Finance: 284
Dr. Liaw
St. John's University

International Business Machines Corporation (IBM)

Group Members:
Angelines Jover
Dominic Maglione
Jason Ocharsky
Ahmad Sony
Nedra Regis

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EXECUTIVE SUMMARY

Why IBM is a buy!

1) Favorable Industry Trends

- Global Competition is forcing companies to be more productive leading to growing demands for internet based applications allowing companies outlets to reduce cost and improve customer service.
- The evolution of internet platforms will result in increased demand to expand existing computing infrastructures and to investments in hard-ware with self management features.
- By 2005, 60% of the profits in the $1 trillion high-tech industry will come from software and services. (S&P Research).

We believe IBM is very well positioned to benefit from these industry trends through the development of its e-business services and software offerings. IBM's Global services unit has been growing at an average double digit rate over the past five years, and in 2002 IBM had a service backlog of $112B, pointing to future healthy growth.

2) IBM remained profitable during the IT industry slowdown with earnings in 2002 totaled $5B despite unfavorable market conditions. IBM also managed to grow its share of the market in its hardware, services, and software segments throughout the technology spending downturn, these increases should result in higher future earnings.

3) IBM has a leadership position in e-business services, and the annuity like stream of revenues which this business provides gives the company a stable earnings base during uncertain economic times.

We expect IBM to continue to expand its strategic outsourcing and small/medium business market segments over the next several years through the acquisition of additional IT outsourcing contracts and increasing its IT share of the $300B small/medium business market by helping its business partners generate sales.

COMPANY DESCRIPTION

International Business Machines Corporation (NYSE: IBM)
New Orchard Rd.
Armonk, NY 10504 (Map)
Phone: 914-499-1900
Fax: 914-765-7382
Toll Free: 800-426-4968
http://www.ibm.com

Corporate Mission:
At IBM, we strive to lead in the creation, development and manufacture of the industry's most advanced information technologies, including computer systems, software, networking systems, storage devices and microelectronics. We translate these advanced technologies into value for our customers through our professional solutions and services businesses worldwide.

About IBM:
International Business Machines Corporation (IBM) uses advanced information technology (IT) to provide customer solutions. The Company operates primarily in a single industry using several segments that create value by offering a variety of solutions that include, either singularly or in some combination, technologies, systems, products, services, software and financing. Organizationally, its major operations are comprised of a Global Services segment; three hardware product segments, Systems Group, Personal Systems Group and Technology Group; a Software segment; a Global Financing segment, and an Enterprise Investments segment. The segments are determined based on several factors, including customer base, homogeneity of products, technology and delivery channels.
Below is a breakdown of the operating segments:

Corporate Segment

- IBM is the world's largest information technology company, as well as the world's largest business and technology services provider ($36 billion);and the world's largest IT financier ($35 billion in assets).
- All of IBM's core businesses - from servers to storage systems, to middleware, to services- gained marketshare in 2002.

Global Financing Segment

- IBM Global Financing is the largest IT financier in the world, with an asset base of $35 billion. It delivers financial services to nearly 125,000 customers in more than 40 countries.
- By assets, IBM Global Financing would be a top 25 U.S. commercial bank.

Global Services Segment

- In 2002, IBM Global Services signed $53 billion in new contracts of which 42 contracts were each worth in excess of $100 million, and five which exceeded $1 billion.
- In October 2002 IBM acquired PricewaterhouseCoopers (PwC) Consulting.With some 30,000 employees and offices in 52 countries, PwC Consulting brought additional depth and leadership capabilities to IBM's services-led business. At $3.5 billion, it is one of the most significant acquisitions in IBM's history. IBM created the world's largest consulting services organization - Business Consulting Services - following this acquisition.
- In 2002, IBM won the largest outsourcing contract in its history. JPMorgan Chase will invest $5 billion over seven years to reduce operational costs, increase internal efficiencies, accelerate innovation, and improve its ability to respond to changing market conditions by using on demand technologies and services.

Technology Segment

- In 2001, Dataquest named IBM the industry leader in custom ASIC chips for the third year in a row.
- In May 2001, IBM introduced "pixie dust," IBM's newest storage breakthrough, which uses new material – antiferro magnetically-coupled (AFC) media -- to quadruple the a real density of current hard disk drive products and surpass 100 billion bits/square inch, something previously thought impossible. IBM plans to implement AFC media across its hard disc drive product lines.

Personal Systems Segment

- In 2001, Dataquest named IBM the industry leader in custom ASIC chips for the third year in a row.
- In 2001, IBM introduced the world's quietest high-capacity mobile disk drive that also enables the longest battery life among leading notebook drives on the market. This new family of drives -- the 60GH and 40GN -- also includes enhanced availability features for nontraditional applications. These industry-first models increase available hard disk drive "power-on hours" and are designed to meet the requirements for emerging applications such as those found in 24x7 blade server environments.

Research & Intellectual Property Segment

- IBM Research is the world's largest information technology research organization, with more than 3,000 scientists and engineers at eight labs in six countries. Locations include New York, San Jose, Austin, Zurich, Haifa, Tokyo, Beijing and Delhi
- For the tenth consecutive year, IBM received the most U.S. patents over any other company -- 3,288 U.S. patents in 2002, nearly double the number of the next closest company. Over the past decade, the U.S. Patent Office has issued IBM 22,357 patents - more than for ten of our top U.S. competitors combined.

Servers Segment

- According to IDC (4Q 2002), IBM is the #1 server vendor in the world based on annual server revenue market share.
- IBM is the fastest growing major Intel-based 32-bit server vendor, growing revenue share 21 percent in 4Q02, far surpassing the growth of HP and Dell. (IDC 4Q02).

- IBM is the #1 server vendor based on revenue share for high-performance computing at 36.7 percent, a 11.5 percent jump from the previous year while HP and Sun significantly declined (IDC 4Q02).

Software Segment

- IBM's e-business strategy is being fueled by the world's largest portfolio of software patents. IBM received 7,500 software patents between 1993 and 2002. The number of software patents received by IBM in 2002 was 1,332.
- IBM has engaged with thousands of customers worldwide, and has about 7,500 employees working in porting centers, research, services, development labs, and the sales and marketing of Linux.

Operations in more than 160 countries.		
Manufacturing plants		
North America	**Europe**	**Asia Pacific**
Beaverton, OR	Dublin, Ireland	Fujisawa, Japan
Bromont, Quebec, Canada	Essonnes, France	Futian, China
Burlington, VT	Greenock, Scotland	Pondichery, India
East Fishkill, NY	Mainz, Germany	Prachinburi, Thailand
Endicott, NY	Montpellier, France	Shanghai, China
Guadalajara, Mexico	Szekesfehervar, Hungary	Shenzhen, China
Poughkeepsie, NY		Singapore
Raleigh, NC		Yasu, Japan
Rochester, MN		
San Jose, CA		

Rankings

- 8th on the *Fortune* 500 list of largest U.S. companies, ranked by revenues
- 9th and the highest-ranking technology company on the *Forbes* "Super 100," based on a composite ranking in sales, profits, assets and market value

Industries: Computer Software, Computer Hardware, and Computer Services

Key Products/Services: Computers

Network Computers (Access, Internet and Java)
PCs and Notebooks (ThinkPad)
Servers (S/390, RS/6000, AS/400, IBM Netfinity)
Workstations (IntelliStation and RS/6000)
Refurbished Equipment
Services (Consulting, e-Business, Systems Integration)
Microelectronics (picoJava Processor, Microprocessors)
Networking (Management Products, Routers, LAN Adapters)

Printing Systems
Software (Database Management, Internet Applications)
Storage (Hard Disk Drives, Storage Systems and Software)

Selected Acquisitions:
Lotus Corporation
Tivoli Systems
NetObjects
Edmark
Think Dynamics, May 2003
Rational Software, February 2003
Tarian Software, November 2002
EADS Matra Datavision, October 2002
PwC Consulting, October 2002
Holosofx, September 2002
Access360, September 2002
TrelliSoft, August 2002
Metamerge, June 2002
CrossWorlds Software, January 2002
Database Assets of Informix Corporation, July 2001
Mainspring, April 2001

Management Officers & Employees

Title	Name	Age	Salary	Bonus
Chairman, President, and CEO	Samuel J. Palmisano	51	$1,433,333	$4,500,000
SVP and CFO	John R. Joyce	49	$550,000	$550,000
SVP and General Counsel	Edward M. Lineen	62		
SVP; Group Executive, IBM Global Services	Douglas T. (Doug) Elix	54	$500,000	$485,000
SVP; Group Executive, Sales and Distribution	J. Michael Lawrie	49		
SVP; Group Executive, Server Group	William M. Zeitler	55		
SVP; Group Executive, Software Group	Steven A. Mills	51	$450,000	$450,000
SVP; Group Executive, Technology	John E. Kelly III	49		
SVP; Group Executive, Technology and Manufacturing Group	Nicholas M. Donofrio	57	$550,000	$565,000

Biography

Sam Palmisano is President and Chief Operating Officer of the IBM Corporation. Appointed to this position in September 2000, Mr. Palmisano is responsible for managing day-to-day operations for IBM. Prior to this appointment, Mr. Palmisano was senior vice president and group executive for IBM's Enterprise Systems Group with responsibility for IBM's server family and the Storage Subsystems Division. In January 1998, Mr. Palmisano was named senior vice president and group executive for IBM Global Services. Managing some 135,000 employees, he was responsible for the worldwide operations of IBM Global Services, the world's largest IT services provider. Before this, Mr. Palmisano was senior vice president and group executive for IBM's Personal Systems Group, which included IBM's personal computer and network computing businesses. Mr. Palmisano assumed responsibility for IBM's strategic outsourcing business in January 1995. In January 1993, Mr. Palmisano was appointed president of Integrated Systems Solutions Corp. (ISSC), an IBM wholly owned subsidiary, and now part of IBM Global Services. ISSC was responsible for providing a variety of information technology services solutions and advanced network services. He became chief executive officer of ISSC in October 1993. Before joining ISSC, Mr. Palmisano was IBM Japan's senior managing director of operations. A graduate of The Johns Hopkins University, Mr. Palmisano joined IBM in 1973 in Baltimore, Maryland.

John R. Joyce was named senior vice president and chief financial officer of IBM in November 1999, with responsibility for the company's financial, treasury, tax, business development and real estate activities. Prior to assuming the CFO position, Mr. Joyce was president, IBM Asia Pacific, responsible for providing business direction and strategy for IBM's 19 country operations across the Asia-Pacific region, which accounts for approximately 20 percent of IBM's overall revenues. Mr. Joyce has held a number of other executive and management assignments at IBM, including serving as vice president and controller for the company's worldwide operations. He was part of the team responsible for the successful global reengineering of IBM in the mid-1990s. Mr. Joyce is a member of IBM's Chairman's Council, Operations Committee, Corporate Development Committee, Worldwide Management Council and Senior Leadership Group.
Source: Company Web Site, 2002

BREAKDOWN	
% of Shares Held by All Insider and 5% Owners:	1%
% of Shares Held by Institutional & Mutual Fund Owners:	57%
% of Float Held by Institutional & Mutual Fund Owners:	57%
Number of Institutions Holding Shares:	10

TOP INSIDER & RULE 144 HOLDERS		
Holder	**Shares**	**Reported**
GERSTNER, LOUIS V. JR	326,503	27-Nov-01
THOMPSON, JOHN M.	192,622	1-Feb-02
DONOFRIO, NICHOLAS M.	152,753	18-Jul-03
ETHERINGTON, WILLIAM A	102,894	30-Sep-01
MILLS, STEVEN A.	61,193	25-Jul-03

TOP INSTITUTIONAL HOLDERS				
Holder	**Shares**	**% Out**	**Value***	**Reported**
State Street Corporation	131,828,584	7.62	$10,875,858,180	30-Jun-03
Barclays Bank Plc	73,432,950	4.24	$6,058,218,375	30-Jun-03
FMR Corporation (Fidelity Management & Research Corp)	35,896,019	2.07	$2,961,421,567	30-Jun-03

Vanguard Group, Inc. (The)	32,536,615	1.88	$2,684,270,737	30-Jun-03
Wellington Management Company, Llp	30,427,217	1.76	$2,510,245,402	30-Jun-03
Capital Research and Management Company	27,565,500	1.59	$2,274,153,750	30-Jun-03
Deutsche Bank Aktiengesellschaft	27,407,245	1.58	$2,261,097,712	30-Jun-03
Northern Trust Corporation	21,484,210	1.24	$1,772,447,325	30-Jun-03
JP Morgan Chase & Company	21,210,991	1.23	$1,749,906,757	30-Jun-03
Mellon Bank, N.A.	20,643,515	1.19	$1,703,089,987	30-Jun-03
TOP MUTUAL FUND HOLDERS				
Holder	**Shares**	**% Out**	**Value***	**Reported**
Vanguard 500 Index Fund	14,110,656	0.82	$1,093,575,840	31-Dec-02
College Retirement Equities Fund-Stock Account	12,094,164	0.7	$937,297,710	31-Dec-02
Fidelity Magellan Fund Inc	7,406,800	0.43	$580,915,314	31-Mar-03
Investment Company of America	7,095,000	0.41	$585,337,500	30-Jun-03
SPDR Trust Series 1	6,928,324	0.4	$404,544,855	30-Sep-02
Vanguard Institutional Index Fund-Institutional Index Fd	6,079,768	0.35	$471,182,020	31-Dec-02
Washington Mutual Investors Fund	5,725,000	0.33	$472,312,500	30-Jun-03
Vanguard/Windsor Fund Inc.	4,604,800	0.27	$390,947,520	30-Apr-03
Vanguard Total Stock Market Index Fund	3,996,762	0.23	$309,749,055	31-Dec-02
Vanguard/Wellington Fund Inc.	3,848,000	0.22	$338,777,929	31-May-03

Data obtained from www.finance.yahoo.com

Top-Ranked Analysts
Gardner, Richard Smith Barney Citigroup
Neff, Andrew J Bear Stearns
Grossman, David M Thomas Weisel Partners LLC
Wagonfeld, Joel Banc of America Securities
Mccarthy, Kevin CS First Boston
Niles, Daniel T Lehman Brothers
Conigliaro, Laura Goldman Sachs

OTHER RANKED ANALYSTS

Caughey, Kimberly of Parker/Hunter Inc.
Elling, George D. of Deutsche Bank-North America
Jones, John of SoundView Technology Corp.
Misek, Peter J. of Scotia Capital
Seyrafi, Shebly of A.G. Edwards & Sons, Inc.
Shope, Bill of J.P. Morgan

Weber, Steve R. of SG Cowen Securities Inc.

PRICE TARGET SUMMARY	
Mean Target:	94.97
Median Target:	94.97
High Target:	109.00
Low Target:	80.00
No. of Brokers:	14
Data provided by Thomson/First Call	

Analyst Estimates

Earnings Est	Current Qtr	Next Qtr	Current Year	Next Year
Avg. Estimate	1.02	1.51	4.29	4.89
No. of Analysts	21	20	22	22
Low Estimate	0.98	1.45	4.23	4.55
High Estimate	1.07	1.57	4.36	5.25
Year Ago EPS	0.99	1.34	3.95	4.29

Revenue Est	Current Qtr	Next Qtr	Current Year	Next Year
Avg. Estimate	21.80B	25.00B	88.60B	93.90B
No. of Analysts	20	20	20	20
Low Estimate	21.40B	24.20B	87.90B	90.80B
High Estimate	22.10B	25.50B	89.20B	97.50B
Year Ago Sales	19.80B	N/A	N/A	88.60B
Sales Growth (year/est)	10.2%	N/A	N/A	6.0%

Earnings History	Sep 2002	Dec 2002	Mar 2003	Jun 2003
EPS Est	1.00	1.30	0.80	0.98
EPS Actual	0.99	1.34	0.79	0.97
Difference	-0.01	0.04	-0.01	-0.01
Surprise %	-1.0%	3.1%	-1.3%	-1.0%

EPS Trends	Current Qtr	Next Qtr	Current Year	Next Year
Current Estimate	1.02	1.51	4.29	4.89
7 Days Ago	1.02	1.51	4.29	4.87
30 Days Ago	1.02	1.51	4.29	4.87
60 Days Ago	1.05	1.50	4.31	4.86
90 Days Ago	1.05	1.50	4.32	4.87

EPS Revisions	Current Qtr	Next Qtr	Current Year	Next Year
Up Last 7 Days	0	0	0	1
Up Last 30 Days	1	0	1	1
Down Last 30 Days	0	0	0	0
Down Last 90 Days	0	0	0	1

Growth Est	IBM	Industry	Sector	S&P 500
Current Qtr.	3.0%	26.1%	117.9%	14.8%

Next Qtr.	12.7%	20.4%	35.9%	21.6%
This Year	8.6%	32.2%	109.6%	20.8%
Next Year	14.0%	21.7%	38.3%	13.1%
Past 5 Years (per annum)	5.7%	N/A	N/A	N/A
Next 5 Years (per annum)	10.0%	11.45%	14.05%	10.66%
Price/Earnings (avg. for comparison categories)	20.7	25.20	37.90	18.78
PEG Ratio (avg. for comparison categories)	2.07	2.20	2.70	1.76

Analyst Opinion

RECOMMENDATION SUMMARY*	
Mean Recommendation (this week):	2.2
Mean Recommendation (last week):	2.4
Change:	-0.2
Technology Hardware & Equipment Industry Mean:	2.53
Technology Sector Mean:	2.59
S&P 500 Mean:	2.57
* (Strong Buy) 1.0 - 5.0 (Strong Sell)	

UPGRADES & DOWNGRADES HISTORY

Date	Research Firm	Action	From	To
11-Sep-03	Smith Barney Citigroup	Downgrade	In-line	**Underperform**
8-Sep-03	CSFB	Upgrade	Neutral	**Outperform**
11-Jul-03	CIBC Wrld Mkts	Initiated		**Sector Outperform**
11-Jul-03	Prudential	Initiated		**Buy**
19-Jun-03	UBS	Initiated		**Neutral**
17-Jan-03	Bear Stearns	Downgrade	Outperform	**Peer Perform**
12-Dec-02	Fulcrum	Initiated		**Neutral**
9-Dec-02	Banc of America Sec	Downgrade	Buy	**Mkt Perform**
6-Dec-02	Salomon Smith Barney	Downgrade	Outperform	**In-line**
25-Nov-02	CSFB	Initiated		**Neutral**

Data obtained from www.finance.yahoo.com

Key Business Strategies

Although hardware accounts for 39% of its 2002 revenues of $81B, IBM is focusing on key growth areas such as services (45% of revenues) and software (16%) of revenues. Some key strategies related to these two key growth engines are listed below:

Helping clients become "on-demand businesses"

- Enabling companies and institutions the ability to provide "on demand" products and services for clients; transforming them into "sense-and-respond" or "real time" enterprises benefiting from enormous competitive advantages, such as converting fixed costs into variable costs, reducing inventories, and responding to the needs of their customers, employees, and partners. Expected to reduce tech users costs by 50%.
- Creating a critical mass of business expertise to help clients become on demand enterprises through the acquisition of PwC Consulting-with 60,000 professionals in industries ranging from

financial services and health care, and with business process expertise in areas such as supply chain and customer relationship management.

Evolving the Computing Model to an Open Environment

- Continuing its leadership role in the open standards movement-both with its support of Linux, Web services, and WebSphere software, IBM is supporting computing models built on open technical standards and platforms supporting the integration of business processes and operations.
- Developing grid computing allowing the sharing and managing of separate computing resources as if they were one large virtual computer increasing utilization rates and granting customers access to enormous computing capacity.
- Developing ways to make IT systems "autonomic"; self managing and self healing in an attempt to reduce system management and maintenance costs.

Establishing Utility Computing

- Enabling clients to reduce IT expenditures by allowing them to acquire computing and applications and having them pay only for what they use. This strategy is presently being applied by IBM Global Services to areas such as server and storage capacity, and to business processes such as procurement and claims processing.

Gaining Market Share for Software/Hardware offerings

- Growing IBM's software unit sales through middleware and database offerings and energizing the slower growth of host-based software through acquisitions-Lotus 1995, Tivoli Systems-1996, and Rational Software-2003.
- Growing its hardware division, from mainly sales of mainframes and minicomputers to more open systems (UNIX), and offering entry level servers and workstations that use Intel and run Microsoft O/S. In its PC business, IBM is focusing on new manufacturing and distribution strategies aimed at maintaining low inventories, thus reducing costs. In addition, as of April 2002, Hitachi and IBM begun discussing the possibility of a joint venture for hard disk drives, high margin business.

Strategic Outsourcing

- IBM is strategically providing clients with the ability to manage and operate their IT infrastructures allowing them to concentrate on their core competencies. In 2002, IBM won the largest outsourcing contract in its history whereby JPMorgan Chase will invest $5B over a seven year period to reduce operational costs, increase efficiencies and respond quickly to changing market conditions.

Source: IBM 2002 Annual Report and S&P Stock Report

Financial Details

Current Information:

Last Close 12-Sep-2003	$88.70	Price/Sales Ratio	1.80
52-Week High	$90.40	Price/Book Ratio	5.77
52-Week Low	$54.01	Price/Earnings Ratio	27.13
60-Month Beta	1.5	Price/Cash Flow Ratio	16.34
Market Value (mil.)	$153,467.0	Return on Assets	5.6%
Shares Outstanding (mil.)	1,730.2	Return on Equity	20.4%
Dividend Rate	0.64	Current Ratio	1.26
Dividend Yield	0.7%	Long-Term Debt/Equity	0.71
# of Institutional Holders	3,736	% Owned by Institutions	56.8%
Latest Short Interest Ratio	2.70	Latest Net Insider Transactions	(45,168.00)

Growth Rates	12 Month	36 Month	60 Month
Revenue Growth	4.6%	(1.6%)	0.4%

EPS Growth	11.6%	(14.8%)	(3.8%)
Dividend Growth	7.0%	6.3%	8.3%

Source: Hoovers.com

As of Sept 12, 2003, IBM's stock closed at $88.70 per share. The company's has a market cap of $153B, and approximately 1.7 million shares outstanding. Dividends measure $0.64 per share resulting in a div yield of 0.7%. The P/E ratio is 27.13 and P/ Cash Flow ratio totals 16.34. IBM has a Beta of approximately 1.5 which means it is more volatile than the market.

2002 Revenues totaled $81.1B, revenues have grown by 4.6% over the past 12 month period. 2Q 2003 revenues totaled $21.6B, 10.07% higher than 2Q 2002 level of $19.6B. Earnings per share totaled $3.07 in fiscal 2002 and have grown by 11.6% over the past twelve months. IBM's ROA totaled 5.6%, and its ROE totaled 20.4%. IBM's financial leverage index is 3.64, >1 which is indicates that debt is being used effectively. Debt to Equity levels total 0.71x.

INDUSTRY OVERVIEW

Computer Hardware Industry Profile

Encompassing products ranging from MP3 players to mainframe computers, the computer hardware industry serves an equally wide range of customers -- from consumers purchasing PC peripherals to multibillion-dollar global corporations installing entire networks. Accordingly, industry players include companies that focus exclusively on enterprise or personal computing, as well as companies that successfully cater to both markets. Market definition plays a key role in a sector marked by frequent acquisitions, rapid spending swings, and bitter price wars.

Leading the diversified pack is computing kingpin IBM, whose success serves as an example to companies such as Hewlett-Packard (HP) that bolster themselves against a volatile hardware market with product and market breadth. Not exclusive to the Western hemisphere, the bigger-is-better strategy is also practiced by a number of Japanese conglomerates (most notably NEC, Fujitsu, and Toshiba). Bigger does not mean invincible, however. One needs look no further than Xerox for an example of how far the mighty can fall.

Other companies in the enterprise sector have achieved market leadership by focusing on a particular product group; examples include Cisco Systems (IP networking), EMC (data storage), and Sun Microsystems (UNIX-based servers). But for every market leader there's a hard-charging challenger armed with lower prices or a rival technology. Upstarts including Juniper Networks have managed to steal market share in mighty Cisco's core router market, EMC has felt pricing pressure from companies such as Hitachi Data Systems, and Sun Microsystems faces a two-front assault from fellow vendors of UNIX servers and the all-threatening Intel/Microsoft juggernaut.

HP and Dell rule the consumer PC market, HP through retail channels and Dell using its pioneering direct sales model. Companies lacking the size to compete in the escalating market share race rely more on product differentiation and branding. With mixed success Apple and Gateway have survived by using this tactic, Apple with an eye for aesthetics and a user-friendly operating system, Gateway by building a reputation for stellar service and support. Both companies have also forayed into the retail business with branded stores.

Regardless of the product being offered, the intrinsic boom-bust nature of the tech sector challenges hardware companies to constantly reexamine the way they do business. Hardware sellers are increasingly turning to contract manufacturers, finding the outsourcing of the actual construction of components cost-effective. The even more predominant trend is a branching out into ancillary services. IBM paved the way with great success, a fact not lost on countless hardware vendors that have come to recognize recurring service revenues as a cash cow. Some companies have gone as far as to completely transition from selling hardware to offering integration and support services

In a robust economy leading hardware companies look to global expansion, seeking opportunities in countries such as China, where markets have yet to be saturated. Acquisitions also fuel growth, and in bull markets companies such as Cisco harvest new technologies and key personnel by acquiring startups. Consolidation is not limited to prosperous periods, however. During lulls, consolidation, often in the form of asset buyouts, sweeps the industry as hardware makers await the next upswing. Hewlett-Packard's historic merger with Compaq Computer may serve as the ultimate example of a defensive acquisition.

RATIO ANALYSIS - IBM

The following is the ratio analysis for IBM:

Liquidity (000s)		**FY 2002**	**FY 2001**	**FY 2000**	**FY 1999**	**FY 1998**	**FY 1997**	**FY 1996**	**FY 1995**	**FY 1994**	**FY 1993**
Current Ratio		1.21	1.21	1.21	1.09	1.15	1.21	1.20	1.29	1.41	1.18
Acid-test (Quick) Ratio		0.92	0.92	0.90	0.81	0.67	0.73	0.89	0.95	1.10	0.80
Acct. Receivable Turnover		6.27	6.45	5.84	6.67	8.62	9.32	6.83	6.42	5.95	6.46
Collection Period		57.45	55.81	61.67	53.99	41.78	38.63	52.70	56.07	60.51	55.71
Inventory Turnover		13.66	11.29	11.11	11.12	9.83	8.70	7.45	6.57	5.58	10.20
Days to Sell Inventory		26.35	31.90	32.40	32.36	36.64	41.37	48.33	54.80	64.53	35.31
Operating Cycle		83.80	87.71	94.07	86.35	78.42	80.00	101.03	110.88	125.05	91.02
Days Purchases in A/P		53.96	49.57	55.11	41.15	44.31	39.19	37.79	39.06	35.08	31.74
Liquidity Index		50.02	49.79	59.67	49.73	40.10	35.95	48.70	53.73	54.53	51.89
Working Capital		$7,102,000	$7,342,000	$7,474,000	$3,577,000	$5,533,000	$6,911,000	$6,695,000	$9,043,000	$12,112,000	$6,052,000

IBM manages to maintain its liquidity at satisfactory levels given its significant acquisition strategies as well as ongoing investments in RD&E and in fixed assets. While the current ratio is below the 2:1 rule of thumb, totaling 1.21x in FY 2002, IBM managed to maintain both this ratio as well as its working capital level ($7 billion) stable for the past three years. The quick ratio is only slightly below 1.0x, totaling 0.92x in FY 2002 as inventory makes up a minimal amount of total current assets (7.56% in FY 2002). IBM managed to maintain $5.9 billion in ending cash and cash equivalents in FY 2002, ($418 million decline from FY 2001 levels) following the $2.8 million cash payment for PWC, $2 million cash contribution to fund its personal pension plan (PPP), and $857 million in restructuring projects. While continuing its focus on cash generation, IBM improved its working capital position in the areas of inventory and receivables. Current assets declined by $809 million to $41.6 billion as IBM managed to reduce inventory levels by $1.2 billion due to improvements in levels across all major business units and divestitures (HDD to Hitachi in December 2002). IBM's inventory levels are at a 20-year low and this increased turnover to 13.66x in FY 2002 and reduced days to sell inventory to 26 days from 32 during FY 2001. Receivable turnover declined slightly totaling 6.27x in FY 2002 versus 6.45x in FY 2001 increasing the collection period to 57 days in FY 2002. These results were due to the $154 million increase in net receivables to $25.9 billion, stemming from the $814 million increase in trade receivables due to the acquisition of PWC and the stronger fourth quarter 2002 revenue, which was offset by the decline of $660 in short-term financing receivables. Current liabilities declined by $569 million to $34.6 billion due to declines in short-term debt related to IBM's global financing business, increases in accounts payable driven by the PWC acquisition, and inter-company payables that were converted to external payables due to the HDD divestiture. IBM's operating cycle measuring the time interval to convert inventories to cash improved to 84 days in FY 2002 from 88 days in FY 2001. The liquidity index reached a peak in FY 2000 totaling 60 days, falling to 50 days in FY 2001 and remaining at this level in FY 2002 indicating that IBM's liquidity has improved over the past three years.

Asset Utilization /Efficiency	**FY 2002**	**FY 2001**	**FY 2000**	**FY 1999**	**FY 1998**	**FY 1997**	**FY 1996**	**FY 1995**	**FY 1994**	**FY 1993**
Total Asset Turnover	0.87	0.93	0.97	1.01	0.97	0.97	0.94	0.89	0.79	1.55
Fixed Asset Turnover	5.25	5.00	4.96	4.63	4.15	4.13	4.01	3.73	3.14	5.91
Working Capital Turnover	11.24	11.21	15.40	19.22	13.13	11.54	9.65	6.80	7.05	20.73

IBM's total asset turnover has historically averaged below 1.0x. IBM's total asset turnover in FY 2001 and FY 2002 was negatively impacted by the reduction in revenue levels as well as the continued increase in total assets. Specifically, in FY 2002, the main increase in total assets of $6.1 billion stemmed from higher prepaid pension assets. The company's fixed asset turnover has been improving reaching 5.25x in FY 2002 due to increases in productivity in the use of fixed assets to generate revenues. IBM's working capital turnover has remained satisfactory over the past two fiscal periods, totaling 11.24x and 11.21x, in FY 2002 and FY 2001, respectively. These turnover levels are lower than FY 2000 and FY 1999 levels mainly due to lower revenues. However, the company's working capital level remains healthy, totaling $7 billion in FY 2002 and FY 2001.

Profitability	**FY 2002**	**FY 2001**	**FY 2000**	**FY 1999**	**FY 1998**	**FY 1997**	**FY 1996**	**FY 1995**	**FY 1994**	**FY 1993**
Gross Profit Margin	37.30%	38.39%	37.11%	36.04%	37.80%	38.99%	40.21%	42.21%	39.47%	38.50%
Operating Profit Margin	8.37%	11.86%	10.70%	11.14%	11.22%	11.59%	11.32%	10.55%	7.81%	0.49%
Net Profit Margin	4.41%	9.30%	9.51%	8.81%	7.75%	7.76%	7.15%	5.81%	4.72%	-12.92%
EPS (Basic)	**$3.13**	**$4.69**	**$4.45**	**$4.06**	**$2.92**					
EPS (Diluted)	**$3.07**	**$4.59**	**$4.32**	**$3.93**	**$2.84**					

Source: 5yr. EPS Data Collected From 2002 IBM Annual Report Five-Year Selected Financial Data Comparison

Over the 10 year historical period examined, IBM's gross profit margin has trended from a high of 42.21% in FY 1995 to a low of 36.04% in FY 1999. FY 2002 gross profit margin fell by 1.09% from the previous year's level totaling 37.30% mainly due to the FY 2002 revenue decline (2.3% decline to $81.2 billion in FY 2002) stemming from lower corporate spending on IT leading to a lower gross profit in Global Services and Hardware, partially offset by improved gross margins in Software and Global Financing segments. IBM's operating profit margin has trended downward totaling 8.37% in FY 2002 stemming from the combination of lower gross margin levels and higher operating expenses stemming from expenses associated with the company's microelectronics division, productivity initiatives, and costs associated with the acquisition of PWC. IBM's provision for bad debts also increased by $183 million to $673 million in FY 2002 as the company's Global Financing receivables portfolio was affected by the weakening economy and exposures in the communications sector. The resulting net profit margin reached a low of 4.41%. Earnings per share (basic) totaled $3.13 in FY 2002 (diluted EPS totaled $3.07) due to the reduction in earnings to common shareholders. The average number of common shares outstanding assuming dilution totaled 1,730.9 million in FY 2002 versus 1,771.2 million in FY 2001 and 1,812.1 million in 2000. This gradual decline is a result of the company's commitment to its common share repurchase program.

Return on Invested Capital	**FY 2002**	**FY 2001**	**FY 2000**	**FY 1999**	**FY 1998**	**FY 1997**	**FY 1996**	**FY 1995**	**FY 1994**	**FY 1993**
Net Profit Margin *	4.41%	9.30%	9.51%	8.81%	7.75%	7.76%	7.15%	5.81%	4.72%	-12.92%
Asset Turnover =	0.87	0.93	0.97	1.01	0.97	0.97	0.94	0.89	0.79	1.55
Return on Assets (ROA)	**3.83%**	**8.65%**	**9.20%**	**8.89%**	**7.55%**	**7.49%**	**6.73%**	**5.18%**	**3.72%**	**-19.97%**
Return on Common Equity (ROCE)	**15.48%**	**35.05%**	**39.35%**	**38.61%**	**32.25%**	**29.40%**	**24.65%**	**18.23%**	**14.00%**	**-82.09%**
Dividend payout rate		28.08%	12.51%	11.48%	11.40%	13.18%	12.85%	13.00%	14.15%	21.91%
Equity Growth Rate		11.14%	30.66%	34.83%	34.21%	28.00%	25.62%	21.44%	15.65%	10.93%

The company's Return on Assets (ROA) was disaggregated to equal net profit margin * asset turnover. During the historical period stemming from FY 1998-FY 2001, IBM's ROA reached high levels stemming from a combination of high profitability and effective utilization of assets in generating sales. However, in FY 2002 a reduced net profit margin level combined with a slight reduction in asset turnover attributed to lower RY 2002 revenues resulted in ROA of 3.83%. Similarly during the FY 1998-FY 2001 period, IBM's ROCE reached high levels. However, in FY 2002 this measure fell to 15.48% due to the decline in FY 2002 earnings. Historically, IBM's dividend payout rate totaled 11.40%, 11.48%, and 12.51%, in FY 1999, FY 2000, and FY 2001, respectively. In FY 2002, IBM paid out 28.08% of its earnings in the form of cash dividends, as common stock dividends totaled $1 billion (averaged $0.58 per share). (IBM paid no preferred stock dividends in FY 2002). The equity growth rate, which reached a peak level of 34.83% in FY 2000, declined to 11.14% by FY 2002 due to lower earnings levels which totaled $3.6 billion in FY 2002.

Capital Structure & Solvency		**FY 2002**	**FY 2001**	**FY 2000**	**FY 1999**	**FY 1998**	**FY 1997**	**FY 1996**	**FY 1995**	**FY 1994**	**FY 1993**
Total Debt/Equity		3.24	2.85	3.28	3.27	3.43	3.11	2.75	2.58	2.46	3.11
LTD/Equity		1.72	1.35	1.52	1.34	1.46	1.35	1.10	1.09	1.13	1.34
Times Interest Earned		40.79	48.12	34.81	34.40	13.68	13.40	12.99	11.78	5.20	N/A
Financial Leverage Ratio		4.24	3.85	4.28	4.27	4.43	4.11	3.75	3.58	3.46	4.11
Financial Leverage Index (ROCE/ROA)		4.04	4.05	4.28	4.34	4.27	3.93	3.66	3.52	3.76	

IBM's Debt/Equity ratio has remained relatively stable from FY 1998 – FY 2000. In FY 2001 this ratio fell to 2.85x, however in FY 2002 it increased once again to meet FY 2000's level totaling 3.24x. This ratio is highly influenced by IBM's global financing business which utilizes funds to provide both customer and commercial financing in the form of lease and loan financing to end users and internal customers (2-5 years), and provides short term inventory and accounts receivable financing to dealers and re-marketers of IT products. Total financing liabilities for FY 2002 totaled $31.7 billion, versus total financing assets of $35.2 billion. LTD/Equity totaled 1.72x in FY 2002 as total debt for FY 2002 measured $19.9 billion versus $15.9 billion during the previous year. In FY 2002, the company issued debt denominated in US dollars and Japanese yen to meet existing financing needs, primarily associated with the acquisition of PWC. The major rating agencies' ratings of the company's debt securities at FY 2002 appear below:

	Standard & Poors	**Moody's Investors Service**	**Fitch Ratings**
Senior-Long Term Debt	A+	A1	AA-
Commercial Paper	A-1	Prime-1	F-1+

The times interest earned ratio remained high indicating that current EBIT could cover interest expense by 40.79x. IBM's financial leverage ratio totaled 4.04x in FY 2002 indicating that every dollar of common equity commands $4.24 in assets for the company. The financial leverage index is well above 1.0 indicating favorable effects from leverage.

RATIO ANALYSIS - COMPETITORS

SHORT-TERM LIQUIDITY RATIOS - YR 2002	**IBM**	**MICROSOFT**	**HEWLETT PACKARD**	**ELECTRONIC DATA SYSTEM**
Current ratio	1.21	3.81	1.48	1.53
Acid-test ratio	0.92	3.44	0.96	1.36
A/R turnover	6.27	1.61	1.52	0.89
Inventory turnover	13.66	12.41	10.29	--
Days' sales in receivables	--	65.10	75.76	107.74
Days' sales in inventory	26.35	46.67	50.42	--
Liquidity Index	50.02	--	56.07	83.28

Various measures of short-term liquidity for the year 2002 are shown above for IBM and its competitors. Compared to its competitors, IBM's current ratio is lower with Microsoft having the most outstanding current ratio. However, the company is still capable of covering its debt. For every dollar of liability, the company has 1.21 dollars to cover that liability. In contrast to its competitors, IBM provided the less assurance that current liabilities will be paid. This current ratio shows that IBM's margin of safety available to cover shrinkage in non-cash current asset

values when ultimately disposing of or liquidating them. It also helps the company to cover uncertainties that might impair cash flows.
Not only is IBM's current ratio the lowest among its competitors, it's acid-test ratio for 2002 is also lower than its three major competitors in the industry.

CAPITAL STRUCTURE AND SOLVENCY RATIOS	**IBM**	**MICROSOFT**	**HEWLETT PACKARD**	**ELECTRONIC DATA SYSTEM**
Total debt to equity	3.24	0.30	0.95	1.63
Total debt ratio	1.72	0.23	0.49	0.61
Financial Leverage index (ROCE/ROA)	4.04	1.25	2.27	2.20

Both IBM's total debt to equity and total debt ratio exceeds its competitors. . This ratio is highly influenced by IBM's global financing business which utilizes funds to provide both customer and commercial financing in the form of lease and loan financing to end users and internal customers (2-5 years), and provides short term inventory and accounts receivable financing to dealers and re-marketers of IT products. The cost of debt is lower than ROA, ROCE>ROA, thus the financial leverage index is much higher than 1. This means that IBM has used its debt effectively.

ALTMAN Z-SCORE		**MICROSOFT**	**HEWLETT PACKARD**	**ELECTRONIC DATA SYSTEM**
X1=	Working capital/Total assets=	0.5297	0.1664	0.1725
X2=	Retained earnings/Total assets=	0.3035	0.1693	0.4211
X3=	Earnings before interest and taxes/Total assets=	0.1702	-0.0122	0.0992
X4=	Shareholders' equity/Total liabilities=	3.3739	1.0527	0.6138
X5=	Sales/Total assets=	0.4193	0.8003	1.1389
<u>Z SCORE</u>				
Microsoft	**0.717X1+ 0.847X2 + 3.107X3 + 0.420X4 + 0.998X5 =**	**3.00**		
Hewlett Packard	**0.717X1+ 0.847X2 + 3.107X3 + 0.420X4 + 0.998X5 =**	**1.47**		
Electronic Data Systems	**0.717X1+ 0.847X2 + 3.107X3 + 0.420X4 + 0.998X5 =**	**2.18**		

The above calculations suggest that IBM's three main competitors' is unlikely to encounter any bankruptcy problems, Microsoft showing the least probability of bankruptcy.

ASSET UTILIZATION & PROGIT MARGIN RATIOS YR- 2002	**IBM**	**MICROSOFT**	**HEWLEET PACKARD**	**ELECTRONIC DATA**

				SYSTEM
Sales to fixed assets	5.25	1.49	1.63	2.26
Sales to total assets	0.87	0.42	0.80	1.14
Gross Profit Margin	0.37	0.82	0.27	0.17
Operating Profit Margin	0.08	0.41	-0.02	0.09
Net Profit Margin	0.04	0.28	-0.02	0.05
EPS (Basic)	$3.13	0.72	--	2.10
EPS (Diluted)	$3.07	$0.70	--	$2.00

In 2002, IBM has effectively utilized its assets to generate sales. Due to the company's high operating cost, its operating profit margin is lower than two of its competitors.

Comparisons with Competitors

Direct Competitor Comparison

	IBM	EDS	HPQ	MSFT	Industry
Market Cap:	154.51B	10.29B	60.69B	306.65B	143.42M
Employ-ees:	315,889	137,000	141,000	55,000	316
Rev. Growth (ttm):	-7.10%	-0.20%	25.10%	13.50%	0.00%
Revenue (ttm):	81.19B	21.50B	56.59B	32.19B	84.34M
Gross Margin (ttm):	37.26%	13.49%	26.60%	82.33%	37.26%
EBITDA (ttm):	12.76B	2.48B	2.92B	13.51B	-1.61M
Oper. Margins (ttm):	10.31%	4.27%	3.16%	37.50%	1.12%
Net Income (ttm):	6.72B	382.00M	2.07B	9.99B	-2.89M
EPS (ttm):	3.86	0.78	0.63	0.92	-0.20
PE (ttm):	22.98	27.91	31.87	30.80	34.09
PEG (ttm):	2.07	1.54	1.66	2.24	1.69
PS (ttm):	1.80	0.48	0.86	9.48	1.58

EDS = Electronic Data Systems Corp
HPQ = Hewlett-Packard Co
MSFT = Microsoft Corp
Industry = Computer Hardware

Data obtained from www.finance.yahoo.com

Correlation With Stocks In The Portfolio

	% Change IBM	*% Change Dell*	*% Change FRX*	*% Change GD*	*% Change KSS*	*% Change PEP*	*% Change WMT*	*% Change SPZ*
% Change IBM	1							
% Change Dell	0.51914128	1						
% Change FRX	0.154028709	0.14698013	1					
% Change GD	0.150633226	0.169522851	0.120903502	1				
% Change KSS	0.350869461	0.325837045	0.22224674	0.140007606	1			
% Change PEP	0.118627328	0.037321146	0.24474839	0.162495316	0.214438627	1		
% Change WMT	0.353556805	0.340569049	0.27223433	0.196305216	0.603611128	0.30104482	1	

% Change SPZ	0.596719603	0.539890793	0.382206097	0.307526023	0.518521365	0.299204343	0.540908718	1

The chart above depicts the correlation existing between IBM and the current positions held within the portfolio. The correlation was determined by analyzing the daily percentage change in value calculated from the adjusted daily closing prices for each security. The daily closing prices were adjusted for dividend payouts and stock splits. The data range used in this analysis was the adjusted closing prices from September 1, 2000 through September 1, 2003.
Data obtained from www.finance.yahoo.com

DDM VALUATION SPREADSHEET

DCF Valuation Spreadsheet																
							Base Year									
Year	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**Terminal Value**
EPS growth		20.47%	7.21%	-2.92%	-111.9%	51.39%	13.10%	10.30%	10.30%	10.30%	10.30%	10.30%	8.00%	6.00%	4.00%	
EPS	3.38	4.25	4.58	4.45	2.10	4.32	4.83	5.33	5.88	6.48	7.15	7.89	8.52	9.03	9.39	
	actual	actual	actual	actual	actual	Est.	Est.	Next 5 years consenus expectations								
Actuals																
payout ratio	12.72%	11.06%	11.14%	12.36%	28.10%	14.81%										
dividend	0.43	0.47	0.51	0.55	0.59	0.64										
Estimates																
growth							13.10%	10.30%	10.30%	10.30%	10.30%	10.30%	8.00%	6.00%	4.00%	
payout ratio							14.99%	14.99%	14.99%	14.99%	14.99%	14.99%	14.99%	14.99%	14.99%	
dividend							0.72	0.79	0.88	0.97	1.07	1.18	1.27	1.35	1.40	281.64
PV Factor							0.935	0.873	0.816	0.763	0.713	0.666	0.623	0.582	0.544	0.544
using 7.0%																
(CAPM)																
Pvalue							0.6767	0.697	0.7186	0.7411	0.7638	0.787	0.7951	0.7874	0.7653	153.217
Total Present Value							**$159.95**				**Terminal Value Calculation**					
										12 eps est	9.39					
										Assumed						
										P/E end '12	30					
										Target						
										Price		281.65				

RISKS ASSOCIATED WITH THE OWNERSHIP OF IBM

The company is a defendant in a class action challenge to its defined benefit plan. The suit alleges that the current pension plan formulas violate a number of Employee Retirement Income Security Act (ERISA) provisions including the ERISA age discrimination provision.

A Class Action law suit by four former employees is pending in Santa Clara County Superior Court in California against IBM due to possible cancer causing chemical agents in IBM plants. There are similar claims in Minnesota and New York IBM plants. A High incidence of cancer has been found in death records of former IBM employees.

IBM guarantees certain loans and financial commitments. The maximum potential future payment under these financial guarantees was $126 million and $218 million at December 31, 2002 and 2001, respectively. These amounts include the limited guarantee associated with the company's loans receivable securitization program.

IBM extended lines of credit, of which the unused amounts were $3,482 million and $4,088 million at December 31, 2002 and 2001, respectively. A portion of these amounts was available to the company's business partners to support their working capital needs. In addition, the company committed to provide future financing to its customers in connection with customer purchase agreements for approximately $288 million and $269 million at December 31, 2002 and 2001, respectively.

There is the market risk associated with interest rate and currency movements on outstanding debt and non-U.S. dollar denominated assets and liabilities, other examples of risk include collectbility of accounts receivable and recoverability of residual values on leased assets. At December 31, 2002, a 10 percent decrease in the levels of interest rates with all other variables held constant would result in a decrease in the fair market value of the company's financial instruments of $237 million as compared with a decrease of $177 million at December 31, 2001. In 2002 versus 2001, the reported increase in interest rate sensitivity is primarily due to an increase in the proportion of long-term fixed rate debt outstanding at December 31, 2002. At December 31, 2002, a 10 percent weaker U.S. dollar against foreign currencies with all other variables held constant would result in a decrease in the fair value of the company's financial instruments of $640 million as compared with a decrease of $1,401 million at December 31, 2001.

Global Financing is a business segment within IBM, but is managed (on an arm's-length basis) and measured as if it were a standalone entity. The company's debt in support of the Global

Financing business and the geographic breadth of the company's operations contain an element of market risk from changes in interest and currency rates.

Global Financing total revenue declined 2.4 percent in 2002 from 2001, following a decline of 4.5 percent in 2001 versus 2000. The decline in 2002 was driven by a lower asset base, primarily due to decreases in demand for IT equipment caused by the current economic environment. The decline in 2001 was also driven by a lower asset base and a decline in used equipment sales. Global Financing's bad debts expense increased to $576 million for the year ended 2002, compared with $349 million for 2001.

On December 31, 2002, IBM sold its hard disk drive (HDD) business to Hitachi, Ltd. (Hitachi). The HDD business was part of the company's Technology Group reporting segment. The HDD business was accounted for as a discontinued operation under generally accepted accounting principles.

Revenue from discontinued operations in 2002 totalled $1,946 million, a decline of 30.5 percent compared with revenue of $2,799 million in 2001. Revenue from discontinued operations decreased 15.4 percent in 2001 compared with 2000 revenue of $3,307 million. The announcement of the Hitachi transaction led the company to a strategic decision to cease reworking and selling efforts for some of the company's older HDD products. The increase in inventory write-offs was especially pronounced for these older products. The HDD revenue declined as the company's ability to sell HDDs is highly dependent on the personal computer industry, which experienced a significant downturn beginning in 2000, as well as a result of general industry price declines. Loss from discontinued operations in 2002 was $1,755 million as compared to a loss of $423 million in 2001 and income of $219 million in 2000.