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*This report and the financial statements contained herein are submitted for the general information of the fund's donors.
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LETTER TO OUR SHAREHOLDERS

SIF HISTORY

In 1990, Frank M. Engle made the first contribution to the Finance Excellence Fund. His vision was clear—to create a fund that would provide scholarships for outstanding students and offer the resources necessary to draw nationally prominent faculty to the University of Tulsa. Friends of Finance adopted Mr. Engle's vision and began to raise additional funds from generous individuals and businesses. The Finance Department, in conjunction with Friends of Finance, decided that Mr. Engle's vision would be served best through the establishment of a unique educational experience at the university—a class that would allow the fund to grow at the same time that it would give students a chance to learn in a way that no other class can offer. Furthermore, they envisioned that this class would become a major draw of the Finance Department to both prospective students and faculty.

In 1997, the University of Tulsa Board of Trustees approved the Finance Department's proposal to establish a Student Investment Fund (SIF). The first SIF class, under the direction of Professor Larry Johnson, was offered in the summer of 1997. Students spent that summer and the fall semester of 1997 researching similar funds at other universities, writing by-laws, formulating operating and investment procedures, selecting a broker, and determining space and equipment needs. In Spring 1998, SIF as we know it today began—on April 13, 1998, \$300,000 was transferred to the SIF class for the students' management. On April 23, 1998, the first securities were purchased—COHU, Inc. and Tidewater, Inc.—and the University of Tulsa Student Investment Fund started active management.

THE PURPOSE OF SIF

The SIF class is designed to give students the opportunity to apply financial theories and models to actual investment decisions in managing a real portfolio of financial assets. Unlike other classes, the SIF provides students with hands-on experience that prepares them for a financial career. Yet, it does so in an academic setting that allows them the flexibility to freely pursue their own strategies and ideas with less personal risk.

SIF GOALS AND STYLE

The stated goal of the SIF is to outperform the S&P 500 Index. Although various SIF groups have set varying goals regarding the exact standard, whether it be absolute value or growth rates, the SIF has always maintained as its benchmark goal a superior return to that of the S&P 500.



Jeffrey Oldham, SEO

To meet these goals, an enhanced index portfolio has been established that actively manages 50% of the funds, while the remaining 50% is to be placed in a mutual fund that mimics the S&P 500. With the actively-managed portion of the fund, the SIF attempts to enhance the returns of the S&P 500 Index fund by investing in areas of higher growth potential. In this endeavor, the SIF is subject to certain constraints. Specifically, for purposes of diversification, the fund can invest no more than 7% of its assets in any one security, nor can it buy more than 25% of any one industry.

With regards to the overall portfolio, the SIF has followed a blend strategy by investing half of its assets in the S&P 500 Index fund, which gives it sufficient diversification. With the actively-managed portion of the portfolio, the fund has embraced a growth style, investing mostly in innovative industries like telecommunications and technology, but it has also pursued some value-based opportunities.

THE ROLE OF SIF MEMBERS

The Student Investment Fund is designed such that each member can be active in a number of different capacities. As the organizational structure chart on page 4 illustrates, the management team is comprised of the following: an SEO (Student Executive Officer), who is charged with running the class; a Portfolio Manager, who has the responsibility of overseeing the Portfolio and Accounting Committees; an Operations Manager, who supervises the Operations, Public Relations, Membership, and MIS Committees; and a Secretary, who is responsible for taking minutes at the meetings and handling various administrative functions. These officers form the management team, the Executive Committee,

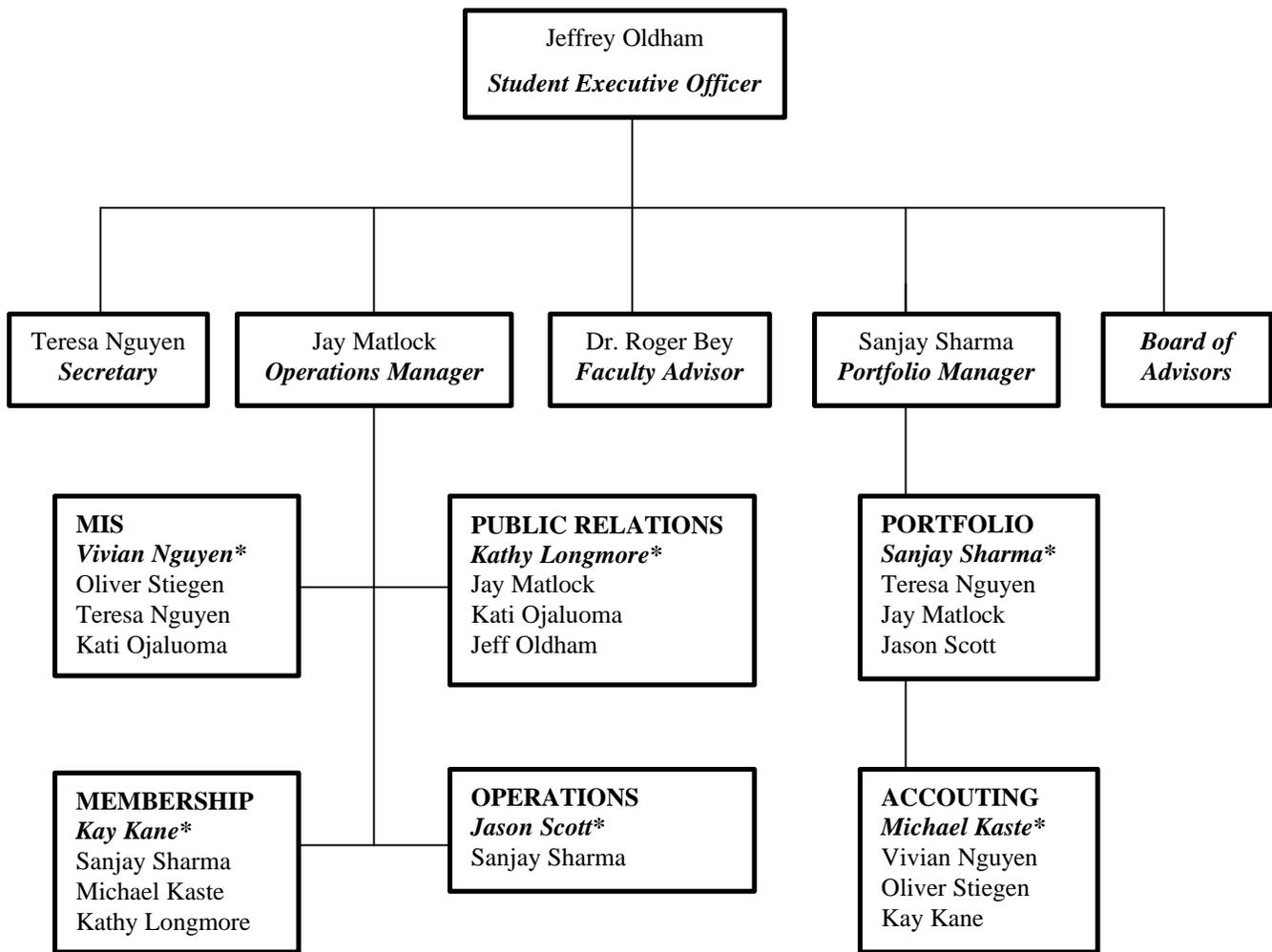
which meets each week to set the goals and tasks of the SIF.

Aside from the managers, members stay active through committee work. Each student serves on at least two of the seven committees, which handle all of the activities of the SIF, from accounting statements and asset allocation to recruiting new members and running the web page. Each committee elects a Chairperson, who leads the Committee through its activities and reports to the appropriate Manager, who then reports to the SEO. The Faculty Advisor serves as a final arbitrator and advisor to the SIF, as well as leading discussions on various investment and portfolio topics. Finally, the Board of Advisors

oversees the entire SIF and performs this function through regular meetings with the Faculty Advisor and SEO, as well as meeting with the entire SIF.

Perhaps the most unique class offered at the University of Tulsa, the Student Investment Fund has generated interest in students from a variety of different grade levels, nationalities, and disciplines. For example, the current 11-member SIF consists of 4 graduate students, 4 international students, and students with finance, MIS, and accounting backgrounds. As a result of this diversity, the SIF is blessed to contain a great diversity of interests and knowledge that gives it a broad, globally enriched perspective on the financial markets.

ORGANIZATIONAL CHART



* *Committee chair*



*From left to right – first row: Teresa Nguyen, Vivian Nguyen, Sanjay Sharma and Jason Scott
Second row: Michael Kaste, Kati Ojaluoma, Jeff Oldman and Kathy Longmore
Last row: Kay Kane, Oliver Stiegen, Dr. Roger Bey and Jay Matlock*

PERFORMANCE

What a year was 1999! Due to the Fund's focus on technology and telecommunications firms, particularly in the NASDAQ, the SIF was able to achieve a 30.80% return in 1999. Compared to the S&P 500's return of only 21.05%, the SIF clearly met its goals in 1999. Since the inception of the fund, in fact, the SIF has beaten the S&P 500 by nearly 2%!

As of December 31, 1999, the SIF portfolio consisted of 20 securities, an S&P500 Index Fund, and a Money Market Fund. The SIF was heavily invested in the communications and technology industries, which represented 31% and 34% of the actively-managed portion of the fund. The largest holding in any one stock was Nokia, which was also the largest gaining security for the SIF in 1999. Additionally, America Online, Amgen, and Oracle, among others, were instrumental in the fund's success in 1999. Due perhaps to the popularity of these industries, the SIF has been fortunate to have invested heavily in the areas of the most potent growth in the economy.

Over the course of the year, the three different SIF classes made significant contributions to the portfolio with its various additions and subtractions. The fund added a number of new securities to its portfolio, including its most recent purchases of Lucent Technologies, which was approved in Spring 1999; Motorola, which was also approved in Spring 1999; Nextel Communications, which the Fall 1999 group approved; and Oracle, which was also approved by the Fall 1999 SIF. Other purchases include Qwest, Intel, Amgen, Biogen, Cisco, Nokia, and Warner Lambert. The fund also made several sales that have affected the portfolio considerably. Most recently, the Fall 1999 SIF class sold AT&T, Merrill Lynch, and

Leggett & Platt. Other sales included Johnson & Johnson, Compaq, and Coca-Cola.

CONCLUSION

In 2000, there are a number of opportunities and threats to which the SIF, and investors in general, must pay careful attention. Will the growth in the technology and telecommunications markets continue? Will the economic recovery in the international markets be sustained? Most importantly, can the growth-oriented stocks maintain the incredible pace they have recorded over the past year? In the Student Investment Fund, students are not only being equipped with the necessary tools to answer such questions, but they are also given the opportunity to test their solutions with real assets and an actual investment scenario.

The SIF class is an invaluable experience. Fortunate enough to attend one of a handful of schools that offers such an opportunity, members of the Student Investment Fund would like to extend our sincere gratitude to all of the generous donors who have made it possible. We hope that, through our dedicated time and effort spent towards achieving our goals and strategies, we are able to fulfill the vision of Mr. Engle and the rest of the men and women who have contributed to the most unique learning opportunity at the University of Tulsa.

Sincerely,

Jeff Oldham
Student Executive Officer, Fall 2000

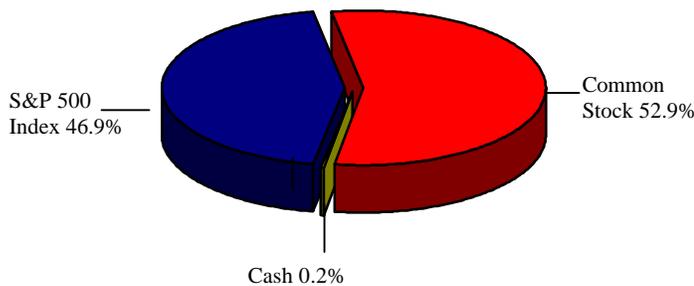
MARKET RECAP

1999 began with EMU - European Monetary Union - and ended with Y2K - the successful transition of the world's computer systems into the new century. In between, the Dow Jones Industrial Average and the NASDAQ index reached new highs. At the same time, a single European currency fostered stunning growth in the European capital markets along with a wave of corporate restructuring that continues to gather force. Additionally, "Big Bang" financial services deregulation and other reforms stirred a moribund economy in Japan, other parts of Asia, and Latin America. The NASDAQ Composite gained in excess of 85% for 1999. This was the largest such gain of any major index in the history of the US stock market. The SIF fund was appropriately positioned to take advantage of this move and owes a significant portion of the success of the fund to stocks in the NASDAQ.

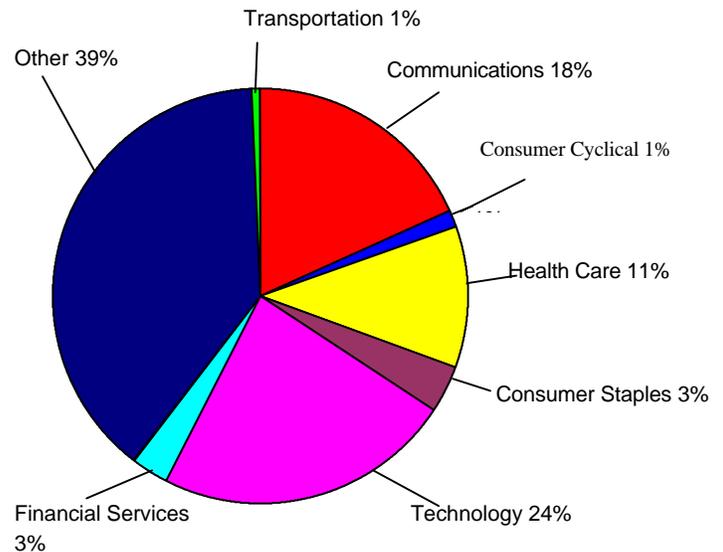
- ❖ No more than 7% of the portfolio can be invested in an individual stock.
- ❖ No more than 25% of the portfolio can be invested in any one industry.
- ❖ No less than 50% can be invested in the S&P500 Index Fund.
- ❖ Financial derivatives cannot be used.
- ❖ Short sales are not allowed.
- ❖ Securities cannot be purchased on margin.

PORTFOLIO DISTRIBUTION

Asset Allocation



Diversification by Sector

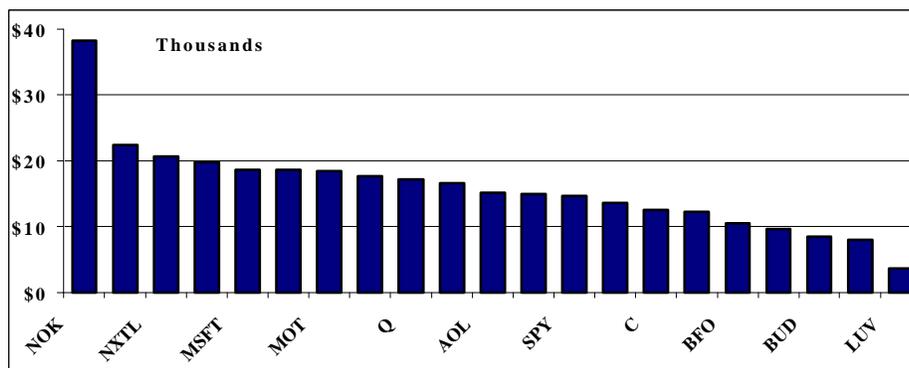


The sector percentages include both the individual securities held and the ownership of these securities held through the S&P 500 Index Fund. The other sector is all of the sectors (Basic Materials, Capital Goods, Utilities, and Energy) in which individuals securities are not held.

SIF ASSET ALLOCATION

The current goal is for the SIF to outperform the S&P500 Index. SIF's investment policy constrains the portfolio as follows:

Asset Allocation-Chart (Equity Distribution)



PORTFOLIO AT A GLANCE

AMERICA ONLINE INC (AOL)

With more than 22 million subscribers, America Online (AOL) is the world's #1 provider of online services. Its CompuServe Interactive Services subsidiary lengthens its lead with more than 2.5 million additional subscribers. AOL's agreement to buy entertainment giant Time Warner will make the company #1 in all things media. The firm also owns the Netscape Netcenter portal and Netscape Communicator software (including the Netscape Navigator browser) and has advanced its joint venture with Sun Microsystems (dubbed Sun-Netscape Alliance) to develop e-commerce software. AOL bolsters its Web presence through its AOL Instant Messenger, AOL.com portal, Digital City, and AOL MovieFone.

AMGEN (AMGN)

The biggest of the biotech big'uns, Amgen makes and markets therapeutic products for hematopoiesis (blood cell production), inflammation and autoimmunity, neurobiology, and soft-tissue repair. Anti-anemia drug Epogen and immune system stimulator Neupogen account for more than 90% of sales, while a third drug, Infergen, has been commercialized as a treatment for hepatitis C. The company spends fully one-fourth of its sales on research and development. Amgen has research and marketing alliances with several companies, including Hoffmann-La Roche, Johnson & Johnson, and Kirin, the Japanese brewer that also operates a fast-growing pharmaceuticals unit.

ANHEUSER BUSCH COS INC (BUD)

Anheuser Busch is the largest beer maker in the US, with nearly 50% of the market; Anheuser-Busch is also the world's largest brewer. The company makes leading brands Budweiser, Bud Light, Michelob, and Busch, as well as specialty beers such as ZiegenBock Amber, Red Wolf Lager, and O'Doul's (nonalcoholic). The company has joint ventures or licensing agreements in China, Japan, Mexico, several South American countries, and throughout Europe. It also operates theme parks (Busch Gardens, Sea World) and water parks (Water Country USA, Adventure Island). Chairman August Busch III is the fourth generation of the Busch family to run Anheuser-Busch.

BESTFOODS (BFO)

With several of its brands as market leaders, Bestfoods believes it is appropriately named. Its #1 ranked brand of products in the US include Hellmann's mayonnaise, Thomas' English muffins and bagels, Mueller's pasta, and Mazola cooking oil. Other well-known brands include Knorr soups, sauces, and bouillons; Skippy peanut butter; Karo corn syrup; and Entenmann's and Oroweat baked goods. With distribution in about 110 countries, roughly 60% of sales come from outside North America. Bestfoods, formerly known as CPC International, spun off its corn refining operations as Corn Products International. The company continues to make acquisitions worldwide, build its brands across borders, and create new products.

BIOGEN INC (BGEN)

Biogen researches, develops, and markets biopharmaceuticals to treat a variety of ailments; its flagship drug is AVONEX, used to treat relapsing multiple sclerosis. The company's other drugs in development include Amevive, for psoriasis; Antova, for autoimmune diseases; and Adentri, for congestive heart failure. Biogen also makes money by licensing to other companies drugs it has developed; such products include alpha interferon and a hepatitis B vaccine. The company's research partners include Schering-Plough, SmithKline Beecham, Merck, and Abbott Laboratories.

BRISTOL-MYERS SQUIBB (BMY)

Bristol-Myers Squibb produces pharmaceuticals, medical devices, and other health-care products, as well as household chemicals and beauty aids. It manufactures prescription drugs, antibiotics, orthopaedic implants, and bandages. The company's brand-name products include Enfamil infant formula, Bufferin and Excedrin pain relievers, Clairol hair-care products, Sea Breeze skin-care applications, and Herbal Essences shampoos and conditioners. Foreign sales account for approximately 39% of the company's total sales.

CISCO (CSCO)

Cisco Systems controls more than three-quarters of the global market for products that link networks

and power the Internet, including routers and switches. It also makes dial-up access servers and network management software. Cisco traditionally targets service providers and corporations, but it is moving into rival 3Com's small business and consumer territories, and into the fast-growing telecommunications (data, voice, and video) networking segment. Cisco has bought more than 40 companies since 1993 and has set aside another \$10 billion for purchases. Alliances with leading technology companies such as IBM, Motorola, and Sun Microsystems are boosting Cisco's influence.

CITIGROUP INC (C)

One of the world's biggest credit card companies and one of its biggest insurers have joined forces to create -- what else? -- the biggest financial services company. Citigroup, formed from the merger of Citicorp and Travelers Group, has retained Travelers' red umbrella logo, from beneath which it will offer credit card, banking, insurance, and investment services in almost 100 countries. It also offers brokerage services (Salomon Smith Barney), mutual funds (Primerica Financial), property/casualty insurance (82%-owned Travelers Property Casualty), retirement products (Travelers Life & Annuity), and real estate services (Citicorp Real Estate), among other services.

COMPUTER SCIENCES CORP (CSC)

Computer Sciences provides information-technology consulting, systems integration, and outsourcing. Services include management-consulting and education and research programs, and the design, engineering, installation, and operation of computer-based systems and communication systems. The company offers its services to financial, industrial, and service industries, and to many governmental agencies in U.S. and abroad. Contract services to the U.S. government account for about 25% of the company's revenues in fiscal 1998. It acquired Nichols Research in November 1999.

HARLEY DAVIDSON INC (HDI)

Harley-Davidson manufactures motorcycles and related parts and accessories. Its products include motorcycles having V-twin engines ranging from 883 cubic centimeters (cc's) to 1450 cc's in displacement. The company markets its motorcycles under brand names such as Softail, Sportster, Fat Boy, Low Rider, Road King, Buell, and Wide-Glide. It also sells

accessories for its motorcycles, as well as clothing bearing the Harley-Davidson name. In addition, the company's Eaglemark Financial Services subsidiary offers financing for the company's customers.

INTEL (INTC)

With about 80% of the microprocessor market, Intel is definitely "inside." The world's #1 chip maker, Intel makes microprocessors -- including the powerful Pentium and the low-end Celeron -- that have provided the brains for IBM-compatible PCs since 1981. Compaq, Intel's largest customer, accounts for 13% of sales; Dell Computer accounts for 11%. Intel's chips are also used in products for communications, industrial equipment, and the military. The company is making a big push into networking services and communications infrastructure products. Intel has plants in Asia, Central America, Europe, and the US. About 55% of its sales are outside North America.

LUCENT (LU)

The company, which was spun off from telecommunications giant AT&T, is North America's leading maker of telecom equipment and software. Lucent also makes integrated circuits and telecommunications power systems and is a major supplier to the personal communications services market. Technology developed by Bell Laboratories provides the basis for many of Lucent's products, but the company has become a force in the broadband (voice, data, and video) networking market through acquisitions. Most of Lucent's customers are telecom providers like AT&T (15% of sales). Lucent has announced plans to spin off its PBX and cabling and LAN businesses to focus on high-growth areas.

MICROSOFT CORP (MSFT)

Microsoft is the world's #1 software company. Products include the Windows operating systems, MS Office business productivity suite (Excel, Word, PowerPoint), reference works (Encarta), and a Web browser (Internet Explorer). It also runs online services and e-commerce portal MSN (The Microsoft Network) and has sold a share of its Expedia travel service to the public. With NBC, Microsoft runs cable news channel MSNBC. Chairman Bill Gates, who is the world's richest person and owns 15% of the company, handed over the CEO title to Steve Ballmer in early 2000. Foreign sales account for about 30% of Microsoft's revenues. The company acquired Visio in January 2000.

MOTOROLA (MOT)

Once the world's clear leader in mobile phone sales, Motorola has fallen behind #1 Nokia and is fighting to stay ahead of #3 Ericsson. Cellular products make up nearly 40% of Motorola's sales. The world's #3 maker of semiconductors, other products include two-way radios, pagers, computers, and networking peripherals. It provides wireless telecom services in developing nations and was a major backer of the failed Iridium satellite network. The company operates globally and generates about half of its sales outside the US. Through its purchase of set-top box maker General Instrument, Motorola is sharpening its focus on the broadband communications market. The company is also expanding its software operations.

NEXTEL (NXTL)

Nextel Communications provides wireless-communication services and sells related equipment. The company offers fleet-dispatch, cellular-phone, and paging services to approximately 2.78 million subscribers, primarily in Los Angeles, San Francisco, Dallas/Fort Worth, Chicago, and New York. It also provides management and consulting services to other wireless-communication companies. Its OneComm subsidiary provides wireless-communication services in the western region of the United States. The company also owns a stake in Nextel Partners.

NOKIA (NOK)

Nokia is a telecommunication and consumer-electronics company. It supplies telecommunication systems and equipment for fixed- and mobile-phone networks, and sells its own cellular phones in more than 130 countries. Nokia also manufactures Internet-access cellular phones, satellite receivers, mobile-battery chargers, and devices that integrate digital voice and data communications. Sales of telecommunication and cellular phone products account for about 93% of the company's total sales. Overseas sales make up approximately 96% of the company's total sales.

ORACLE (ORCL)

Oracle wages search and rescue missions with your information. The company is the leading developer of database management systems software, which lets multiple users and applications access the same data simultaneously. Its flagship database software runs on everything from notebooks to

mainframes. Flamboyant chairman and CEO Larry Ellison have configured the latest version of the company's database software to support information appliances and PCs that access programs from the Web. Oracle also sells software development tools and corporate resource management applications. Consulting, technical support, and other services account for almost 60% of sales. Ellison owns 24% of Oracle.

QWEST COMMNC INTL INC (Q)

Qwest Communications International provides communications services to interexchange carriers and other communications entities. It operates a long-distance fiber-optic telecommunications network under the Qwest Network name. The network extends about 25,500 route miles and connects 150 metropolitan areas that represent approximately 95% of the U.S. originating and terminating long-distance traffic. The network also connects to Canada and Mexico. Qwest Communications International agreed to acquire US West in 2000.

SOUTHWEST AIRLINES CO (LUV)

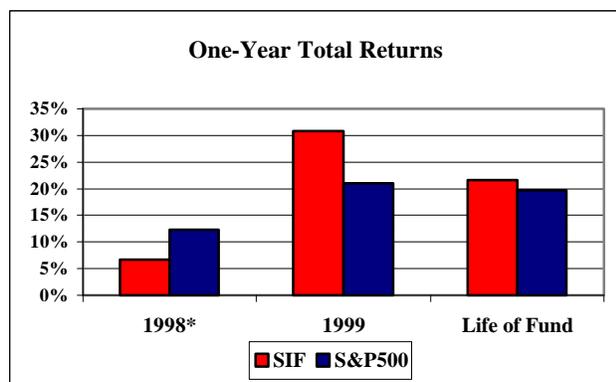
Southwest Airlines is a commercial airline that provides passenger and freight transportation to 53 airports in 52 cities in the midwestern, southwestern, and western United States. The airline specializes in short-haul routes, and targets business commuters. The company's most-traveled routes are intrastate flights in California and Texas. Its fleet consists of about 280 Boeing 737s. Passenger transportation generates almost all revenues, accounting for more than 96% of the total. In fiscal 1998, Southwest's average aircraft trip was 441 miles.

WARNER-LAMBERT (WLA)

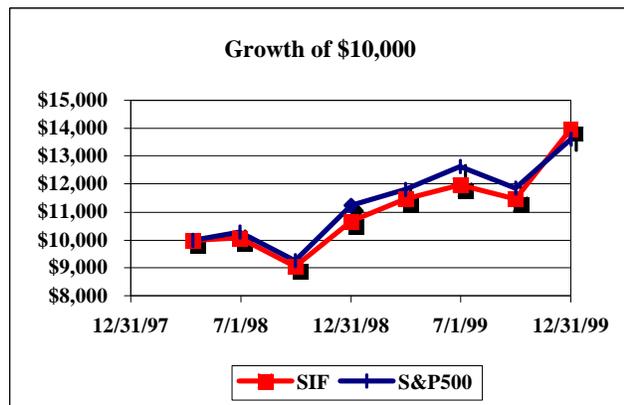
Warner-Lambert manufactures pharmaceutical, consumer, and confectionery products. Its Parke-Davis and Goedecke pharmaceuticals include therapeutic drugs, vaccines, and oral contraceptives. Warner-Lambert's consumer products include Tetra aquarium products, Schick and Wilkinson Sword razors, Roloids antacids, Lubriderm dermatological products, Actifed cold and allergy products, and Listerine mouthwash. Its confectionary products include Certs breath mints, Halls cough suppressants, and Bubblicious gum. The company agreed to be acquired by Pfizer in 2000.

PERFORMANCE SUMMARY

At the end of 1999, the SIF portfolio consisted of 20 common stocks, an S&P500 Index Fund, and a Money Market Fund. A high proportion of the Fund was allocated to the Merrill Lynch S&P500 index, in order to be in line with SIF investment policies. The SIF portfolio's total return was 30.80%, compared to the S&P500's total return of 21.05%. The SIF portfolio's total gain before expenses was \$131,742 that resulted in a total portfolio value of \$599,922 at the end of 1999. The greatest gains came from Nokia, America Online, and Amgen, while the greatest losses came from Bristol-Meyers Squibb, Lucent Technologies, and Nextel Communications.



In 1999, the fund was able to concentrate on investing in large cap stocks, which proved to be a successful strategy. The performance that was obtained this year helped push the fund past the S&P benchmark not only for 1999, but the term of the fund as well.



The SIF has trailed the S&P 500 index through most its existence, but was finally able to overcome the cumulative performance toward the end of 1999.

Top Three Holdings in Terms of Dollar Value

Nokia	\$38,213
Oracle	\$22,413
Nextel	\$20,625

Top Three Stocks in Dollars Gained in 1999

Nokia	\$22,665
America Online	\$10,815
Amgen	\$ 9,896

Stocks Purchased in 1999

AT&T	Amgen
Best Foods	Bristol Myers
Biogen	Cisco
Citigroup	Harley-Davidson
Intel	Leggett & Platt
Lucent Technologies	Motorola
Nextel	Nokia
Oracle	Warner Lambert

Stocks Sold in 1999

AT&T	America Online
Advanced Micro Devices	Coca Cola
Ace Ltd.	Duke Energy
Compaq	Leggett & Platt
Johnson & Johnson	Merrill Lynch
Waste Management	

Investment Strategy

SIF maintained its strategy to invest only in companies that have market capitalizations of over 3 billion dollars (large cap). Fortunately, in 1999 these were the stocks that experienced the best performance.

Investment Focus

Value	Blend	Growth	
			Large Med Cap Small Cap

Financial Highlights

Investment Gain in 1999	\$ 131,742
Total Assets End of 1999	\$ 599,922
1999 Performance	
SIF	30.80%
S&P 500	21.05%
Expenses for 1999	\$ 2,356

FINANCIAL STATEMENTS

BALANCE SHEET

Amounts in US Dollars	12/31/98	12/31/99
Assets		
Cash/Cash Equivalents		
Cash	\$ 1,695	\$ 495
Cash Equivalent	<u>\$ 22,942</u>	<u>\$ 1,168</u>
Total Cash/Cash Equivalents	\$ 24,637	\$ 1,664
Index Funds (cost \$ 215,241)	\$221,770	\$266,547
Common Stocks (cost \$ 225,589)	<u>\$ 96,773</u>	<u>\$331,711</u>
Total Assets	\$343,180	\$599,922
Capital		
Paid in capital	\$325,000	\$450,000
Capital gains (losses)	<u>\$ 18,180</u>	<u>\$149,922</u>
Total Capital	\$343,180	\$599,922

INCOME STATEMENT

Amount in US dollars	12/31/98	12/31/99
Investment Income		
Dividends	<u>\$ 13,997</u>	<u>\$ 8,489</u>
Total Income	\$ 13,997	\$ 8,489
Expenses		
Annual Fee	\$ 150	\$ 150
Initial Setup Fee	\$ 25	\$ -
Supplies and Expenses	\$ 444	\$ 853
Postage and Shipping	\$ -	\$ 45
Printing and Duplication	\$ -	\$ 708
Telecommunication	\$ -	\$ 0
Membership and Subscriptions	\$ 103	\$ 311
Entertainment	\$ -	\$ 282
Equipment	\$ 2,758	\$ -
Other Expenses	<u>\$ -</u>	<u>\$ 6</u>
Total Expenses	\$ 3,480	\$ 2,356
Realized and unrealized Gain (loss)		
Unrealized Gain (loss)	\$ 23,872	\$133,560
Realized Gain (loss)	<u>\$(16,209)</u>	<u>\$ (7,951)</u>
Net gain (loss)	\$ 7,663	\$125,609
Net Income	\$ 18,180	\$131,742

TELECOMMUNICATIONS EQUIPMENT

INTRODUCTION

The telecommunications industry can be separated into four main areas: wire-line services, wire-line equipment, wireless services and wireless equipment. This report concentrates on the wire-line equipment industry, looking at the major players, economic and financial analysis and industry trends.

HISTORY

Alexander Graham Bell patented his telephone on the 14th of February 1876. His system was composed of a microphone and a speaker. Bell's microphone changed sound waves into a pulsating voltage, which is faster and easier to transmit than sound waves. However, when Bell approached the Western Telegraph Company in 1877 with his invention, it was rejected. At this point Bell was prepared to sell the invention for \$100,000. However, after a few years, the company offered Bell \$25,000,000 for his patent, which he rejected. Bell who had already founded the "Bell Telephone Company" took his invention and through the company, delivered and installed 50,000 telephones within the first three years. The company, known as "American Telephone and Telegraph Company" is now the world's largest telephone company.

Since the early days of the industry it has changed immeasurably. Today's world consists of mobile phones, the Internet, satellite navigation systems in our cars and a host of other conveniences, that are quickly becoming necessities, that all stem back to the early pioneers. Today, connections are made across the world in seconds via satellites and the use of microwave technology. Billions of dollars are traded across telephone lines every day. The invention has totally revolutionized the world and made it a great deal smaller. The future of this industry will be very exciting as we enter the twenty-first century.

INDUSTRY OVERVIEW

The telecommunications equipment sector is comprised of several different types of equipment areas including those who produce switching and transmission equipment, communication processing equipment and wireless, satellite and microwave communication equipment.

INDUSTRY ANALYSIS

1999 marked the end of a four-year streak during which the stock price of companies within the telecommunications equipment industry lagged behind the overall market. Regulation, technological advances, consolidation among the service providers, along with the accelerating convergence of telephony, cable television, and computer networking, promise to keep telecom capital spending on a sharp ascent through 2000 and out to 2002-2004. Michael Porter's Five-Factor Model will be used to break down the main areas that companies in this industry have to concentrate on.

Power Of Suppliers

The power of suppliers does not make a significant impact on the telecommunication equipment industry. The reason for this is that companies in this industry tend to buy raw materials and economic forces, rather than market forces, dictate these prices.

Power Of Customers

The telecommunications services industry, including AT&T and Bell Atlantic, is the main customer for the telecommunication equipment industry. These companies, as expected, have a great deal of power when negotiating contracts.

There has been a recent trend of consolidation by telecommunication service providers, with federal regulators allowing some of the bigger players to merge, since the number of entrants in the long distance and local markets has increased appreciably in recent years. Corporate marriages are also moving beyond the traditional boundaries, as represented by AT&T's acquisition of cable television giant TCI and its pending deal with the Media One Group. These deals underscore the convergence of the various types of communications, melding the Internet, cable television, wireline and wireless telephony, satellite, and computer networking

For the communications equipment industry, the growth and increasing popularity of the Internet has led to a booming market for the industry's products and services. In order to stay competitive and keep their customers, communications service providers are

racing to construct networks that can more efficiently handle the surge in data related traffic. In turn, communications equipment makers are constantly developing new machines and software geared toward handling the higher level of data traffic. Areas of special emphasis for the vendors' research initiatives include optical network systems and various packet-related technologies. The use of wireless telephony is on the rise due to lower per-minute charges and competitive pricing of handsets. An even larger opportunity looms in the future as products enabling data communications over wireless frequencies become available.

The life cycle for communications equipment is approximately ten to fifteen years. The cost associated with the equipment is very high and therefore customers are unwilling to replace the equipment even if the new technology is vastly superior. Equipment manufacturers have benefited from the presence of competitive local exchange carriers that usually build networks from scratch using the latest technology, and this tends to boost the manufacturers profit margins. However, wireless equipment life is significantly lower with the new products being introduced constantly. This is countered by the ever-increasing demand on the technology.

Threat Of Substitute Products

This category is not as clear-cut as it would be in most industries such as transportation. In that industry, there are airlines, cruise-lines and shipping, rail and road categories. Therefore, for example, airline companies have to be aware of all companies that are classified under the transportation category. The telecommunication equipment industry is somewhat different in this respect. Companies that provide landline telecommunication products also provide cable television products, wireless communication products and Internet related products. The reason for this is that since deregulation, global competition has become so great that no company can afford to risk not having a presence in a particular field. New technology and competition is driving the industry

Competitive Rivalry And The Threat Of New Entrants

New entrants are always a threat, but because of the nature of the industry and it's vast size, companies need to concentrate on the area of competitive rivalry

and therefore there is a natural bias towards this factor.

The trend in consolidation between major data and voice equipment vendors began with the 1998 acquisition of Bay Networks, a leading provider of data communications equipment, for \$7 billion by telecommunications giant Northern Telecom. This was followed by many mergers throughout 1999, the largest being the purchase of Ascend Communications Inc. by Lucent Technologies in a stock deal valued at around \$20 billion. A benefit for the shareholders of the large telecommunication equipment companies was that the company portfolio became more diversified. Another major reason for these purchases was that the market for voice equipment had begun to slow down as the market matured while the market for data communications equipment is increasing.

Communications equipment manufacturers produce hardware that is used by service providers like telephone companies and cable operators, as well as by corporations and individuals. This hardware, ranging from cellular phones to circuit switches, is key to the ever-expanding growth of telecommunications. The equipment industry's structure has been driven by three factors: manufacturers relationships with major telephone companies, their economies of scale, and their superior research and development resources. As a result, the industry is dominated by an oligopoly of major U.S and international manufacturers. Growth is forecast to be strong over the next few years with levels of about 14% to 15% expected annually.

With few exceptions, the largest companies among the telecommunications equipment industry offer both wireless and wireline products. The companies tend to be multinational corporations with sales and productions facilities located in many nations. U.S giant Motorola is an example of such a company, with 1998 telecom-related revenues of \$20.35 billion. The company offers a wide array of products, although it concentrates primarily in the wireless related field.

With the advent of fiber optics, satellite communications, wireless services, and digital technology, the communications equipment industry has undergone major transformations over the past 20 years. Those technological innovations have been driven by telephone companies' insatiable need to increase the capacity of their communications systems and to improve the quality and breadth of their service offerings. As today's service providers look at the

prospect of increasing competition and possible entry into new markets that deregulation has made possible, they are turning to equipment makers for newer, more advanced communication hardware and software.

New carriers such as Qwest Communications International Inc., Williams Communications Group Inc., Level 3 Communications Inc. and Global Crossing Ltd. have already spent aggressively on communication equipment. These nimble firms have been installing digital switches and cutting edge broadband equipment, forcing the bigger players to respond by upgrading their communication infrastructure. They have invested heavily to provide such value added services as voice-mail, caller identification, second phone lines, and local number portability. These new services have benefited suppliers of central office switches, transmission equipment, and customer premises equipment.

As foreign telecommunication companies continue the process of deregulation and privatization, international markets are also rapidly becoming more competitive. The World Trade Organization's Telecommunications Agreement, signed in February 1997, promised to liberalize local, long distance, and international telephone service in most of the organizations member countries. The newly opened markets should spur tremendous growth in demand for communications equipment.

ECONOMIC AND FINANCIAL ANALYSIS

The state of the U.S. economy was very strong in 1999, with the S&P 500 index appreciating by over 30%, GDP growing by 3.9%, unemployment falling to 4.2% and interest rates hovering around 7% and estimates for the consumer price index show that it rose by 2.2%. However, as many of the large

INDUSTRY TRENDS

Merger fever has taken a strong presence throughout the whole telecommunications industry. The large service providers are buying many of their suppliers, thereby creating huge companies that can cater for all the needs of their customers. Within the equipment supplier industry, the companies are buying other companies to consolidate their product base and thereby, also, being able to supply the customers with all their needs. Other trends, such as the increasing use of the Internet and of wireless technology, have helped to drive sales of a number of different product lines. The main potential constraint on continued

equipment companies business comes from international markets, exchange rates, the strength of the dollar against other currencies, interest rates overseas and the general global economic climate all impact upon the performance of these companies.

LUCENT TECHNOLOGIES

Lucent Technologies is the largest company in North America producing telecom equipment in stockware, including business communication systems, switching and transmission equipment and wireless networks. Lucent is a spin off from the telecommunication giant AT&T. Bell laboratories, AT&T's former research and development arm is also a part of Lucent. The company continues to add new products, with patents averaging three a day, acquiring complementary companies and expanding globally. In 1998 the company's market value surpassed that of AT&T's. During the year the company made seven acquisitions including a data networking provider and a telecommunication equipment maker. 1999 saw Lucent buy Kanen Systems, a customer service and billing software maker, International Network Services, a network software and services provider, and Excel Switching, a maker of programmable switches. The company also purchased Ascend Communications, for \$24 billion, making it the company's largest acquisition. Early 2000 has seen Lucent selling off it's communication equipment manufacturing business to VTECH holdings. However, Lucent had profits fifty-three percent lower than analysts expected because the company was unable to meet demand. Also, the company's accounting principles were under question, thereby undermining investor confidence. The company does have some good news as it has recently won an order to build new high-speed fiber optic network for Germany's Deutsche Telekom.

communications equipment related capital spending was the Year 2000, (Y2K), problem. More ominously, corporate customers appeared to be focusing much of their attention on solving the Y2K problem. As a result, infrastructure spending from this target market is likely to slow from previous years. However, the Y2K problem represents only a short-term problem rather than a sign of weak demand. As users increasingly demand voice, data text, and video services over the existing telephone network, service providers are deploying high capacity fiber optic cable at a rapid pace.

FUTURE OUTLOOK

The top ten telecommunication equipment companies are positioning themselves to take advantage of sustained market growth through the year 2002. The main challenge facing equipment providers is to appeal to service providers in existing markets and to move beyond regional markets into the global arena. The companies that have achieved the greatest success are those that have positioned themselves locally wherever they offer products, thereby being able to cater to each specific market. This ability to offer targeted solutions that are

configured to specific groups in distinct localities represents a key market success factor.

Regulation, technological advances, consolidation among the service providers, along with the accelerating convergence of telephony, cable television, and computer networking, promise to keep telecom capital spending on a sharp ascent through 2000 and out to 2002. The continued increase in the use of the Internet and wireless communication will see telecommunication equipment companies prospering into the future. Both of these information medias will be an important part of people's lives in the twenty-first century and beyond.

CHART COMPARING TOP 3 EQUIPMENT SUPPLIER COMPANIES PERFORMANCE FOR 1999

	LUCENT	MOTOROLA	QUALCOMM
REVENUE (\$ MILLIONS)	38,303	30,931	3,937
COST OF GOODS SOLD (\$ MILLIONS)	19,688	23,083	2,725
TOTAL NET INCOME (\$ MILLIONS)	4,766	817	200
DILUTED EPS (\$)	1.52	1.31	0.31
SHARE PRICE – HIGH (\$)	84.19	175.25	105.25
SHARE PRICE – LOW (\$)	48.25	66.06	97.00

NORTEL NETWORKS

EXECUTIVE SUMMARY

Nortel Networks is a leading global supplier of data and telephony network solutions and services. The company operates in two segments: carrier and enterprise. Its business consists of the design, development, manufacturing, marketing, sales, financing, installation, servicing and support of data telephony networks for carriers and enterprise customers. Customers include public and private institutions; local, long-distance, personal communications services and cellular mobile communications companies; cable television companies; Internet service providers and utilities. Nortel has a presence in over 150 countries worldwide. During 1999, Nortel's market capitalization increased more than 4 times, reaching a record high in the Q1 2000 of \$166.2 billion. The company's share price is at record levels, increasing 125 percent in the last 6 months. On January 25, 2000 the company announced a two-for-one stock split.

INDUSTRY ANALYSIS

Background

The communications equipment industry provides the electronic products that people use daily to communicate at a distance. The products may operate with or without a wired connection to the public communications network. The electronic signals that they receive and transmit may be either analog or digital. To date, analog (voice) has remained the dominant medium. However, digital (data) communications, transmitted via the Internet and wireless networks, have become increasingly more popular. Some experts are projecting data traffic will grow by over 500% annually, versus a more modest single-digit growth for voice traffic.

Wireline products include circuit switches, fiber optics, high-speed digital access, and other transmission equipment. Wireless communications products consist of two general categories: wireless infrastructure (network equipment) and wireless handsets. Wireless infrastructure systems include switches and base stations used for cellular, personal communications services (PCS), wireless local loop (WLL), and paging services. The major players in this are Alcatel, Ericsson, Lucent, Nortel, Motorola and

Nokia. The wireless handset category consists of companies that produce cellular and PCS telephone handsets and pagers. Three major players dominate this market; LM Ericsson with a 14.6% market share, Motorola who has 19.8% of the market, and Nokia the leader of the industry with a 23% market share.

Dominant Economic Characteristics

The communications equipment industry, especially the optical equipment and data networking segments, are growing at a rapid pace. Both segments are expected to grow by 25% in 2000. Standard and Poor's forecast an overall growth rate of 14% to 15% for the communications industry. Companies within this industry vary on their estimates for the overall value of the market. The estimates range from \$315 to \$380 billion for 2001. By 2003, the size of this industry is expected to more than quadruple, reaching \$1.5 trillion.

Growth of the Communications Equipment Market (Compound Annual Rate 1996 to 2001)

	Growth Rate for 2000
Wireless infrastructure	22%
Wireless handsets	19%
Data networking	25%
Narrowband switching	5%
Optical equipment	25%
Access	15%

** Source: Lucent Technologies, some estimates by S&P*

Industry Trends

Growth of the Internet

Internet traffic is expected to grow 2,000 percent by 2002. With the number of web pages expected to exceed nine billion in three years, at a growth rate of nearly 3,000 percent since 1997. As the Internet continues to grow in popularity, consumers are spending more time exploring the World Wide Web, straining the existing network infrastructure, which was originally designed to handle telephone conversations of short duration. As Internet traffic explodes, phone companies are building new

networks, phasing out the century-old system designed to carry only telephone calls and replacing it with one adept at carrying information of all sorts—voice, video, and computer files—in the ones and zeros of computer language. This has provided communications equipment companies with increased demand for wireless networks and products that can more effectively handle this surge in data related traffic. By 2005, experts predict that data will account for 70% of all wireless traffic, compared to 30% for voice.

Much of the increased usage of the Internet will come from electronic commerce. This market is expected to reach \$1.3 trillion by 2003, by which time business-to-business dealings are expected to account for 87% of all e-commerce transactions. Business-to-business transactions demand a much higher standard for network quality, these e-commerce applications are much more powerful and require greater bandwidth.

Alliances and Acquisitions

In response to the increase in data traffic, communications service providers are putting pressure on equipment vendors to develop products that can handle voice, data and video, with efficiency and reliability. Equipment manufacturers are in a race to developing a high-speed network able to deliver millions of instant Internet sessions, thousands of video channels and vast amounts of e-business transactions on an unprecedented scale. Although many of the largest vendors have very capable research laboratories, the time to market for these new products is extremely crucial. Vendors have been forced to seek new technologies through other means, through alliances and acquisitions. The three big players in this industry, Nortel, Lucent and Cisco have been on an acquisition spree.

Optical Networking Equipment

There is growing demand for optical networking equipment, which transforms electronic signals into light to send it through fiber-optic cables. Nortel currently holds 85% of this market, in 1999 they sold over \$4.5 billion in optical equipment, \$1 billion of which was optical components. This is 4 ½ times the level that Cisco is expected to make this year. In an attempt to catch up with Nortel, Cisco spent \$9.5 billion last year acquiring optical firms.

Another segment of optical technology is optical switching, whose market is currently estimated at about \$540 million and is expected to increase to \$15

billion by 2004. The demand for optical switches is due to exploding bandwidth requirements for certain segments of the network. Carriers are increasingly beginning to see optical technology as the fastest way to transport data traffic. The biggest problem with this technology is the extremely high cost of the optical equipment. However, new competitors and improving production technologies are gradually reducing the cost to a level that is more affordable.

ATM vs. IP

Today, data is predominately transferred using circuit-switched networking technology. This means that when one person is talking on the phone to another person, an entire circuit is being held up. Two new ways to “packetize” data and make the transfer more efficient are Asynchronous Transfer Mode (ATM) and Internet Protocol (IP). ATM, is currently being used by many large corporations and although it is much faster than the circuit switching, it only allows one “packet” to be transferred at a time. IP on the other hand, allows many signals to be transmitted simultaneously. The major drawback with IP, is that packets are being lost along the way. Nortel, while a major supplier of ATM equipment is placing its money and resources on IP. On the other hand, Nortel’s biggest competitor Lucent, is placing their bet on IP.

Global Opportunities

Global expansion into many foreign countries is expected, due to factors such as the rebound in the Asian and Latin American economies. China has created enormous opportunities for this industry. Experts are estimating that one in every five Internet users will be in China by 2003. The number of wireless phone subscribers is expected to increase from about 275 million in 1998 to more than one billion by 2010. Much of this increased demand will come from less developed nations where having a wireless telephone in every house is more than possible; it is highly likely.

COMPETITIVE ANALYSIS

Competitive Forces

This industry is dominated by a few companies. These giant firms enjoy economies of scale, substantial research and development resources, international distribution channels, and established relationships with the major telcos. They owe their dominance to

the very large telcos in the United States and the state-run providers elsewhere that have preferred to buy their equipment from one manufacturer.

One of the most important competitive factors is a company's ability to develop innovative new products. A new product introduction can change the balance of power among competitors. This was seen when Lucent was misplaced by Nortel last year as the optical technology industry leader. Lucent was unable to provide the fastest optical networking technology, OC 192 to the market, and overnight the company lost its market leadership position.

The largest companies in the communications industry offer both wireless and wireline products. These companies tend to be multinational corporations with sales and production facilities located in many nations.

Major Competitors:

❖ Lucent

Lucent is Nortel's number one competitor. They compete against each other in all product categories. Home of the famed Bell Labs, Lucent put \$3 billion into research and development over the past year, or 11% of revenues. Lucent is responsible for many breakthroughs in the basic fiber-optic technology that is critical to making megabit telecom service affordable. Their research unit produces an average of 3.5 new patents every 24 hours. They are also spending a large amount of their research, and acquisition, dollars on ATM technology. In January they paid \$20 billion to acquire Ascend Communications, a leader in ATM technology. Lucent announced revenues of \$34.74 billion for fiscal year ending September 1999. This represents a 24.1% increase from the previous year, versus Nortel's revenue growth of 26.4% for the same time period. Lucent is also trying to divest itself of its non-core businesses, the company recently announced plans to spin off its private branch exchange (PBX) and cabling and LAN businesses to concentrate on high-growth areas like fiber optics and Internet infrastructure.

❖ Cisco

The opportunities within the optical equipment industry have not escaped networking giant, Cisco, which has been aggressively trying to capture a portion of the carriers' enormous capital spending

budgets. In order to compete in this industry, Cisco must win new customers, the big telephone companies. In the past year, John Chambers, Cisco's chairman has personally visited the heads of 90 of the world's 100 biggest telephone companies. His efforts are definitely paying off, on April 19, 2000 Cisco was selected by SBC Communications to be their major supplier, beating out both Nortel and Lucent. Cisco's first big break came back in June of 1999, when Sprint announced that Cisco would be their primary supplier for its new data and telephone network. Till then, Sprint's major supplier had been Nortel.

If Cisco were competing for voice only business, they wouldn't have a chance against Nortel or Lucent. But, in the network of the future, where voice and images will all be converted into data and ride on networks that Cisco has built and that Lucent and Nortel are rushing to master, Cisco could be a serious threat

One problem Cisco does have is a lack of brand awareness. They are now stepping up advertising to increase awareness of the company. They launched their first national TV ad campaign in August 1999, in which they are spending \$40 million in the U.S. and \$20 million overseas over the next 12 months. They want people to think of Cisco as a communications company, not a just a router company.

In the fall of 1999, Cisco completed the acquisition of two optical networking start-ups, Cerent Corp. and Monterey Networks, Inc. for about \$7 billion. The price seemed very high for two companies with limited customer bases, but it underlines the importance of this technology in the communications equipment sector.

COMPANY ANALYSIS

History

Nortel's roots go back to 1880, when Bell Telephone Company of Canada was established in Montreal four years after the invention of the telephone. In 1882 the Northern Electric and Manufacturing Company was founded to produce Bell Canada's mechanical equipment. Northern Electric pooled its resources with electrical wire maker Imperial Wire and Cable to form the Northern Electric Company in 1914.

Northern Electric remained wholly owned by Bell Canada until 1973, when Bell started selling off stock.

In 1976 Northern Electric changed its name to Northern Telecom (Nortel) and became the first company to introduce a digital switch. When AT&T approved the use of the switch in its equipment in 1981, Nortel's growth took off. The company grew to \$13 billion in sales, mostly by making equipment for voice telephone circuits, but now today it earns just fewer than 5% of its revenue from data-handling equipment.

Profile

Nortel Networks is a leading global supplier of networking solutions and services that support data and voice transmission over wireless and wireline technologies. Nortel is focused on building the infrastructure service that enables solutions and applications for the new, high performance Internet. Nortel's business consist of the design, development, assembly, manufacture, marketing, sale, financing, installation, servicing, and support of networking solutions and services for their customers. Nortel's solutions are used by their customers to support the Internet and other public and private voice, data, and video networks.

Nortel competes in all major networking technologies, including switching, routing, open Internet Protocol, optical systems, wireless, and e-business solutions. Their mission is to deliver greater value to customers worldwide through integrated network solutions, no matter how their network evolves.

Nortel is the leader in optical networking equipment, approximately 75 percent of North American Internet traffic flows through Nortel's optical technology. Their optical technology allows voice, video, and data to move at 1.6 trillion bits (terabits) per second over a single optical fiber the diameter of a human hair. Nortel has recently announced they would be expanding their optical manufacturing facilities, and have committed to spending \$660 million during 2000 in order to triple their optical manufacturing capabilities globally. This is being done in response to the shortage of optical supply components the company encountered in the second and third quarters of 1999, which limited its ability to meet customer demand. This additional capacity is expected to be on-line by the first half of 2000, and should boost their output by 30%. With this additional capacity, Nortel should be able to translate the exceedingly strong demand for optical equipment into additional revenues, while expanding their 85%

market share. The company projects more than \$10 billion in optical sales in 2000.

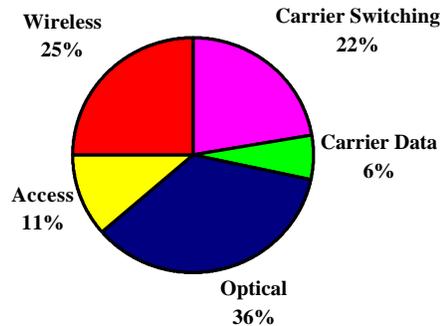
Market Segments

Nortel operates in two market segments: the Service Provider and Carrier segment, and the Enterprise segment.

Service Provider and Carrier Market

In 1999, revenues from this segment were \$16.7 billion, which accounted for 76% of the company's total revenues. This market grew by 26%, or \$3.4 billion in 1999. This considerable increase in sales was driven by an increase in overall global demand for the company's optical networking systems. Tremendous growth was seen in regions such as the United States, the Caribbean, Latin America, Europe, and Asia Pacific.

Nortel's Revenue by Product Line est. 2000



Customers

Traditional communications carriers, independent operating companies, interexchange carriers, emerging service providers, such as competitive local exchange carriers, Internet Service Providers, cable television companies, and application service providers.

Products

Fiber-optic systems, packet switching platforms, high-speed routing, wireless voice and data networking solutions, and software for the management of network infrastructure and service.

Enterprise Market

Revenues of \$5.3 billion in this market accounted for 24% of Nortel's total sales in 1999. This represented a 33% increase over 1998 revenues. This growth was largely driven by an increase in enterprise data networking revenues thanks to Nortel's acquisition of Bay Networks, which resulted in higher sales of LANs and data switching products, primarily made in the U.S. and Europe.

Customers

Large and small businesses, governments, educational institutions, utilities, and other public and private institutions.

Products

Terminal equipment, e'Business solutions, call center products, Internet and data networking solutions, and customer relationship management solutions.

Research and Development Efforts

Nortel invest \$2 billion annually in research and development of the next generation Internet. The company has over 20,000 developers who are awarded an average of three patents every day for advancement in creating the new Internet. The bulk of their research last year focused on getting to the Web tone. Which is an electronic signal that announces the immediate availability of not just telephone service, but Web pages, E-mail, faxes, video, home banking and every other kind of digitized information.

Growth Strategies

Acquisitions, Alliances and Outsourcing

Nortel has established an acquisition and alliance strategy to purchase or align with companies that have new, competitive product offerings and technologies. Nortel is aggressively acquiring companies with expertise in data networking (a challenge to networking leader Cisco), and it is also snapping up optical-equipment makers to stay ahead to rival Lucent. Last week, in its attempt to "trim-down", Nortel signed an agreement with Pricewaterhouse Coopers (PWC). PWC will integrate and manage the day-to-day operations of many corporate services for Nortel, including; payroll, human resources, non-production purchasing, accounts payable, capital

services, employee training, and many other human resource functions

Key Acquisitions

Architel

Nortel's most recent acquisition was the Toronto-based firm Architel for a price of \$395 million. The company develops software that allow service providers to automatically supply and activate services for individual consumers in minutes rather than the weeks or months it takes in many networks. Current customers include; British Telecom, Cable & Wireless, MCI Worldcom and GTE. The service provision market is valued at about \$5 billion annually. The transaction is expected to be neutral to Nortel's EPS in 2000 and will add slightly to their 2001 EPS.

CoreTex

On March 21, 2000, Nortel agreed to purchase CoreTek for a deal valued at \$1.43 billion in stock. The acquisition will greatly enhance Nortel's production of optical components, particularly those that operate at a speed of 10 gigabits per second, which is the speed that Nortel currently operates its online optical Internet. The components manufactured by CoreTek use tiny, movable mirrors to alter the wavelength of light emitted by semiconductor lasers, allowing networks to monitor and re-route traffic.

Xros

Nortel acquired, Xros the world leader in second generation, large scale, fully photonic switching for \$3.25 billion in Nortel common stock. Xros based in Sunnyvale, CA is a private company founded in 1996 and currently has 90 employees. Xros provides silicon based micro-mirror technology that will allow data to be switched through large-scale optical networks entirely in the form of light. Xros technology is designed at today's standards of 10 Gigabits per second (Gbps) as well as future speeds of 40-80 Gbps. The acquisition is expected to be slightly dilutive to earnings in 2000 and slightly accretive to earnings in 2000. Nortel's acquisitions of Xros helps to further its market leader positions in optical networking.

Promatory Communications

Promatory is the developer of platforms for high-speed Internet access. The acquisition of Promatory gives Nortel the lead in providing DSL service. DSL is the primary way that regional Bells and other telephone service providers will offer high-speed Internet access, up to 200 times faster than dial-up modems. Currently there are about 600,000 DSL subscribers across the United States, this number is expected to balloon to more than 10 million within three years. The acquisition of Promatory cost Nortel \$778 million in stock.

RISK FACTORS

Telecommunications Industry Consolidation

The telecommunications industry has experienced tremendous consolidation of industry participants and this trend is expected to continue. Although this consolidation creates opportunities for Nortel, it also creates risk. It may result in delays in purchasing decisions by merged companies and/or Nortel could play a lesser role in the supply communications products to the merged corporations.

Regulation of the Internet

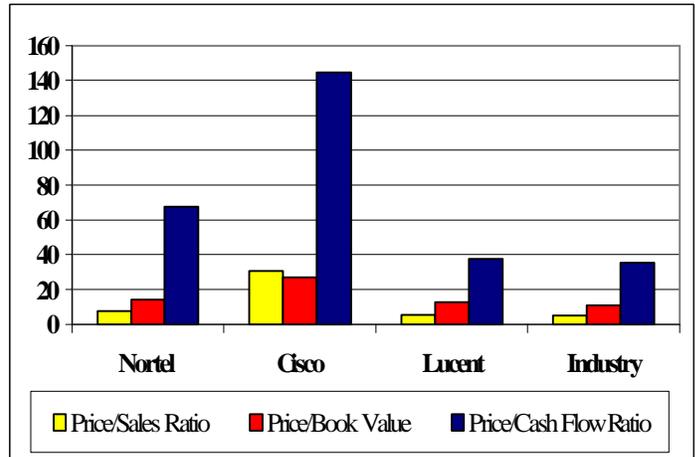
Currently there are few laws that regulate the Internet. If any country where Nortel operates implements regulations, the company could be adversely affected. Such as regulations related too technology for: voice over the Internet, encryption technology, and access changes of Internet service providers. The adoption of such regulations could decrease demand for Nortel’s products.

Acquisitions

There is a risk that many of the companies/technologies that Nortel has been acquiring will not evolved as anticipated. As with any company’s acquisition, it is difficult to integrate new businesses and operations effectively and efficiently into a corporations existing framework, and it is even more difficult to retain the acquired company’s key employees. Nortel’s as even expressed concern over the affect this large number of acquisitions may have on deferring the purchase decisions of their current customers as they evaluate the impact of acquisitions.

QUANTITATIVE ANALYSIS

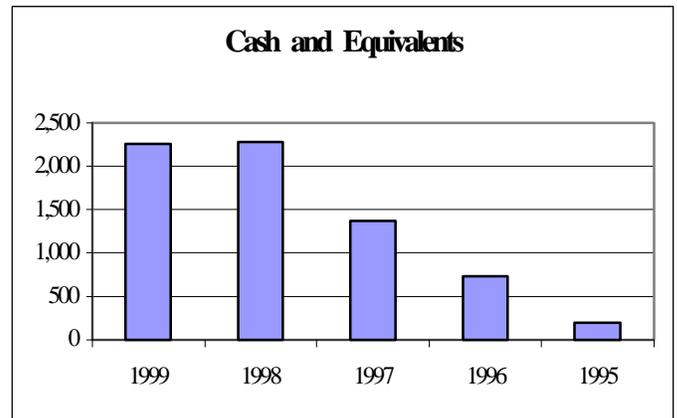
Overview



When Northern Telecom changed its’ name to Nortel, it not only changed names it was a major shift in the way they do business. Presently, they are transitioning the focus of their enterprise to creating products for the Internet and the potential for growth that may deliver. In doing so, they have sacrificed short-term profits for the longer term potential. Wall Street has looked upon this view very favorably, as the chart of the growth in their stock price in the last year shows (page 1). Investors seems to be reacting to the direction Nortel is taking and feels the short-term losses will be outweighed by the potential gains. The market may also have over reacted, but a comparison of key price values is only slightly higher than the industry and much lower than Cisco.

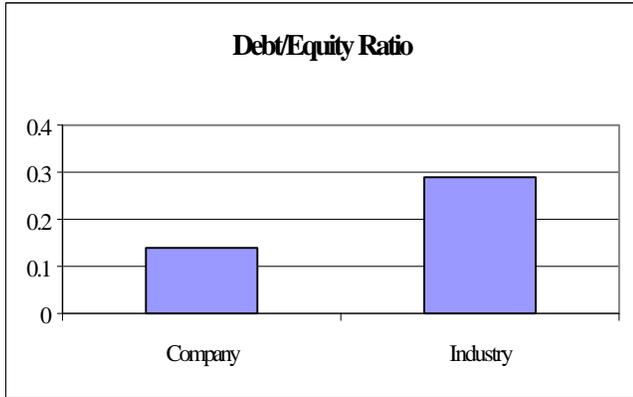
Balance Sheet Analysis

Cash



Companies in this environment need to manage the level of cash and marketable securities. All of the larger players with strong cash flows prefer to have cash on hand in order to buy back shares or make acquisitions without diluting earnings per share. Nortel, even with recent acquisitions, has built its war chest by 1100% in 5 years to position itself to react when needed.

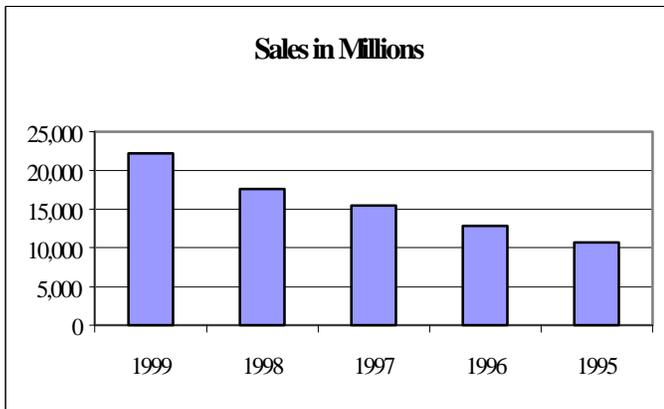
Debt to Equity



Nortel may have lower earnings; however even with the expense of the transformation process and the number of acquisitions Nortel has chosen to “bite the bullet” with reduced earnings now in order to keep debt down for the future.

Income Statement Analysis

Sales

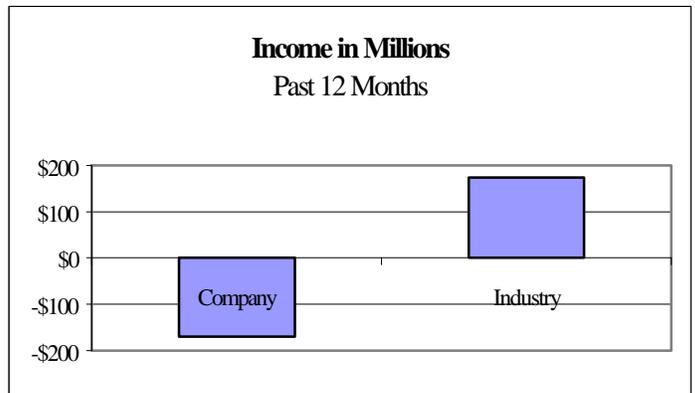


Year-to-year changes reveal long-term trends, while sequential fluctuations give clues about sales momentum and short-term trends. Nortel’s growth shows a healthy trend and they are outpacing the industry in the past 12 months by a substantial margin. While their sales growth is helping to obtain market share, they are well behind the industry in income that

grew by 63.8%. The transition costs and the cost of acquisitions are eating into their current income, but the combination of larger market share and newly acquired technologies should have substantial earning potential.

Profit Margin Comparisons

Profit Margins %	Nortel	Industry
Gross Margin	46.0	45.4
Pre-Tax Margin	2.4	9.8
Net Profit Margin	-0.8	7.5
5Yr Gross Margin	45.1	39.2
5Yr Pre Tax Margin	4.5	4.1
5Yr Net Profit Margin	1.5	2.5



Nortel’s gross margins are healthy and right in line with the industry. The negative profit margin is the most troubling aspect of Nortel’s prospects. The main reason for these losses seems to come from a large growth in Depreciation & Amortization. In 1997 they had \$546 million in D&A, but then in 1998 it quadrupled to \$2,259 million. In 1999 the figure grew to \$2,651 million. This shows the where the cost of the transition is effecting the bottom line.

Analyst’s Forecast

The analyst’s forecasts reflect the uncertainty and the range of potential for Nortel’s short-term future. For the fiscal year 2000 analyst’s opinions have a 20% range, while in 2001 the range grows to a 30% uncertainty. If they do a good job of assimilating their recent acquisitions they should meet the 26.12% growth forecast, unless a major unforeseen change in the market occurs.

Earnings Estimates	FY (12/00)	FY (12/01)
Average Estimate	\$1.31	\$1.65
Number of Analysts	29	23
High Estimate	\$1.55	\$2.05
Low Estimate	\$1.25	\$1.45
Year Ago EPS	\$1.28	\$1.31
Growth Rate	2.24%	26.12%

Forecasted Growth Rates

The analysts may be giving Nortel a chance to continue to exceed their expectations by predicting that they will grow more slowly than the rest of the industry and that they will not be able to keep up the pace they have had the past five years.

Earnings Growth Rates	Last 5 yrs.	FY 2000	FY 2001	Next 5 yrs.
Company	34.50%	2.90%	25.90%	20.90%
Industry	12.70%	21.90%	33.70%	30.90%
S&P 500	NA	NA	8.70%	15.20%

Ratio Analysis

By comparing Nortel's financial ratios to the industry and to the S&P 500's in the table below, one can better understand how well the company is actually performing. First, Nortel has a much lower debt/equity ratio (.14 to .29) and leverage ratios (1.9 to 2.5), which means it is carrying much less debt than the rest of the industry is, which long term is a positive aspect and saves them in current interest payments.

RECOMMENDATION

Due to their leadership position in the exceedingly strong optical networking market. We believe that Nortel's competitive position and valuation relative to its peer group support our buy recommendation.