,687,500,000 (Shares issued: 2016 - 2,225,116,815; 2015 - 2,221,223,449)	53,262	53,935	53,599	53,767	53,683	53,725	53,704
Retained earnings	146,124	152,759	149,442	151,100	150,271	150,686	150,478
Treasury stock, at cost (shares: 2016 - 1,279,249,412; 2015 - 1,255,494,724)	(155,518)	(159,050)	(157,284)	(158,167)	(157,726)	(157,946)	(157,836)
Accumulated other comprehensive income/(loss)	(29,607)	(29,398)	(29,503)	(29,450)	(29,476)	(29,463)	(29,470)
Total IBM stockholders' equity	14,262	18,246	18,246	18,246	18,246	18,246	18,246
Noncontrolling interests (Note A)	162	146	146	146	146	146	146
Total Equity	14,424.00	18,392.00	18,392.00	18,392.00	18,392.00	18,392.00	18,392.00
Total Liabilities and Equity	110,496.00	117,468.00	98,833.69	99,096.58	98,872.45	99,168.03	99,482.68

Appendix B: Financial Statements

Statement of Cash Flows (\$B)

Cash Flow Statement	2015	2016	2017E	2018E	2019E	2020E	2021E
Net Income	\$ 13,190	\$ 11,872	\$ 13,721	\$ 13,584	\$ 13,584	\$ 13,720	\$ 13,994
Add: Depreciation & Amortization	\$ 3,855	\$ 4,381	\$ 3,926	\$ 3,887	\$ 3,887	\$ 3,926	\$ 4,004
Stock-based compensation	468	544	\$ 508	\$ 507	\$ 520	\$ 511	\$ 513
Deferred taxes	1,387	(1,132)	\$ 6	\$ 87	\$ (346)	\$ (84)	\$ (115)
Net (gain)/loss on asset sales and other	481	62	\$ (331)	\$ (331)	\$ (331)	\$ (331)	\$ (331)
Loss on microelectronics business disposal	71		\$ (61)	\$ 77	\$ -	\$ (76)	\$ (154)
Change in Net Working Capital	(8,234)	619	(61)	77	0	(76)	(154)
Cash Flow From Operations	\$ 19,452	\$ 15,727	\$ 17,770	\$ 17,811	\$ 17,313	\$ 17,666	\$ 17,912
Receivables (including financing receivables)	812	712	\$ 849	\$ 841	\$ 841	\$ 849	\$ 866
Retirement related	(22)	54	\$ 54	\$ 54	\$ 54	\$ 54	\$ 54
Inventories	133	(14)					
Other assets/other liabilities	(3,448)	282	\$ 282	\$ 282	\$ 282	\$ 282	\$ 282
Accounts payable	81	197	\$ (59)	\$ 73	\$ 70	\$ 28	\$ 57
Net cash provided by operating activities	17,008	16,958	18,896	19,060	18,560	18,879	19,171
Payments for property, plant and equipment	(3,579)	(3,567)	(3,629)	(3,592)	(3,596)	(3,605)	(3,598)
Proceeds from disposition of property, plant and equipment	370	424	399	398	407	401	402
Investment in software	(572)	(583)	(533)	(563)	(559)	(552)	(558)
Purchases of marketable securities and other investments	(3,073)	(5,917)	(3,776)	(4,255)	(4,649)	(4,227)	(4,377)
Proceeds from disposition of marketable securities and other investments	2,842	5,692	3,676	4,070	4,479	4,075	4,208
Non-operating finance receivables - net	(398)	(891)	(789)	(693)	(791)	(758)	(747)
Acquisition of businesses, net of cash acquired	(3,349)	(5,679)	(3,228)	(4,085)	(4,331)	(3,881)	(4,099)
Divestiture of businesses, net of cash transferred	(401)	(454)	501	(118)	(24)	120	(7)
Net cash used in investing activities	(8,160)	(10,975)	(7,379)	(8,838)	(9,064)	(8,427)	(8,776)
Beginning Cash	8,476	7,686	\$ 7,826	\$ 7,517	\$ 7,442	\$ 7,442	\$ 7,516
Additional (less) cash flow for financing	\$ 8,848	\$ 5,983	\$ 11,517	\$ 10,222	\$ 9,497	\$ 10,452	\$ 10,395
Cash Available for Financing	\$ 17,324	\$ 13,669	\$ 19,343	\$ 17,739	\$ 16,938	\$ 17,894	\$ 17,911
Proceeds from new debt	5,540	9,132	\$ 7,054	\$ 6,983	\$ 6,983	\$ 7,053	\$ 7,194
Payments to settle debt	(5,622)	(6,395)	\$ (5,178)	\$ (5,126)	\$ (5,126)	\$ (5,177)	\$ (5,281)
Short-term borrowings/(repayments) less than 90 days - net	101	26	\$ (460)	\$ (455)	\$ (455)	\$ (460)	\$ (469)
Common stock repurchases	(4,609)	(3,502)	\$ (6,465)	\$ (6,400)	\$ (6,400)	\$ (6,464)	\$ (6,593)
Common stock transactions - other	322	204	\$ 460	\$ 455	\$ 455	\$ 460	\$ 469
Cash dividends paid	(4,897)	(5,256)	\$ (5,345)	\$ (5,292)	\$ (5,292)	\$ (5,345)	\$ (5,452)
Cash Flow From Financing	\$ (9,165)	\$ (5,791)	\$ (9,934)	\$ (9,835)	\$ (9,835)	\$ (9,933)	\$ (10,132)
Effect of exchange rate changes on cash and cash equivalents	(473)	(51)	\$ (393)	\$ (306)	\$ (250)	\$ (316)	\$ (291)
Ending Cash	\$ 7,686	\$ 7,827	\$ 9,016	\$ 7,599	\$ 6,854	\$ 7,645	\$ 7,489
Metrics and assumptions							
Dep & Amm (% of sales)	5%	5%	5.0%	5.0%	5.0%	5.0%	5.0%
Capex (% of sales)	1.0%	0.9%	1.1%	1.1%	1.1%	1.1%	1.1%
Cash From Financing Act (% of net income)	-5.1%	-5.3%	-5.2%	-5.2%	-5.2%	-5.2%	-5.2%
Dividends Paid (% of sales)	7%	11%	9.0%	9.0%	9.0%	9.0%	9.0%
Inc(Dec) In ST Borrow (% of COGS)	-14%	-15%	-13.0%	-13.0%	-13.0%	-13.0%	-13.0%
Increase in LT Borrowings (% of COGS)	0%	0%	-1.2%	-1.2%	-1.2%	-1.2%	-1.2%
Reimburse Of LT Borrow (% of Sales)	-6%	-4%	-8.3%	-8.3%	-8.3%	-8.3%	-8.3%
Increase in Capital Stocks (% of net income)	2%	2%	3.4%	3.4%	3.4%	3.4%	3.4%
Decrease In Cap Stocks (% of net income)	-37%	-44%	-39.0%	-39.0%	-39.0%	-39.0%	-39.0%

Appendix C: Working Capital Schedule (\$B)

Working Capital Schedule	2015	2016	2017E	2018E	2019E	2020E	2021E
Cash and cash equivalents	\$ 7,686	\$ 7,826	7,516.93	7,441.76	7,441.76	7,516.18	7,666.50
Marketable securities (Note D)	508	701	586.86	580.99	580.99	586.80	598.54
Notes and accounts receivable - trade (net of allowances of \$290 in 2016 and \$367 in 2015)	8,333	9,182	8,491.34	8,406.42	8,406.42	8,490.49	8,660.30
Short-term financing receivables (net of allowances of \$337 in 2016 and \$490 in 2015) (Note F)	19,020	19,006	18,425.00	18,240.75	18,240.75	18,423.16	18,791.62
Other accounts receivable (net of allowances of \$48 in 2016 and \$51 in 2015)	1,201	1,057	1,093.30	1,082.37	1,082.37	1,093.19	1,115.06
Inventories (Note E)	1,551	1,553	1,504.02	1,488.98	1,488.98	1,503.87	1,533.95
Prepaid expenses and other current assets	4,205	4,564	4,250.88	4,208.37	4,208.37	4,250.46	4,335.47
Total Current Assets	42,504	43,889	41,868	41,450	41,450	41,864	42,701
Taxes (Note N)	2,847	3,235	2,949.08	2,919.59	2,919.59	2,948.79	3,007.77
Short-term debt (Notes D&J)	6,461	7,513	6,776.69	6,708.93	6,708.93	6,776.01	6,911.54
Accounts payable	6,028	6,209	5,930.29	5,870.99	5,870.99	5,929.70	6,048.29
Compensation and benefits	3,560	3,577	3,458.25	3,423.66	3,423.66	3,457.90	3,527.06
Deferred income	11,021	11,035	10,687.07	10,580.20	10,580.20	10,686.00	10,899.72
Other accrued expenses and liabilities	4,353	4,705	4,390.88	4,346.97	4,346.97	4,390.44	4,478.25
Total Current Liabilities	34,270	36,274	34,192	33,850	33,850	34,189	34,873
Net working capital	8,234	7,615	7,676	7,599	7,599	7,675	7,829
(increase) / decrease in working capital	(8,234)	619	(61)	77	-	(76)	(154)
<i>Metrics and assumptions</i>							
Cash and cash equivalents	9%	10%	10%	10%	10%	10%	10%
Marketable securities (Note D)	1%	1%	1%	1%	1%	1%	1%
Notes and accounts receivable - trade (net of allowances of \$290 in 2016 and \$367 in 2015)	10%	11%	11%	11%	11%	11%	11%
Short-term financing receivables (net of allowances of \$337 in 2016 and \$490 in 2015) (Note F)	23%	24%	24%	24%	24%	24%	24%
Other accounts receivable (net of allowances of \$48 in 2016 and \$51 in 2015)	1%	1%	1%	1%	1%	1%	1%
Inventories (Note E)	2%	2%	2%	2%	2%	2%	2%
Prepaid expenses and other current assets	5%	6%	5%	5%	5%	5%	5%
Taxes (Note N)	3.5%	4.0%	4%	4%	4%	4%	4%
Short-term debt (Notes D&J)	7.9%	9.4%	9%	9%	9%	9%	9%
Accounts payable	7.4%	7.8%	8%	8%	8%	8%	8%
Compensation and benefits	4.4%	4.5%	4%	4%	4%	4%	4%
Deferred income	13.5%	13.8%	14%	14%	14%	14%	14%
Other accrued expenses and liabilities	5.3%	5.9%	6%	6%	6%	6%	6%

Appendix D: Valuation – Discounted Cash Flow & Dividend Discount Model

Discounted Cash Flow Projections

EBIT	20,470	16,413	12,960	15,228	15,075	15,075	15,226	15,531
Less: Taxes	5,331.24	2,686.07	472.29	2,338	2,314	2,314	2,337	2,384
NOPAT	15,139	13,727	12,488	12,890	12,761	12,761	12,889	13,146
Plus: Depreciation & Ammortization	4,492	3,855	4,381	3,926	3,887	3,887	3,926	4,004
Less: Capital Expenditures	- 3,740	- 3,579	- 3,567	849	841	841	849	866
Less: increase (decrease) in working capital	-	8,234	- 61	61	77	- -	76	- 154
Unlevered Free Cash Flow		5,769	13,241	17,604	17,565	17,489	17,588	17,863
Terminal Value								244,133
Total Unlevered Free Cash Flow				17,604	17,565	17,489	17,588	261,996
Years From Today				1	2	3	4	5
Discount Factor				0.91	0.83	0.75	0.68	0.62
Present Value of Cash Flows				16,004	14,517	13,140	12,013	162,679
Net Present Value			218,352					

Terminal Value Growth Rate	2.5%
WACC	10.0%
Enterprise Value	218,352
Less: Debt, preferred stock	42,168.00
Plus: Cash and cash equivalents	7,826
Market Capitalization	184,010
Shares outstanding	950.85
Share price	\$193.52

Dividend Discount Valuation Projections

<u>Metrics and assumptions</u>									
Historical Data	2008	2009	2010	2011	2012	2013	2014	2015	2016
Dividends Paid	11%	11%	9%	9%	8%	5%	15%	10%	10%
Shares Outstanding	-3%	-6%	-5%	-4%	-6%	-6%	-3%	-5%	-5%
Projected Assumptions	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Dividends Paid	10%	10%	9%	9%	8%	6%	6%	5%	5%
Shares Outstanding	-5%	-5%	-3%	-3%	-2%	-2%	-2%	-1%	0%

Appendix D: Valuation - Multiples Valuation

IBM

Dollars in billions, year end December 31

Sum of the Parts Multiple Analysis

IT Services				IT Services		
\$ in Millions	EV	EBITDA	EV/EBITDA	Data	Input	Weight
Accenture	69.66	5.54	12.6	AVG	11.5	58.5%
CGI Group	15.52	1.48	10.5	IBM EBITDA	17.77	
Capgemini	15.95	1.79	8.9	EV	\$203.72	
Tata Consultancy	66.93	4.82	13.9	- Debt	42.17	
				+ Cash	8	
				Equity Value/Share	\$178.13	
Infrastructure Software				Infrastructure Software		
				Data	Input	Weight
Microsoft	339.98	27.91	12.2	AVG	28.9	30.0%
Oracle	154.3	15.61	9.9	IBM EPS	13.66	
VMWARE	25.66	1.89	13.6	EV	\$395.07	
Salesforce.com	55.76	0.69647	80.1	- Debt	\$42.17	
				+ Cash	\$7.83	
				Equity Value/Share	\$379.38	
Computer Hardware & Storage				Computer Hardware & Storage		
				Data	Input	Weight
Super Micro Computer	1.12	0.12013	9.3	AVG	7.4	9.3%
Seagate Technology	10.17	1.45	7.0	IBM EPS	13.66	
HP	25.35	4.26	6.0	EV	\$101.47	
				- Debt	42.17	
				+ Cash	7.83	
				Equity Value/Share	\$70.60	
Commercial Finance				Commercial Finance		
				Data	Input	Weight
CIT Group	17.13	2.14	8.0	AVG	7.6	2.3%
Aircastle	5.69	0.70331	8.1	IBM EPS	13.66	
Ryder System	9.31	1.84	5.1	EV	\$104.39	
GATX Corp	6.38	0.6775	9.4	- Debt	42.17	
				+ Cash	7.83	
				Equity Value/Share	\$73.67	

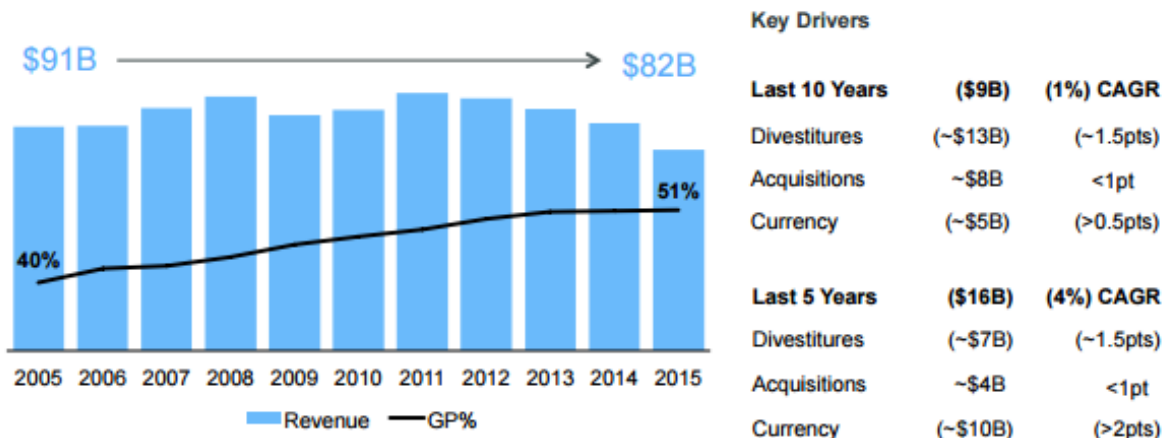
Calculated from Bloomberg data

SOTP	
Multiple Value	\$226.13
Conglomerate Discount	
6%	212.57
12%	199.00
Average	205.78
HBS Conglomerate Discount Estimate	

Appendix E: Further Understandings

Understanding IBM's Transformation

IBM's revenue and gross profit margin reflect continuous transformation of the business



Understanding IBM Cloud and IBM Watson Platform

Applications

Finished products for clients

Watson Oncology

Watson Cyber Security

Weather

GBS/GTS Ind. Solutions

Watson Virtual Agent

Watson Explore & Discover

IBM Risk & Compliance

Asset Mgmt. (Maximo)

+ more



AI

Building blocks for developers

API

Conversation

API

Discovery

API

Compare/Comply

API

DLaaS

API

Tone Analyzer

API

Personality Insight

API

Visual Recognition

API

Speech

API

IoT

API

NLU

API

NLC

API

Knowledge Query



Data

Tools to prepare data for cognitive

Crawl



Cleanse



Enrich



Store



Cloud

A highly scalable, security enabled foundation

Developer Services – IAM, Billing, Logging, Monitoring, + more

Firewall/Reverse Proxy

Object Storage

DNS

Dedicated Machines

Virtual Machines

Networking

File Storage

