



St John's University Undergraduate Student Managed Investment Fund

INTERNATIONAL BUSINESS MACHINE CORPORATION

Initial coverage report

Recommendation: We recommend a buy of 300 Shares of International Business Machine Corporation (Ticker: IBM) for the St. John's Investment Fund. We believe that IBM is slightly undervalued. Furthermore, our study projects a high future growth.

Industry: Computer Hardware, Computer Software and Information Technology Services

Summary: International Business Machines Corporation (IBM) manufactures and sells computer services, hardware and software. The Company also provides financing services in support of its computer business.

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Share Data

| | |
|-----------------------|-------------------|
| Price | \$80.79 |
| Date | April 4 , 2003 |
| Target Price 2003 | \$86.67 |
| Target Price 2004 | \$106.64 |
| 52-week Range | \$54.01 – \$90.03 |
| Market Capitalization | \$139.5 Billion |
| Share Outstanding | 1.73 Billion |
| Revenue | \$3.08 Billion |
| Sales | \$46.9 Billion |
| ROE | 23.65% |
| ROA | 6.9% |

Fundamentals

| | |
|-------------------|-------------------|
| Eps 2002 | \$2.06 |
| Eps 2003 Est. | \$3.82 (vs. 4.92) |
| Eps 2004 Est. | \$4.54 (vs. 4.90) |
| Price/Book Value | 6.11 |
| Price/sales | 1.72 |
| Book Value/EBITDA | 2.03 |
| Dividends Yield | 0.73 |

Earning Pre Share and Projection

| | 2000 PE | 2001 PE | 2002 PE | Estimated 2003 PE | Estimated 2004 PE | Average past PE |
|------------|---------|---------|---------|-------------------|-------------------|-----------------|
| IBM | 19.1 | 26.3 | 20.13 | 22.69 | 23.49 | 21.84 |
| P/E Growth | | 37.70% | -23.46% | 12.71% | 3.53% | 8.51% |

1 Year Stock Price

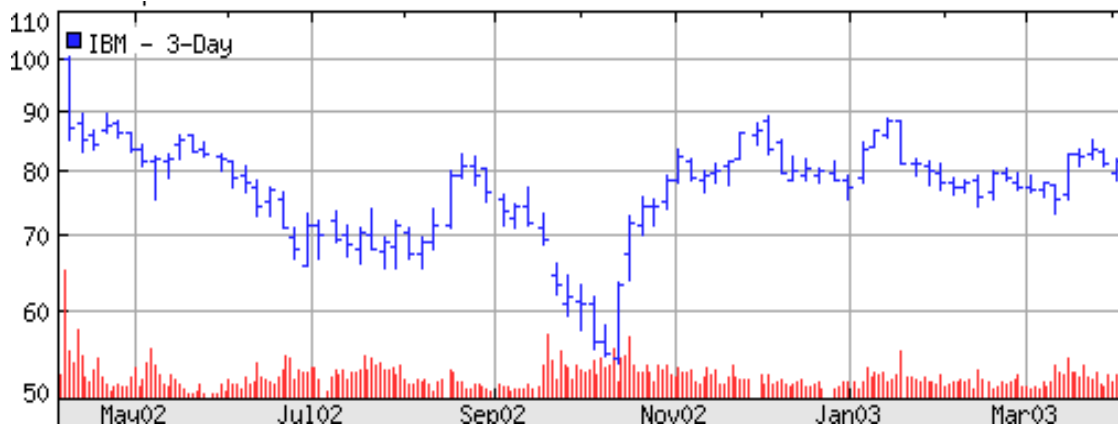




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I) Company mission¹

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

II) History

IBM was incorporated on June 16, 1911, as the Computing-Tabulating-Recording Co. (C-T-R), a consolidation of the Computing Scale Co. of America, the Tabulating Machine Co. and The International Time Recording Co. of New York. In 1924, C-T-R adopted the name International Business Machines Corporation. The Company's major operations are comprised of Global Services segment; three hardware product segments (Enterprise Systems, Personal and Printing Systems, and Technology); a Software segment; a Global Financing segment; and an Enterprise Investments segment.

III) Business overview

International Business Machines Corporation (IBM) manufactures and sells computer services, hardware and software. IBM also provides financing services in support of its computer business.

The **Global Services** segment is an I/T (information technology) service provider supporting computer hardware and software products while combining professional services to help customers of all sizes realize the full value of I/T. The segment provides value through three primary lines of business:

- *Strategic Outsourcing Services* creates business value through long-term strategic partnerships with customers by taking on responsibility for their processes and systems.
- *BIS* provides business/industry consulting and end-to-end e-business implementation of such offerings as Supply Chain Management, Customer Relationship Management, Enterprise Resource Planning and Business Intelligence.
- *Integrated Technology Services* offers customers a single I/T partner to manage multivendor I/T systems' complexity in an *e-Business* environment including such traditional offerings as: Product Support, Business Recovery Services, Site & Connectivity Services, Systems Management and Networking Services.

Learning Services supports these three primary lines of business. It also helps clients design, develop and deploy curricula to educate their employees. The Global Services segment is uniquely suited to integrate the full range of the company's, and key industry participants' capabilities including hardware, software, services and research. In October 2002, IBM acquired *PricewaterhouseCoopers Consulting* (PwCC), the global management consulting and technology services unit of PricewaterhouseCoopers.

The **Enterprise Systems** segment produces powerful multipurpose computer servers that operate many open-network-based applications simultaneously for multiple users. They perform high-volume transaction processing and serve data to personal systems and other end user devices. The servers are the engines behind the bulk of electronic business transactions, including e-commerce. The 4 main servers are:

- *z-series*: Mainframe servers that are the foundation of *e-Business* infrastructure for mission-critical data and transaction processing.
- *pSeries* servers: The most powerful technologically advanced UNIX server.
- *iSeries*: Mid-range server, integrating mid-range business servers that run sophisticated business applications.
- *xSeries* servers: Intel based server.

The **Personal and Printing Systems** segment (IBM reorganized the Personal Systems segment and renamed it) produces general-purpose computer systems, advanced function printers and point-of-sale solutions. Major business units include Personal Computers, Retail Store Solutions and Printing Systems. Major brands include ThinkPad mobile systems and Net Vista.

¹From 10K Annual report.



The **Technology** segment provides components such as semiconductors and hard disk drive's (HDD) for use in IBM's products and for sale to original equipment manufacturers (OEM). Major business units include Microelectronics and Storage Technology. In December 2002, IBM sold most of its HDD operations to *Hitachi Ltd.*, a global electronics company. This sale is a three-year contract involving the emergence of a joint venture called *Hitachi Global Storage Technologies*. *Hitachi Global Storage Technologies* is 70% Hitachi owned in the first year with the additional to be acquired over the next three years.

The **Software** segment delivers operating systems for IBM's servers and enables *e-Business* software (middleware) for IBM/non-IBM platforms. This segment's also offers key customer opportunities: transformation & integration, leveraging information, organizational effectiveness and managing technology. In addition to IBM's own development and product/marketing effort; the segment supports 56,000 business partners to ensure that IBM's hardware offerings are included in all solutions.

The **Global Financing** segment is a provider of financing services for I/T. The segment provides lease and loan financing that enables IBM's customers to acquire complete I/T and e-business solutions (hardware, software and services). Global Financing is provided by IBM and its global business partners as a reliable source of capital for the distribution channel. This segment also provides IBM's business partners with customized commercial financing for inventory, accounts receivable and term loans. Thus helping them manage cash flow, invest in infrastructure and grow business. Global Financing also selectively participates in syndicated loan activities.

The **Enterprise Investments** segment provides industry-specific I/T solutions supporting Hardware, Software and Global Services segments. The segment develops products designed to meet specific marketplace requirements and to complement IBM's overall portfolio of products. Enterprise Investments revenue is primarily derived from the sale of software products.

IBM offers its products through global sales and distribution organizations. The sales and distribution organizations have a geographic focus (Americas, Europe, Middle East, Africa, Asia Pacific) and a specialized global industry focus. In addition, these organizations include a global sales and distribution effort devoted exclusively to small and medium businesses. IBM also offers its products through a variety of third-party distributors and resellers, as well as through its on-line channels. IBM operates in more than 150 countries worldwide and derives more than half of its revenues from sales outside the United States.

In February 2003, IBM acquired *Rational Software Corporation*. *Rational* is a provider of open industry standard tools. *Rational* provides services for developing business applications and building software products/systems, including embedded software for devices such as cell phones and medical systems.



IV) Recent News² (NEWS SINCE MARCH 2003)

- TOKYO, April 6. IBM Japan and Toshiba Corp are to cooperate in the development of software that automatically prevents glitches in computer systems, the daily *Nihon Keizai Shimbun* said on Sunday.
- IBM offers a full line of servers that embrace industry standards. Powered by breakthroughs such as microprocessors with copper wiring and Silicon-on-Insulator technology. IBM servers have captured industry-leading benchmarks that measure transactions, Web serving capabilities and performance in software applications. The IBM *e-Server* line is an integral part of customized, flexible and scalable Internet solutions for companies of all sizes. Linux is capable of running on the entire *e-Server* line.
- ARMONK, N.Y., April 4, 2003 (BUSINESS WIRE). IBM today simplified the system design process for computers by introducing the industry's first blueprint to assist customers as they begin to build autonomic computing systems.
- GENEVA, Switzerland & ARMONK, N.Y. April 2, 2003, (BUSINESS WIRE). IBM and the European Organization for Nuclear Research (CERN) today announced that IBM is joining the CERN open lab for Data Grid applications to collaborate in creating a massive data-management system built on Grid computing.
- SOMERS, NY & GUILDFORD, UK, Apr 2, 2003 (INTERNET WIRE). IBM and IDBS, a leading provider of data management, analysis and decision-making software for drug discovery, today announced a global strategic alliance.
- NEW YORK, March 31 (Reuters). Tundra Semiconductor Corp. said on Monday it bought *International Business Machines Corp.*'s line of fast interconnect products for computer systems for \$10 million in cash.
- SAN FRANCISCO, CA, Mar 28, 2003 (INTERNET WIRE). IBM today announced a new campaign to build developer skills and provide solutions-based education through world-wide sessions focused on Web services, WebSphere* and *e-business on demand**.
- RESEARCH TRIANGLE PARK, NC Mar 25, 2003 (INTERNET WIRE). IBM Corporation was named a recipient of Intel Corporation's Preferred Quality Supplier (**PQS**) award for outstanding performance in providing products and services deemed essential to Intel's success. The company was awarded for its efforts in supplying Intel with notebooks, desktops, workstations and servers. IBM and 28 additional PQS award winners will be honored at a celebration in Burlingame, Calif., on March 26.
- Mar 19, 2003. *Certegy Inc.*, which processes transactions for financial institutions, signed a 10-year \$150 million contract for International Business Machines Corp. The contract pledged to provide *Certegy Inc.* with technology services in the United States.
- Mar 15, 2003. IBM's revenue **gained** 4 percentage points in the fourth quarter vs. the third. HPQ **fell** two percentage points. HPQ led slightly in total revenue, \$1.37 billion to \$1.34 billion, however HPQ sales rose just 6% vs. 34% for IBM. EMC Corp. ranks No. 3, with quarterly sales of \$614 million.
- IBM was the leading high performance-computing vendor in the fourth quarter of 2002, according to International Data Corporation's worldwide High Performance Technical Computer Quarterly View.

The news above gives many good indications why IBM is winning a lot of contracts with various companies ranging from software to healthcare. IBM has continued to build its market share while collaborating with Japan. The IBM name is commonly followed by e-Business on demand all over the globe. They market and sell Linux based systems everywhere. Furthermore IBM won the POS award, an addition to a good reputation, to go with their winning numbers.

² From internet Reuters

**V) -Managers**

Consultants are the backbone of IBM Consulting Services with deep experience around the globe. IBM Consulting services is a new, different leader; delivering the whole nine yards. The leaders of IBM Business Consulting Services display sheer expertise in all areas:

***Chairman of the Board
and Chief Executive Officer***
Samuel J. Palmisano 51

Samuel J. Palmisano is chairman of the board and chief executive officer of the IBM Corporation. He was elected chairman in October 2002, effective January 1, 2003, and has served as chief executive officer since March 2002. Prior to his appointment, Mr. Palmisano was president and chief operating officer. A graduate of The Johns Hopkins University, he joined IBM in 1973 as a sales representative in Baltimore, Maryland. Mr. Palmisano also played a key leadership role in a three-year project to develop and launch IBM's *e-Server* product line, which incorporates open standards and mainframe-like reliability across all platforms. As head of IBM's server and enterprise storage businesses, Mr. Palmisano embraced Linux, the open source software. Today all of IBM's hardware and software products support Linux. In more recent years, Mr. Palmisano has overseen a cross-company effort to improve IBM's go-to-market approach, dramatically streamlining sales procedures and strengthening relationships with all of IBM's major customers. Mr. Palmisano spent several years in senior leadership positions in Asia.

General Manager
Ginni Rometty 45

Ms. Rometty leads the consultants and service experts that specialize in helping customers' world-class technology improve. Previously she was the general manager of IBM Global Services, Americas where she lead a team of more than 75,000 professionals in strategy, marketing and sales operations. With more than 20 years experience, Ms. Rometty is one of the founding members of IBM's Business and IT consulting unit. Ms. Rometty is also on the Women's Leadership council and is frequent a conference speaker. Previously with GM, Ms. Rometty holds a high honor degree in computer science and engineering from Northwestern University.

Americas
Michael S. Collins

Mr. Collins leads the Americas region for IBM consulting. Since March of 2000, Mr. Collins has been responsible for the management consulting and technology serves of the PricewaterhouseCoopers network. Prior, Mr. Collins held the consulting leadership position of Managing Partner of the PricewaterhouseCoopers firm in the U.S. from 1998.

Asia-Pacific
Hideki Kurashige

Mr. Kurashige is the CEO of PwCC in Japan. He leads the Asia-Pacific region for IBM Business Consulting Services. He assumed his current duties for the management consulting of the PricewaterhouseCoopers network in 1994. Prior to this, Mr. Kurashige was Executive Vice President at IBM Japan. Mr. Kurashige was with IBM Japan for almost 27 years.

The new Leading team is part of IBM for a long time. They all played an important role in the development of IBM and its orientation toward the customer. They will continue to make IBM the leader of IT services industry as well as the hardware and software industry.



VI) Industry Analysis

1) *Computer Hardware*

Overview:

The Computer Hardware market can be divided into three main segments: personal computers, servers, and workstations. In total revenues figures, PC's account for 77% (\$190 billion), servers 20% (\$49.35 billion), and workstation approximately 3% (\$7.4 billion).

The PC market is the largest part of the computer hardware industry. It had tremendous growth until 2001 when the PC industry suffered its first year-to-year annual decline in 16 years, a large drop of 12.4%. The global economic slowdown was blamed for this drop. The decline in computer shipments also continued in 2002 even though there were many predictions of the market rebounding and gaining ground.

The server market started its decline in the late 1990's, but had a short increase in 2000; it advanced 16% to \$60 billion. However in 2001 the market had a tremendous drop of 19.7% to \$48.3 billion. The server market has been suffering due to lower information technology spending.

The workstation market has also faced trouble in the last few years, with a 25.8% drop in 2001 to \$6.8 billion. Workstations were unique in the past because they combined powerful processors, networking and graphical user interfaces in a single package. However with the increasing offering of high-powered PCs with Intel processors and Microsoft's Windows NT programs, the demand of workstation is only getting worse.

Industry Profile:

The computer hardware industry serves a wide array of products ranging from hand held computers bought by individual customers, to mainframe computers used by large corporations. Different companies focus on different parts of the market; some choose to concentrate on specifics, like the large PC market, networking or Unix-based servers. Others diversify and try to cater to all aspects at the same time. The diversified companies are the ones that have the most success and are least likely to suffer in case of economic downturns.

The industry is very fast paced and changing at all times. Sometimes companies find themselves stuck with inventory of a product that has become outdated and is no longer demanded by the market. Companies have to stay within the market and cannot let inventory become larger than present demand.

Analysis of Competitive Forces:

Rivalry: Since this industry was first started, competition was the major force in guiding the industry. Most commonly known is the early competition between Apple and IBM compatible computers. Now there is a similar battle for the control of the PDA market between devices operating on Palm's system and Windows OS handheld system. Price wars are a common thing, with each company trying to sell the newest product for the cheapest price.

Threat of New Entrance: Because this industry heavily depends on economies of scale, it is very hard for companies to enter without having large amount of assets. Many consumers are developing brand loyalty to their computer companies and would not switch to another computer manufacturer unless offered a much cheaper price.

Threat of Substitution: This industry is always changing and new technology is coming out all the time. Now Microsoft is producing video game consoles that resemble computers. There is always threat of new technology making the current products obsolete.

The Bargaining Powers of Suppliers: Producers of Computer Hardware all require large amounts of components which all call for raw materials. Most computer components are standardized and are available from multiple sources. However, manufacturers usually rely on one or two suppliers for the motherboard and the CPU, both of which are very critical components. Intel is main supplier of motherboards and especially CPUs. This poses risks of defective parts, shortages, costs increases and reduced control over production time.

The Bargaining Powers of Buyers: The industry is filled with products with little differences and same options from company to company. The product is considered a commodity and customers put in a good amount of effort when purchasing new products. This is why minor details such as customer service or customized assembly according to customer details.

Industry Outlook:

The industry is very much dependant on the trend of the economy. During the 1990's when economy was constantly improving the computer hardware industry was also on the rise. Yet as soon as the economic growth was suspended, the growth of the industry was also slowed and began to decrease. However after two years of economic recession, 2003 is expected to be the rebounding year. GDP is expected to expand 2.6% in



2003 as well as consumer confidence. The computer hardware industry may never reach the same growth it had in the mid 1990's, but it should follow all the positive outlooks and start gaining back its growth.

Another expectation for 2003 is that many consumers will be replacing their computers because it is the 3 years mark since the Y2K bug. In late 1999 many consumers upgraded their computers to avoid the Y2K problem. Now those computers are reaching their outdated point and many consumers will be looking to update to new models.

2) *Information Technology Services*

Overview:

The computer service industry has recently been facing a very hard environment. First came the failing of hundreds of Internet-based companies, then the worldwide slowdown of the economy. However with all these factors, Information Technology services still remains as big business.

During the 1990's hundreds of upstart providers worked off the fast growing demand for Information Technology Services. However when the economy started to deteriorate, those same companies were out of business. They did not have guaranteed long-term revenues and could not operate in this new market. Big companies that have been around and have long-term contracts were able to sail through these tough times.

Industry Profile:

Computer Services consist of Data Processing Services, Information Technology, and Information Technology Consulting & Services. Unlike the computer hardware industry, here most companies try to provide all the services possible, this way the customers can rely on them for all computer services/needs. The industry is very much service oriented and needs a lot of attention to detail. This is because each customer needs it's own specific services and each case has to be handled individually.

The industry has recently changed somewhat because of the slowdown in the economy. Companies are firing their employees and hiring I/T companies. Also because technology is becoming so sophisticated and at the same time complicated, I/T service companies are needed to teach customers how to use the technology.

Analysis of Competitive Forces:

Rivalry: Rivalry is a very personal part of the computer industry. Each customer has his/her own needs, and services have to be customized exactly for them. Each company strives to show customers how well they can respond to their needs. At this point, the main trend of the industry is to provide the customer with as many services as possible. Companies are trying hard to give their customer the option of outsourcing a small portion of their operations, or almost the entire operation.

Threat of New Entrance: During the days of the Internet boom, many startup I/T service companies rushed into the market. At that time there was plenty of business to go around. However after the crash of so many Internet companies, those same companies went out of business. At this point threat of new entrance is not very high, because the large companies are overtaking the business that is available.

Threat of Substitution: The only threat of substitution could come from online consulting companies that give customers advice via e-mail. However these companies do not provide the full services that I/T service companies deliver to their customers.

The Bargaining Powers of Suppliers: This is mostly a service market, and the only thing that companies need is hardware components that are used for the different industry they provide along with their services. The rest of the business is done through consulting and outsourcing.

The Bargaining Powers of Buyers: The services that I/T service_ companies provide to their customers are very unique, and there are not many companies left that provide the same type of service. Customers do not have the same supply of companies to choose from as they did a few years ago.

Industry Outlook:

Computer Services industry is expected to become bigger and bigger, to a point where it surpasses both Hardware and Software by a large margin. Unlike many other industries, Computer Services has many aspects, which are needed during the growing economy and slowdown. The major firms in the market will continue to prosper. Many businesses have been cutting costs and choose to outsource some, to all I/T functions. Many businesses depend on large I/T companies to install, service and manage entire networks, instead of hiring their own employees to run them.

The charts on the lower left show how I/T services are just starting to become more important in the computer industry. By 2006, worldwide I/T spending will be about \$160 billion more than Hardware spending. The chart on the right shows that estimated compound growth rate for information systems outsourcing spending



will be about 12.3% worldwide, 10.5% in the US. With that growth, worldwide outsourcing spending will increase to \$113,643 billion and \$47,859 billion for the US.



It is very interesting to notice that, according to the chart on the left, the software's, hardware and services spending will grow 50%, 0% and 50% from 2001 to 2005. that confirm the fact that IBM emphasize on the development of its services and software to become a customer oriented company.

INFORMATION SYSTEMS OUTSOURCING SPENDING
(In millions of dollars)

| | 2001 | E2006 | CAGR 2001-06E |
|---------------|--------|---------|---------------|
| United States | 29,044 | 47,859 | 10.5 |
| World | 63,616 | 113,643 | 12.3 |

CAGR-Compound annual growth rate. E-Estimated.
Source: International Data Corp.

Human resources services has been also on the rise. In 2002, HR services increased 9.6% to \$61.2 billion and is projected to increase to \$103.3 billion by 2007. Companies are relying on these I/T companies and are getting better and better service, this will continue with improving economic conditions.

Another opportunity is the new threat of terrorism. After September 11th, intelligence agencies were blamed for the attack being successful. Now Congress is going to merge 22 intelligence agencies into one agency with a budget of about \$40 billion. This agency could provide a large market for I/T service industry. Also companies are doing everything possible to protect themselves from all sorts of terrorism. Many I/T service_ companies will be able to take advantage of the additional money allocated towards security.

3) Industries Overview Summarized

Both the Computer Hardware and Information Technology Services industries are expected to perform better in the next few years. For the Hardware industry, factors like the expectations of an improving economy and the Y2K computer renewal, all predict increase in the sales of computers.

Servers are mostly sold to big companies and IBM server sales are very much dependant on IBM's I/T services. Most companies buy servers from the company they use for I/T services. I/T services are expected to increase more in the next few years. This industry does well during a good economy and during a bad economy. Companies always need I/T services, and they especially need them when trying to cut costs and use more outsourcing.



VII) Strategies

IBM’s new business strategy is to support two main principals: (1) helping customers become efficient and competitive through information technologies (2) providing long-term value to shareholders and customers. IBM’s renowned name is indeed backed by its services. IBM has an enormous range of capabilities within its industry. However, IBM has chosen to step away from the traditional PC computing industry and jump into _ new frontiers. IBM has integrated all its forms of superior computing from software, hardware, finance and even added a consulting component.

IBM wants to reverse the cost of ownership model for PCs, which today takes 20% of the cost to purchase and 80% maintenance. IBM’s strategy is to lead the industry into a new era of computing. IBM introduced *E-Business* in 2002... “On demand.” This is IBM’s ability to provide a service that at the very surface can integrate processes begin-to-end across a variety of means, all on demand. This on demand business can manage it self as a whole. It is able to respond with flexibility, market opportunities, and external threats. IBM will continue to differentiate itself through this type of innovation and R & D. There are four key attributes of this on demand phenomena.

Responsive

The ability to not only sense, but respond to dynamic and unpredictable changes in demand, supply, price, labor, market and competition.

Variable

Variable cost structures adapt the processes flexibility. This flexibility enables the reduction of risk at high levels of productivity while controlling costs. Here the company allows its client to pay for only the processing, storage and applications that are in use, not available.

Focus

Concentration on the essence that sets IBM apart from the rest. Although IBM does, indeed, allow third party management to perform selected tasks. These tasks include logistics, human resources, financial operations and even manufacturing.

Resilient

IBM’s ability to manage changes and threats. The flow of the system and it’s usage to prevent viruses and natural disasters with IBM’s consistency and security.

In November of 2002, IBM launched its *e-Service on demand* campaign. IBM is pulling its best researchers away from the laboratories to launch *e-Service on demand*. Instead of the traditional focusing on software and hardware development, the new division will focus on technology services. IBM has deemed this the “biggest organizational shift” since the 1990s thanks to new Chief Executive Samuel J. Palmisano.

Now clients will be able to tap into the expertise of researchers directly by having them craft soft_ ware and other processors that do not appear on the shelf. The potential to increase the pace of innovation is the most interesting element of IBM and will cause revenue to thrive.

| <u>HISTORICAL REVENUE</u> | | | |
|--|-------------|-------------|-------------|
| | 2000 | 2001 | 2002 |
| <u>GLOBAL SERVICE</u> | 39% | 42.1% | 44.8% |
| <u>HARDWARE</u> | 40.5% | 36.8% | 33.8% |
| <u>SOFTWARE</u> | 14.8% | 15.6% | 16.1% |
| <u>GLOBAL FINANCING</u> | 4.1% | 4.1% | 4% |
| <u>ENTERPRISE INVESTMENTS/OTHER</u> | 1.6% | 1.4% | 1.3% |
| DOLLARS IN MILLIONS | | | |

The historical revenue chart clearly displays an increase in revenue over the past three years in both Global Services and Software. Global Financing and Enterprise Investments vary minutly and show consistency with IBM. Although Hardware has been on a decrease, this decrease is easily attributed to the poor market conditions facing the economy as a whole. Still, the decrease from 01’ to 02’ of 3% is an improvement from the 00’ to 01’ decrease of 3.7%. Furthermore, IBM is very confident that the 2003 figures of all revenue will show increases due to its new strategy. In what some find the most interesting phenomena, IBM in essence has taken a 30-year-old concept to be the rival of their industry.



e-Business Consulting takes the old concept of mainframes and adds innovation. That same concept is being revitalized, with the help of two major acquisitions, to become the topic of articles in journals everywhere. From a technological point of view, consultants are pure gold. Service divisions continue to bring in huge amounts of revenue as client companies struggle to rationalize existing systems.

IBM already has a customer base around the globe to over 150 countries. IBM plans to market its I/T service as a means to gain even more market share. The acquisition of *Linux* is forecasted to produce serious revenue along with the continued success with the addition of PwCC on October 1, 2002. These factors will all play a significant role in the company's ability to attain customers.

1) GLOBAL SERVICES

Global service thrives on strategic outsourcing services that provide customers with competitive cost advantages. Business consulting services deliver value to customers through business process integration of services. With the economy being so melancholy, companies will likely jump at the chance to score major cost savings anywhere.

Globally, companies are forced to purchase I/T infrastructure to serve peak demand, although not present. Most of the time, especially in present economy, companies aren't experiencing peak demand so the capacity lies stagnant until it is outdated; then companies are forced into the same predicament. The acquisition of PwCC greatly enhances these capabilities. Integrated technology services designs, implements and maintains its customer's technology infrastructures. With *e-Service on demand*, companies can choose its demand and level of performance.

IBM is also making an outstanding effort in Japan to spark sales. IBM Japan Ltd. has launched its marketing on mainframe computers. IBM is attempting to increase market share globally. These mainframes are being offered to IBM's Japan market at approximately half of the price of now comparable models.

On the outsourcing side, IBM's practices exactly what it preaches. By outsourcing its software to Linux, IBM can now expand to all types of developments and larger scale projects. All this while illustrating the dual benefits of cost saving and service guarantees.

2) HARDWARE

IBM has been the leading manufacturer in mainframe systems. IBM is one of the last companies that produces huge capacity mainframe systems for reasonable prices. Huge meaning 2500msp, million of instructions per second! With such an enormous capacity, its no surprise that IBM has 70% of the market share in this industry and its mainframes are award winning. Its z900 series is the first product of its kind to be awarded an international security certificate.

All of IBM's z-series, mainframe servers now links a two-product information system into one. Sun Microsystems (Ticker: SUNW) does compete with IBM as they do manufacture hardware. However they have yet to build a mainframe system. Most mainframe systems would need to be put together by using 10 unit-boxes to reach the capacity of one IBM mainframe system that can reach the size of a refrigerator. Even in IT education 2003. Colleges simply do not teach "mainframe" processes to it's soon to be graduates. The mainframe industry is basically composed of Linux and UNIX.

3) SOFTWARE

It is in this area where the combination of Linux is noted... when a system is needed for big, and I mean big, number crunching. This enterprise data center is the classic example of economies of scale: a central source of services for individuals and businesses while providing cost-effective service by sharing high quality space, equipment and talent.

Linux adds another level of economy for an enterprise. IBM z-Series can run ten to hundreds of Virtual Linux Servers—all sharing the same floor space, the same network connections and the same software. No more farms of servers, miles of cables and armies of technicians.

Linux is a free Unix-type operating system originally created by Linus Torvalds. Linux is written and distributed under the GNU General Public License. This means that its source is freely distributed and available to the general public. The GNU General Public License is intended to guarantee your freedom to share and change free software. To make sure the software is free for all its users.



Linux's flexibility when it comes to running on many types of computers is one reason the OS has caught on at IBM, which has four major server lines. Another advantage is low cost compared with that of rival Windows. This leaves customers who opt for the cheaper OS with more money to spend on IBM's related products and services.

Why not just go to purchase Linux for free without IBM? IBM provides the consultant to custom survey and builds the best software for the company. Otherwise, Linux to the naked eye would just be a black box full of white numbers. Not to mention all the other advantages IBM software is historically known for.

Existing IBM software drives include:

- Web Sphere: Enables customers to manage wide varieties of processes via Web.
- DB2: Database that handles data management.
- Tivoli: Enables efficient utilization of storage with networking.
- Lotus: Increases client's ability to communicate.

As mentioned previously, another acquisition giving IBM an edge is that of *Rational Software Corporation*. Rational is a provider of open industry standard tools. Their best practices include services for developing business applications and building software products and systems. Rational's capabilities also include production of embedded software for devices such as cell phones and medical systems.

4) **SERVICE**

All of these major skills wouldn't be enough without the main ingredient to form *e-Business Consulting Group*... service. Thanks to the \$3.5B purchase of PwCC, half of IBM's revenue is expected to be generated by an integration of all factors. The acquisition of PwCC will provide the company with a finished new business strategy, based on industry consulting with application_.

PwCC's industry-focused consulting practice brings an impressive track record of engagements with some of the most experienced people in the business. Here IBM now has the knowledge that is required to solve the most challenging problems facing companies today. Through in-depth industry knowledge, PwCC's emphasis on understanding clients' culture, and value-focused orientation, IBM aims to bring a unique perspective to any problems an organization is facing.

PwCC provides clients with technical and functional assistance that enables them to achieve their strategic and organizational goals. PwCC is a recognized leader in the integration of change management and information technology.

With more than 800 offices in over 150 countries, PwCC is represented in every country with a free economy. This enables PwC's consultants to respond quickly to clients' needs anywhere in the world, bringing together the best composite teams possessing credentials, experience, skills, industry knowledge and cultural understanding. A common set of tools, methodologies, and training ensure that service delivery is consistent worldwide, regardless of location.

In addition to its knowledgeable consultants, PwCC has an impressive history, which explains why it is renowned:

- **Customer Management and Marketing Center of Excellence:** Located in Walnut Creek, Calif. This center houses tools for education and prototyping on automated database marketing.
- **Data Warehousing Knowledge Centers:** These centers provide a focal point for knowledge sharing, tools knowledge and education, best practice information, research, and prototyping.
- **Data Mining Tool Evaluation:** PricewaterhouseCoopers has conducted a rigorous, hands-on evaluation of 16 leading data mining tools. The tools have been evaluated using real data across a number of important evaluation criteria.
- **Advanced Software Engineering Centers (ASEC) Program:** This program provides clients and staff with hands-on access to IBM's state-of-the-art technologies.
- **The Market Intelligence EnterpriseSM Vision:** This vision articulates the characteristics that define a best practice customer-centric organization that promotes customer loyalty and profitability in every channel - Web, call centers, sales force/brokers/retailers, direct mail, and other marketing events.



- **Global Systems Solution Center:** This center houses specialized technology leaders, including specialized data warehousing experts, who are leveraged across clients globally as a resource to client teams.
- **Technology Forecast:** This group and the material they publish help PricewaterhouseCoopers and its clients understand emerging issues in information and other technologies.
- **Best Practices Databases and Research Material:** PwC has Web-accessible best practices materials, white papers on relevant topics to our clients, and published material that contributes to the state-of-knowledge in the industry.
- **Automotive Center of Excellence:** Located in Detroit, Mich.; Birmingham, UK; and Seoul, South Korea, these centers are a focal point for automotive industry expertise, knowledge transfer databases, training, tools, and research.

IBM's entry into this new frontier could not have come at a better time. IBM has transformed its business into itself a technology quickly being mimicked by others. Nonetheless, the goals are still crystal clear. The goal is for a successful support of business with utility like computing, outsourcing and consulting. The goal is for the customer to be able to transform the business organization to be more responsive to the change in times.

Those already on board just to name a few:

Infocrossing (computer service)
ACTS Corporation (education)
OMV AG (energy & utilities)
Energie Aktiengesellschaft (energy & utilities)
Banco Mercantil (Financial Markets)
SIAC (tech partner for NYSE/AMEX)
Grede Foundries 1,2 (General Manufacturing)
Newell Rubbermaid (General Manufacturing)
Winnebago Industries (general Manufacturing)
Tamkang University (Higher Education)
University of Nebraska (Higher Education)
Shenzhen Bank (Retail Banking)
Rational Software (Software Solutions)
Roque Wave Software (Software Solutions)
Deutsche Telekom (Telecommunications)
Sonera Entrum (Telecommunications)
Telia Net (Telecommunications)
Korean Air (Travel)
Mobil Travel Guide (Travel)



VIII) Ratio Analysis

Ration analysis of IBM for the past 3 years, compared to its 3 top competitors and 2 industries in which it operates.

*Industry 1 = Diversifies Computer Systems
Industry 2 = Information Technology Services

Gross Profit Margin

| | |
|------------|--------|
| IBM | |
| 2000 | 42.3% |
| 2001 | 42.6% |
| 2002 | 42.7% |
| EDS | 24.19% |
| HP | 30.09% |
| MSFT | 84.09% |
| Industry 1 | 38.46% |
| Industry 2 | 30.25% |

This ratio indicates to us how efficient a company is allocating its resources and labor to produce its goods and services. IBM's Gross Profit Margin has been relatively stable for the past three years, with moderate increases. This is impressive because IBM has gone into a new industry and still managed to keep its costs down. This number should increase once IBM figures out how to cut costs even more.

IBM is more efficient in using its resources than Hewlett-Packard and Electronic Data Systems Corp. (EDS) and both of the industries. However Microsoft has double the Gross Profit Margin.

Net Profit Margin:

| | |
|------------|--------|
| IBM | |
| 2000 | 9.2% |
| 2001 | 9.0% |
| 2002 | 4.4% |
| EDS | 5.19% |
| HP | -1.08% |
| MSFT | 30.99% |
| Industry 1 | 1.16% |
| Industry 2 | 3.47% |

This ratio basically shows us how much profit a company makes on every dollar in revenue that they receive. IBM's Net Profit Margin has been decreasing the last 2 years. In 2002 IBM made 4.4 cents for every dollar it received, compared to 9.2 cents in 2000. The important decrease is due to the decrease of the net income in 2002. IBM spent a lot of money to restructure the company last year. Therefore this decrease is punctual and we can forecast a NPM around

Both Microsoft and EDS made more profit on every dollar generated than IBM. However IBM outperformed both of the Industries and Hewlett-Packard, which lost \$1.08 on every dollar they made in revenue.

Return on Assets:

| | |
|------------|--------|
| IBM | |
| 2000 | 9.16% |
| 2001 | 8.75% |
| 2002 | 3.70% |
| EDS | 5.90% |
| HP | -0.9% |
| MSFT | 13.20% |
| Industry 1 | 0.9% |
| Industry 2 | 4.00% |

This ratio shows how much profit a company makes for every dollar of assets it has. IBM's Return on Assets has been declining and declined by more than 50% between 2001 and 2002. This shows that IBM is becoming a more asset dependent company. This is mainly a result of IBM's net income dropping in 2002.

IBM is more asset dependent than Microsoft, EDS and the IT Service Industry. However since IBM operates in both industries, it has a pretty good Return on Assets if both aspects of the industries are taken into consideration. IBM is not as asset oriented as the Diversified Computer Systems industry.

Return on Equity

| | |
|------------|--------|
| IBM | |
| 2000 | 39.2% |
| 2001 | 32.71% |
| 2002 | 15.70% |
| EDS | 15.90% |
| HP | -2.55% |
| MSFT | 17.10% |
| Industry 1 | 2.6% |
| Industry 2 | 9.40% |

Return on equity measures a firm's profitability compared to the amount of shareholders' equity the company has. IBM's Return on Equity has been dropping the last 3 years. However it still has a much better Return than both the industries and is fairly close with EDS and Microsoft.



Dupont Analysis

$$\frac{\text{Net income}}{\text{Stock Equity}} = \frac{\text{Net income}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Stockholders' equity}}$$

| | | | | |
|-------------|---|-------------------------------------|--------------------------------------|-----------|
| 2000 | | | | |
| 8,093.00 | = | $\frac{8,093.00}{20,624.00} \times$ | $\frac{85,089.00}{88,349.00} \times$ | 88,349.00 |
| 20,624.00 | | 85089 | 88,349.00 | 20,624.00 |
| 0.392407 | = | 0.392407 | | |
| 2001 | | | | |
| 7,723.00 | = | $\frac{7,723.00}{23,614.00} \times$ | $\frac{83067}{88,313.00} \times$ | 88,313.00 |
| 23,614.00 | | 83067 | 88,313.00 | 23,614.00 |
| 0.327052 | = | 0.327052 | | |
| 2002 | | | | |
| 3,579.00 | = | $\frac{3,579.00}{22,782.00} \times$ | $\frac{81186}{96,484.00} \times$ | 96,484.00 |
| 22,782.00 | | 81186 | 96,484.00 | 22,782.00 |
| 0.157098 | = | 0.157098 | | |

The return on equity dropped because NI dropped 53.65% from 2001 and 2002. Loss from discontinued operations accounted for 42% of that loss. The other \$2,389 million dollar decrease was because of the decrease in revenue from hardware sales.

Earnings per Share

| | |
|------------|------|
| IBM | |
| 2000 | 4.27 |
| 2001 | 4.48 |
| 2002 | 2.06 |
| EDS | 2.28 |
| HP | -11 |
| MSFT | 0.87 |
| Industry 1 | 0.18 |
| Industry 2 | 0.69 |

This ratio shows how much revenue the company made relative to the number of shares it has. IBM's earnings for 2002 dropped by about 54%, so their earnings per share dropped to \$2.06. However this number still outperforms the industry and all the firms except EDS.

Inventory Turnover

| | |
|------------|------|
| IBM | |
| 2000 | 10.6 |
| 2001 | 10.9 |
| 2002 | 12.5 |
| EDS | N/A |
| HP | 8.4 |
| MSFT | 15.1 |
| Industry 1 | 9.1 |
| Industry 2 | 57.7 |

This ratio shows us how efficient the company is with managing its inventory. IBM's Inventory Turnover ratio has been improving the last three years. This is also due to the fact that they have entered a new industry which has a much higher Inventory Turnover ratio than Diversified Computer Systems industry. However because IBM is not fully an IT services company, they still have a lower ratio compared to that industry and companies like Microsoft. (EDS does not have inventory)

Total Asset Turnover



| | |
|------------|------|
| IBM | |
| 2000 | 1.00 |
| 2001 | 0.97 |
| 2002 | 0.84 |
| EDS | 1.2 |
| HP | 1.2 |
| MSFT | 0.4 |
| Industry 1 | 0.9 |
| Industry 2 | 1.2 |

The Total Asset Turnover ratio measures how well a company is using its assets to generate sales. IBM has been declining in its efficiency in using its assets. This is most likely due to its reformation of the company. EDS, HP and both of the industries, all allocate their assets better than IBM. Microsoft has a much small number than IBM, however that is most likely because of Microsoft abundance of assets.

Current Ratio

| | |
|------------|-------|
| IBM | |
| 2000 | 1.205 |
| 2001 | 1.209 |
| 2002 | 1.210 |
| EDS | 1.53 |
| HP | 1.49 |
| MSFT | 3.89 |
| Industry 1 | 1.34 |
| Industry 2 | 1.52 |

Quick Ratio

| | |
|------------|------|
| IBM | |
| 2000 | 1.07 |
| 2001 | 1.09 |
| 2002 | 1.11 |
| EDS | 1.4 |
| HP | 1 |
| MSFT | 3.5 |
| Industry 1 | 1 |
| Industry 2 | 1 |

The Current ratio and the Quick ratio both measure the liquidity of a company. IBM has maintained it's liquidity and now still is liquid compared to the other companies and both industries. However Microsoft is a lot more liquid because of its supply of cash.

**Leverage Ratio**

| | |
|------------|------|
| IBM | |
| 2000 | 4.28 |
| 2001 | 3.74 |
| 2002 | 4.24 |
| EDS | 2.69 |
| HP | 1.98 |
| MSFT | 1.3 |
| Industry 1 | 2.69 |
| Industry 2 | 2.36 |

The Leverage ratio shows the companies assets compared to its stock equity. It also shows how much money a company has borrowed. IBM is a highly leveraged firm compared to its competitors and both of the industries. This is due to IBM issuing more bonds, especially this year.

Total Debt to Equity Ratio

| | |
|------------|------|
| IBM | |
| 2000 | 1.30 |
| 2001 | 0.97 |
| 2002 | 1.14 |
| EDS | 0.77 |
| HP | 0.25 |
| MSFT | 0 |
| Industry 1 | 0.53 |
| Industry 2 | 0.49 |

This ratio shows us how much money the company can borrow without experiencing problems. IBM has a significantly higher Total Debt to Equity ratio than both industries and all of its top competitors.

IBS ratio decreased in 2001, but in 2002 they decided to buy back stock and issues more bonds. This is a risky move because it makes the company more sensitive to bad growth, however it also magnifies the companies profits if its growth increases. This is a sign that IBM is expecting high growth in the near future and wants to put as many resources into it as possible.



IX)Relative Valuation

By forecasting the income statement³, we derived an estimate Net Income for 2003 and 2004, of respectively 6,207.39 million and 7,200.44 million dollars.

The number of outstanding shares at the end of 2002 was 1,730,941,054⁴. Historically, the company has purchasing back equity. IBM repurchased 48,481,100 common shares, cost of \$4,212 million in 2002 in addition to 50,764,698 common shares, cost of \$5,293 million in 2001. Therefore we will assume that IBM will continue to repurchase around 3% of their common stock in the next two years; the number of share outstanding in 2003 and 2004 that we expect are respectively 1.679 billion and 1.628 billion shares.

We can compute our estimates EPS for 2003 and 2004:

$$\text{2003 Eps Est.} = \frac{\text{Net Income 2003 Est}}{\text{nb of share outstanding Est}} = \frac{6,207.39}{1,679} = \mathbf{3.81 \text{ \$/shares}}$$

$$\text{2004 Eps Est.} = \frac{\text{Net Income 2004 Est}}{\text{nb of share outstanding Est}} = \frac{7,200.44}{1,628.47} = \mathbf{4.54 \text{ \$/shares}}$$

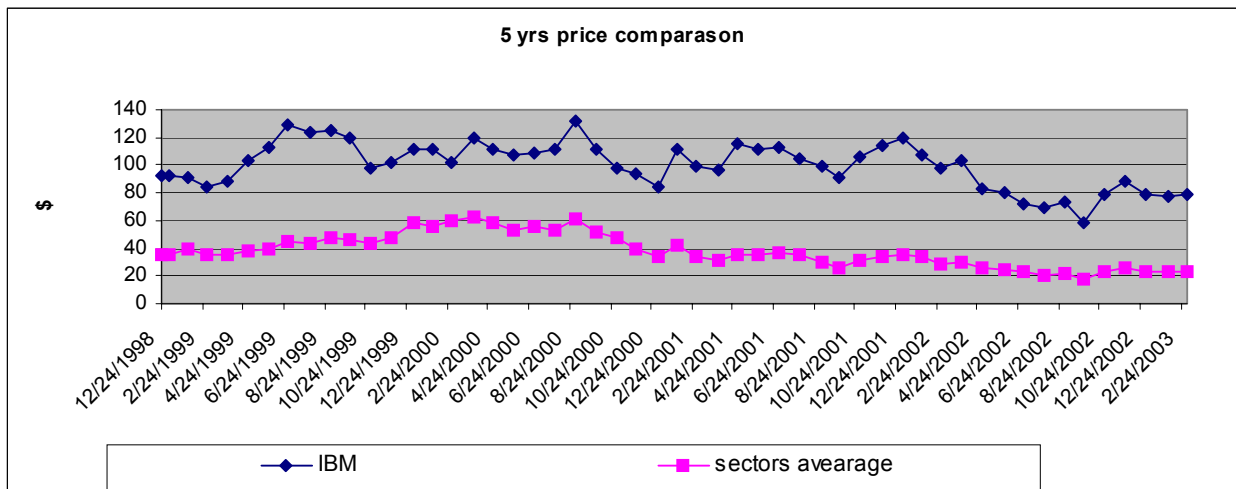
We can calculate at this point the forward P/E⁵:

$$\text{Forward P/E} = \frac{\text{(April 4th)'s price}}{\text{Eps estimated for 2003}} = \frac{80.79}{3.81} = \mathbf{21.20 \times}$$

$$\text{Forward P/E} = \frac{\text{(April 4th)'s price}}{\text{Eps estimated for 2004}} = \frac{80.79}{4.54} = \mathbf{17.80 \times}$$

To forecast the P/Es applicable to IBM in 2003 and 2004, we will compare IBM past financial data to our benchmark's financial. Because IBM can be related to 3 different industries, we have built our own index based on IBM's major competitors in every industry, which are computer services, hardware and software.

Over the past 5 years, IBM has been traded at a premium of 178% compare to our benchmark.



³ See income statement sheet

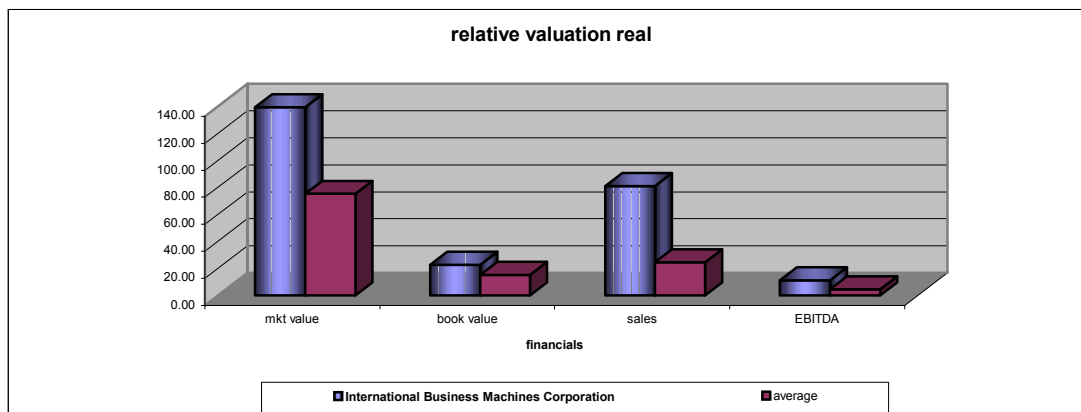
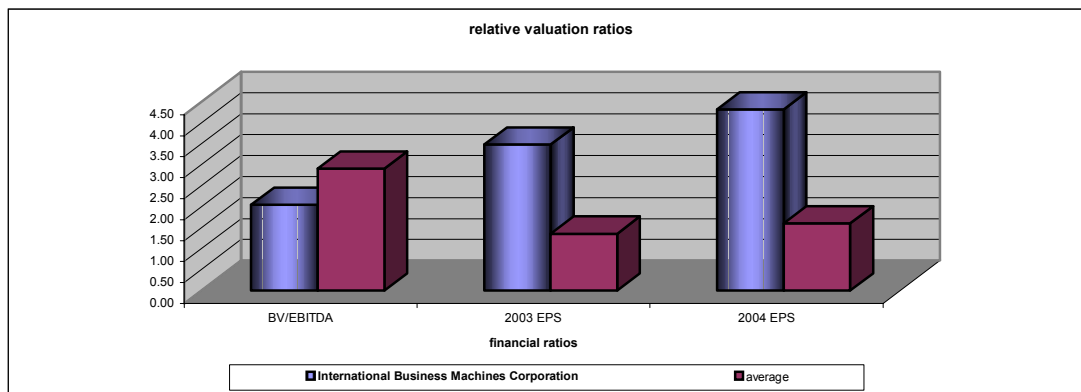
⁴ Weighted-average number of shares on which earnings per shares calculations are based. (From 2002 10K)

⁵ April 4th are prices from the Wall Street Journal, Money & investing section.



Furthermore IBM outperformed our benchmark average in market and book value, sales, EBITDA, book value to EBITDA in 2002. This explains why our 2003 and 2004 earnings per share estimates are higher also.

| | <i>Mkt Value</i> | <i>Book Value</i> | <i>Sales</i> | <i>EBITDA</i> | <i>BV/EBITDA</i> | <i>2003 EPS est⁶</i> | <i>2004 EPS est</i> |
|--|------------------|-------------------|--------------|---------------|------------------|---------------------------------|---------------------|
| International Business Machines Corp | 139.60 | 22.89 | 81.20 | 11.20 | 2.04 | 3.82 | 4.54 |
| <i>Electronic Data Systems Corporation</i> | 8.42 | 7.02 | 21.50 | 3.31 | 2.12 | 1.71 | 2.00 |
| <i>Dell Computer Corporation</i> | 71.40 | 4.87 | 35.40 | 2.84 | 1.71 | 0.99 | 1.18 |
| <i>Cisco Systems, Inc.</i> | 94.00 | 28.29 | 19.20 | 4.86 | 5.82 | 0.57 | 0.62 |
| <i>Sun Microsystems, Inc.</i> | 11.00 | 7.27 | 12.20 | (1.70) | (4.28) | 0.00 | 0.10 |
| <i>Microsoft Corporation</i> | 264.00 | 55.75 | 30.80 | 14.60 | 3.82 | 1.02 | 1.08 |
| <i>Oracle Corporation</i> | 58.20 | 5.55 | 9.42 | 3.78 | 1.47 | 0.41 | 0.45 |
| <i>SAP Aktiengesellschaft</i> | 24.20 | 3.11 | 8.00 | 1.99 | 1.56 | 0.91 | 1.04 |
| <i>Computer Associates International, Inc.</i> | 7.95 | 4.45 | 3.09 | 0.38 | 11.87 | 0.17 | 0.31 |
| Average | 75.42 | 15.47 | 24.53 | 4.58 | 2.90 | 1.03 | 1.23 |
| Median | 58.20 | 7.02 | 19.20 | 3.31 | 2.04 | 0.91 | 1.04 |
| High | 264.00 | 55.75 | 81.20 | 14.60 | 11.87 | 3.48 | 4.32 |
| Low | 7.95 | 3.11 | 3.09 | (1.70) | (4.28) | 0.00 | 0.10 |



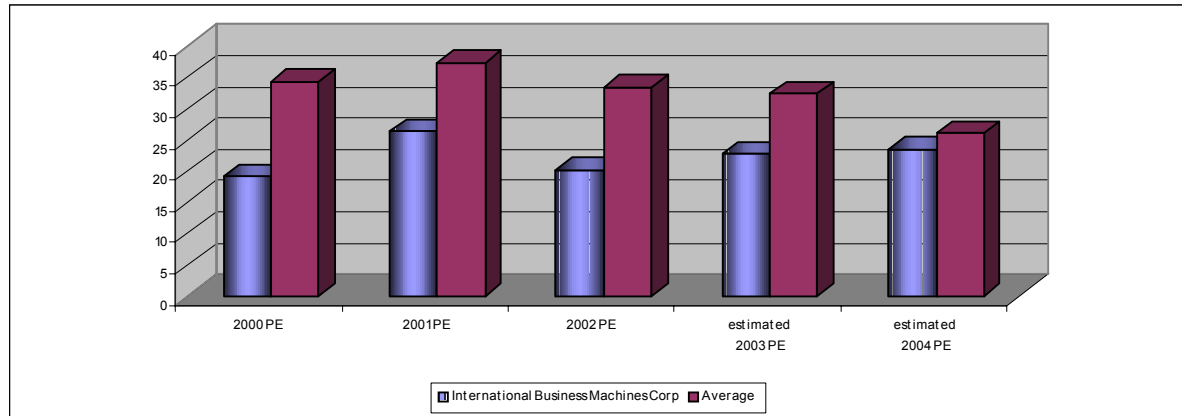
⁶ The EPS estimate for IBM's competitors come from www.yahoo.fr/financial/ IBM's EPS estimated through the income statement forecast.



On the contrary IBM has been traded at a 40.33% discount from the benchmark average. In 2002 IBM's P/E⁷ dropped 23.46%. This can be explained by IBM's restructuring. IBM used a lot of cash to repurchase equities, change capital structure, acquire PwCC, and to open of the most technological chip factory in the world.

To forecast the P/E for 2003 and 2004, we used, as a basis, the average difference between IBM and the Benchmark's P/E. According to Bloomberg LP, the average P/E of our benchmark will decrease significantly over the next two years. On average, IBM has been traded at a 40% discount. We believe that the discount will decrease in the following years, thanks to IBM's good future strategy, and management. Therefore we estimated that IBM would trade at a 30% discount in 2003, and at a 10% discount in 2004.

| | 2000 PE | 2001 PE | 2002 PE | estimated 2003 PE | estimated 2004 PE | Average past PE |
|--|----------------|----------------|----------------|-------------------|-------------------|-----------------|
| <i>International Business Machines Corp</i> | 19.1 | 26.3 | 20.13 | 22.69 | 23.49 | 21.84333 |
| IBM P/E Growth | | 37.70% | -23.46% | 12.71% | 3.53% | 8.51% |
| <i>Electronic Data Systems Corporation</i> | 25.22 | 25.58 | 8.23 | 8.47 | 8.70 | 19.68 |
| <i>Dell Computer Corporation</i> | 21.26 | 40.57 | 36.14 | 33.88 | 28.40 | 32.65 |
| <i>Cisco Systems, Inc.</i> | 64.83 | 64.68 | 27.92 | 30.67 | 21.70 | 52.48 |
| <i>Sun Microsystems, Inc.</i> | 44.25 | 66.26 | N/A | N/A | 34.90 | 55.26 |
| <i>Microsoft Corporation</i> | 24.10 | 37.01 | 25.98 | 28.02 | 23.80 | 29.03 |
| <i>Oracle Corporation</i> | 67.59 | 31.39 | 27.00 | 27.73 | 25.50 | 41.99 |
| <i>SAP Aktiengesellschaft</i> | N/A | N/A | N/A | 44.60 | 23.90 | N/A |
| <i>Computer Associates International, Inc.</i> | 8.82 | 44.22 | 122.73 | 63.24 | 44.50 | 58.59 |
| Average | 34.40 | 37.38 | 33.49 | 32.41 | 26.10 | 36.61 |
| Median | 24.66 | 37.01 | 26.49 | 28.02 | 23.85 | 32.65 |
| High | 67.59 | 66.26 | 122.73 | 63.24 | 44.50 | 58.59 |
| Low | 8.82 | 0.38 | (0.23) | 0.13 | 0.04 | 0.09 |
| difference btw IBM and the Benchmark | -44.47% | -29.63% | -39.89% | -30.00% | -10.00% | -40.33% |



We can now compute the intrinsic value of IBM:

$$\text{Target price 2003} = \text{Estimated Eps 03} \times \text{Estimated P/E 03} = 86.67\$$$

$$\text{Target price 2004} = \text{Estimated Eps 04} \times \text{Estimated P/E 04} = 106.64\$$$

IBM's price on April 4th 2003 is \$80.79. Therefore, according to our relative valuation, IBM is slightly undervalued.

⁷ P/E figures from Bloomberg LP.



X) Dividend Discount Model.

| | | |
|----------------------|-------|-----------------|
| Current Price | 80.79 | (April 4, 2003) |
| Rf | 2.80% | 5 years T-Bond |
| Rm | 10% | S&P Return |
| Beta | 1.5 | Bloomberg |

| | |
|-------------|--------|
| CAPM | 13.60% |
|-------------|--------|

| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---------------------|--------|--------|---------|---------------|------------------------|-----------|-----------------|
| Eps Growth | | | | | 19% | 15% | 15% |
| Eps | 4.44 | 4.35 | 2.06 | 3.81 | 4.53 | 5.21 | 6.00 |
| | Actual | Actual | Actual | Estimated | Estimated ⁸ | Estimated | Estimated |
| P/E | 19.1 | 26.3 | 20.13 | 22.69 | 23.49 | 23.72 | 23.96 |
| Growth | | 37.70% | -23.46% | 12.71% | 3.53% | 1.00% | 1.00% |
| | Actual | Actual | Actual | Estimated | Estimated | Estimated | Estimated |
| Target Price | | | | | | | 143.6722 |
| Period | | | | 1 | 2 | 3 | 4 |
| Dividend | 0.51 | 0.55 | 0.59 | 0.63 | 0.67 | 0.71 | 144.4222 |
| NPV factor | | | | 0.55 | 0.52 | 0.48 | 86.72 |
| | | | | | | | 88.28 |

The Dividend Discount Model gives a price equal to \$88.28. Once again, we can conclude that IBM is slightly undervalued.

We used, to estimate the EPS for 2003 and 2004, the one derived from the income statement forecasting. For 2005 and 2006, we used a 15% growth because we believe in a high growth in the global services department, as well as in the hardware department because of the computerization of the Asian countries and in the software department because of Unix and its derivatives.

To forecast the P/Es in six years, we used a growth rate method. For 2003 and 2004, we applied respectively 12.71% and 3.53% as we found in the relative valuation model. Because we believe 23.5x is already a high P/E for IBM, we applied a 1% P/E's growth for 2005 and 2006.

Those forecast give us a target price equal to \$143.67 (23.96 x 6).

The forecast of the dividends was easy because IBM's dividends policy is very consistent over the years. IBM increases its dividends by 4 cents every year.

By discounting the dividends and the target price in six year at a 13.6% rate of return⁹, we come up with an intrinsic value today of \$88.28.

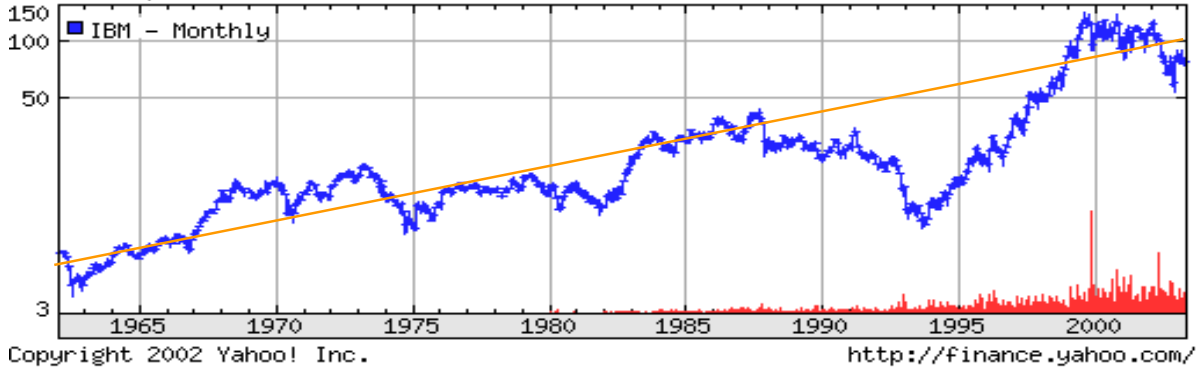
⁸ Eps 2003 and 2004 estimates derive from the income statement forecasting.

⁹ Rate of return derive from the CAPM method.

XI) Technical Analysis.

1) Long term trend:

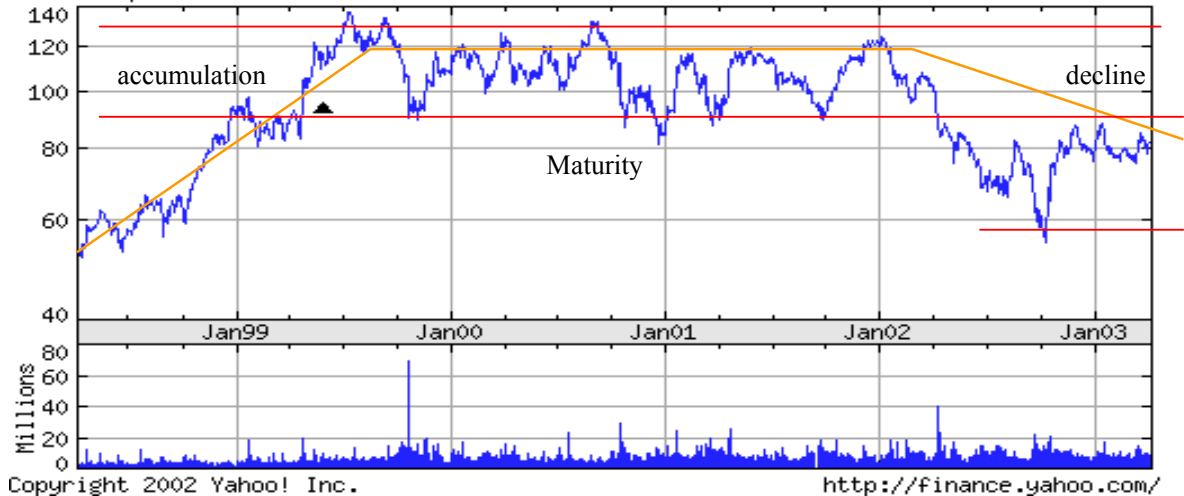
INTL BUS MACHINE
as of 3-Apr-2003



The Very long term IBM's analysis is very positive. IBM's price raise to 80 dollars today, from 8 dollars in 1963. It represents a 1000% growth over the past 40 years, or 25% per years. If we assume the same growth for the next 10 years, IBM would be a very strong buy!

2) Long term analysis:

INTL BUS MACHINE
as of 4-Apr-2003

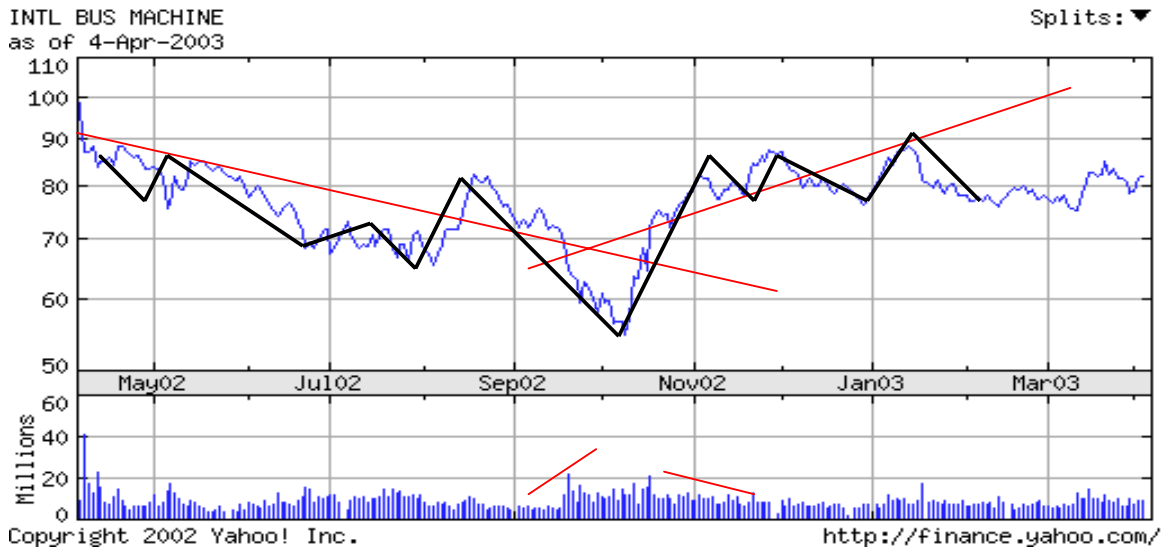


A five years chart is a little less optimistic. We notice here the three phases the market has. The accumulation phase, that represents the high growth of the end of the 90's. During this phase the number of investors that believed in IBM is growing rapidly. The Public Participation Phase, which is the mature phase where the stock price is stable. From 2000 and 2002, the price fluctuated around \$110, because the number of analysts who traded IBM was optimal. And finally, the decline phase is from 2002 to today, where the price dropped to \$80 from \$120. Those three phases are all some major trends (more than 1 year).

We determine the long-term resistance and support levels. \$90 dollars has been a 2 years support level, during all the maturity phase. It has been penetrated in March 2002, and since then, \$90 dollars is today's resistance level. During the same phase, the price was facing the \$130 resistance level that has never been penetrated. We notice also that \$60 dollars is an important level where investors change their mind. Punctually, it has been a strong support level at the end of 2002. Today the price fluctuates around \$80.

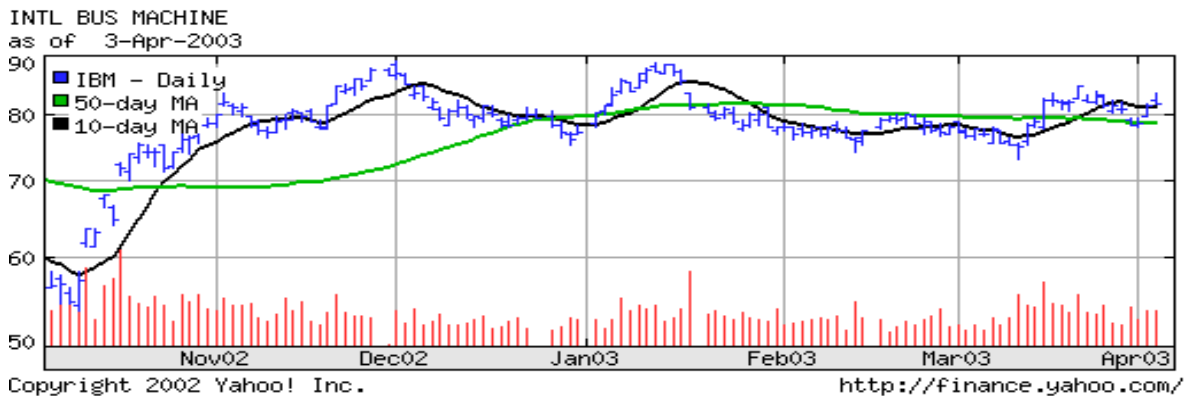
Has IBM reached a reversal point? If not, will this point be reach soon? What is the next major trend of IBM in the next 10 years? That's the question we will try to answer with a middle and short-term analysis.

3) *Middle term analysis:*

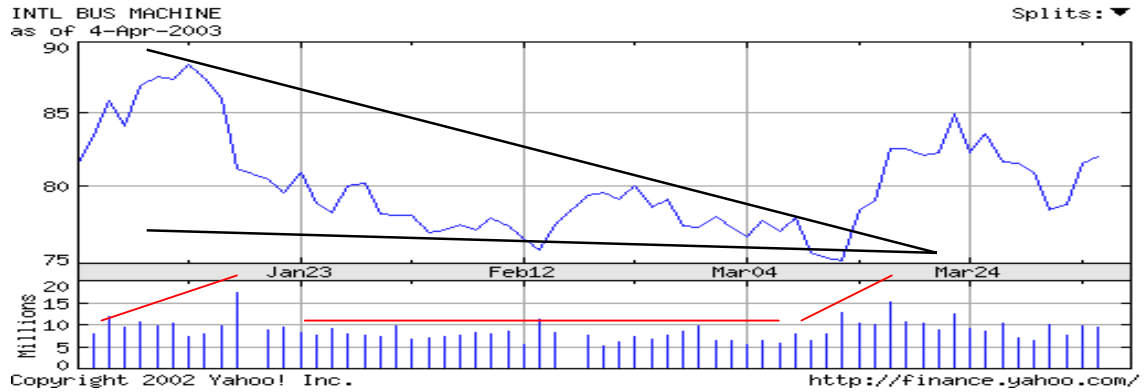


The analysis of a 1-year chart allows us to make some more accurate forecasts. The price fluctuated between the \$90 resistance level and \$70 and \$75 short-term support levels. We also recognize a “head and shoulder” pattern that would make us believe that the October 2002 reversal point marks the trend change, from downside to upside trend. Will the price the price follow this new trend for a long time? Will it penetrate the \$90 resistance level?

4) *Short term analysis:*



A six-month chart shows us a relatively stable price. The 50-days, and the 10-days moving average are crossing each other frequently, and are too close to give strong buy or sell signals.



Meanwhile, we recognize on the same six-month chart a nice descending triangle pattern. The price goes out of the triangle at the end of March, which is a good buying signal, especially when this triangle pattern is significant over four month like here. The volume confirms the pattern, with an increase to 15 million shares traded at the penetration point.

5) *Conclusion of technical analysis:*

IBM's Technical analysis gives a buy to the stock. The price increased 25% a year on the long term. Although the price is following a downside trend, we can expect that we already reached the reversal point. Therefore we expect a future up trend. Furthermore the rally of mid March

Consolidated Statement of Earnings
INTERNATIONAL BUSINESS MACHINES CORPORATION
and Subsidiary Companies (Audited)

(dollars in millions except per share amounts)

| FOR THE YEAR ENDED DECEMBER 31: | 2000 | 2001 | 2002 | 2003 | 2004 | COMMENTS |
|--|----------------------|-----------------------|----------------------|------------------------|------------------------|---|
| REVENUE: | | | | | | |
| Global Services | \$ 33,152 5.4% | \$ 34,956 4.0% | \$ 36,360 8.0% | \$ 39,268.80 11.0% | 43,588.37 | 2003= Update system since 2000, Linux trend, economic growth, PwCC, & Asia factor. Strong demand for new key-products, outsourcing, Asia factor, HDD sector sale, Y2K Purchase of Rational and investment/use of Linux OS. Increasing number contracts=35B in new financing agreement signed Economy and corporate IT spending budget |
| Hardware | 34,470 -11.2% | 30,593 -10.3% | 27,456 -5.0% | 26,083.20 -5.0% | 24,779.04 | |
| Software | 12,598 2.7% | 12,939 1.0% | 13,074 4.0% | 13,596.96 5.0% | 14,276.81 | |
| Global Financing | 3,465 -1.1% | 3,426 -5.7% | 3,232 2.0% | 3,296.64 2.0% | 3,362.57 | |
| Enterprise Investments/Other | 1,404 -17.9% | 1,153 -7.7% | 1,064 -2.0% | 1,042.72 -0.5% | 1,037.51 | |
| TOTAL REVENUE | 85,089 -2.4% | 83,067 -2.3% | 81,186 2.6% | 83,288.32 4.5% | 87,044.30 | |
| COST: | | | | | | |
| Global Services | 24,309 73.3% | 25,355 72.5% | 26,812 73.7% | 28,666.22 73.0% | 30,947.74 71.0% | Service costs are related to its service revenues. Better supply chain = 5.6 B in cost reduction, new products development, automatic computing will cut costs, hard drive. Business sold to Hitachi. Job cut of 25000 people. Related to revenues. Related to revenues. |
| Hardware | 24,307 70.5% | 21,231 69.4% | 20,020 72.9% | 17,736.58 68.0% | 16,601.96 67.0% | |
| Software | 2,283 18.1% | 2,265 17.5% | 2,043 15.6% | 1,971.56 14.5% | 2,070.14 14.5% | |
| Global Financing | 1,965 56.7% | 1,693 49.4% | 1,416 43.8% | 1,384.59 42.0% | 1,378.65 41.0% | |
| Enterprise Investments/Other | 747 53.2% | 634 55.0% | 611 57.4% | 604.78 58.0% | 612.13 59.0% | |
| TOTAL COST | 53,511 62.9% | 51,178 61.6% | 50,902 62.7% | 50,363.73 60.5% | 51,610.62 59.3% | |
| GROSS PROFIT | 31,578 37.1% | 31,889 38.4% | 30,284 37.3% | 32,924.59 39.5% | 35,433.68 40.7% | |
| EXPENSE: | | | | | | |
| Selling, general and administrative | 17,393 20.4% | 17,048 20.5% | 18,738 23.1% | 19,989.20 24.0% | 20,890.63 24.0% | Workforce reduction, advertising expenses and increase of provision for bad debts up. New products developed in 2002. Decline of fee based transaction, economic factors. Bonus cuts. Attempt to reduce debts, buy back stocks for \$3b. |
| Research, development and engineering | 5,084 6.0% | 4,986 6.0% | 4,750 5.9% | 4,997.30 6.0% | 5,222.66 6.0% | |
| Intellectual property and custom development income | (1,664) -2.0% | (1,476) -1.8% | (1,100) -1.4% | (832.88) -1.0% | (870.44) -1.0% | |
| Other (income) and expense | (990) -1.2% | (353) -0.4% | 227 0.3% | 166.58 0.2% | 174.09 0.2% | |
| Interest expense | 344 0.4% | 234 0.3% | 145 0.2% | 83.29 0.1% | 87.04 0.1% | |
| TOTAL EXPENSE AND OTHER INCOME | 20,167 23.7% | 20,439 24.6% | 22,760 28.0% | 24,403.48 29.3% | 25,503.98 29.3% | |
| INCOME FROM CONTINUING OPERATIONS BEFORE INCOME TAXES | 11,411 13.4% | 11,450 13.8% | 7,524 9.3% | 8,521.12 10.2% | 9,929.70 11.4% | |
| Provision for income taxes | 3,537 31.0% | 3,304 28.9% | 2,190 29.1% | 2,513.73 29.5% | 2,929.26 29.5% | Cost of war = increase of tax rates. |
| INCOME FROM CONTINUING OPERATIONS | 7,874 9.3% | 8,146 9.8% | 5,334 6.6% | 6,007.39 7.2% | 7,000.44 8.0% | |
| DISCONTINUED OPERATIONS: | | | | | | |
| (Loss)/income from discontinued operations | 219 2.8% | (423) -5.2% | (1,755) -32.9% | 200.00 3.3% | 200.00 2.9% | balance paiement for Hitachi contract. |
| NET INCOME | 8,093 -4.6% | 7,723 -53.7% | 3,579 73.4% | 6,207.39 16.0% | 7,200.44 | |
| Preferred stock dividends | 20 | 10 | -- | -- | -- | Continue trend of 4 cents per year. |
| Common stock dividends | 0.51 | 0.55 | 0.59 | 0.63 | 0.67 | |
| NET INCOME (COMMON STOCKHOLDERS) | \$ 8,073 | \$ 7,713 | \$ 3,579 | \$ 6,207.39 | \$ 7,200.44 | |
| EARNINGS/(LOSS) PER SHARE COMMON STK: | | | | | | |
| ASSUMING DILUTION | | | | | | |
| Continuing operations | \$ 4.32 | \$ 4.59 | \$ 3.07 | \$ 3.70 | \$ 4.42 | |
| Discontinued operations | 0.12 | (0.24) | (1.01) | 0.12 | 0.12 | |
| TOTAL | \$ 4.44 -2.0% | \$ 4.35 -52.6% | \$ 2.06 85.3% | \$ 3.82 19.1% | \$ 4.54 | |
| NUMBER OF SHARES | 1.812 | 1.771 | 1.731 | 1.679 | 1.628 | # of shares decreases by 3% per year. |

Consolidated Statement of Financial Position
INTERNATIONAL BUSINESS MACHINES CORPORATION
and Subsidiary Companies (Audited)

(dollars in millions except per share amounts)

| AT DECEMBER 31: | 2002 | 2001* |
|--|------------------|------------------|
| ASSETS | | |
| Current assets: | | |
| Cash and cash equivalents | \$ 5,382 | \$ 6,330 |
| Marketable securities | 593 | 63 |
| Notes and accounts receivable--trade, net of allowances | 9,915 | 9,101 |
| Short-term financing receivables | 15,996 | 16,656 |
| Other accounts receivable | 1,447 | 1,261 |
| Inventories | 3,148 | 4,304 |
| Deferred taxes | 2,617 | 2,402 |
| Prepaid expenses and other current assets | 2,554 | 2,344 |
| Total current assets | 41,652 | 42,461 |
| Plant, rental machines and other property | 36,083 | 38,375 |
| Less: Accumulated depreciation | 21,643 | 21,871 |
| Plant, rental machines and other property--net | 14,440 | 16,504 |
| Long-term financing receivables | 11,440 | 12,246 |
| Prepaid pension assets | 16,003 | 11,397 |
| Investments and sundry assets | 8,834 | 6,417 |
| Goodwill | 4,115 | 1,278 |
| TOTAL ASSETS | \$ 96,484 | \$ 90,303 |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | |
| Current liabilities: | | |
| Taxes | \$ 5,476 | \$ 4,644 |
| Short-term debt | 6,031 | 11,188 |
| Accounts payable | 7,630 | 7,047 |
| Compensation and benefits | 3,724 | 3,796 |
| Deferred income | 5,276 | 4,223 |
| Other accrued expenses and liabilities | 6,413 | 4,221 |
| Total current liabilities | 34,550 | 35,119 |
| Long-term debt | 19,986 | 15,963 |
| Retirement and nonpension postretirement benefit obligations | 13,215 | 10,308 |
| Other liabilities | 5,951 | 5,465 |
| TOTAL LIABILITIES | 73,702 | 66,855 |
| Contingencies | | |
| Stockholders' equity: | | |
| Common stock, par value \$.20 per share | 14,858 | 14,248 |
| Shares authorized: 4,687,500,000 | | |
| Shares issued (2002 - 1,920,957,772; 2001 - 1,913,513,218) | | |
| Retained earnings | 31,555 | 30,142 |
| Treasury stock, at cost (shares: 2002 - 198,590,876; 2001 - 190,319,489) | (20,213) | (20,114) |
| Accumulated gains and (losses) not affecting retained earnings | (3,418) | (828) |
| TOTAL STOCKHOLDERS' EQUITY | 22,782 | 23,448 |
| TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY | \$ 96,484 | \$ 90,303 |

* Reclassified to conform with 2002 presentation.

The accompanying notes in the 2002 IBM Annual Report are an integral part of the financial statements.