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**FINANCIAL DATA ABOUT PRIVATE COMPANIES:
AN EVALUATION OF THREE SOURCES**

A Thesis

Presented to

The Graduate Studies Office

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Richard Power Wildanger

August 1997

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ABSTRACT
FINANCIAL DATA ABOUT PRIVATE COMPANIES:
AN EVALUATION OF THREE SOURCES

by Richard Power Wildanger

This thesis examines the quality of financial data that is available about privately-held companies. Privately-held companies do not have to reveal their financial data, but several published sources claim to contain this data. This thesis compares the financial data disclosed by nine high-technology companies which recently issued stock for the first time with the data that was contained in the sources prior to this disclosure. The three sources are Dun and Bradstreet Information Services, CorpTech Information Services, and Robert Morris Associates' Annual Statement Studies. The analysis shows that Dun and Bradstreet's reports are the most accurate, but only if they contain a financial statement that had been submitted by the company. CorpTech is often incorrect. And the estimated figures contained in the Annual Statement Studies do not apply to the financial dynamics of privately-held companies going public.

**This thesis is dedicated to Veronica
for her encouragement and example.**

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CHAPTER 1: INTRODUCTION

The vast majority of businesses in the United States are privately held, meaning that they do not issue stock and thus are not accountable to stockholders. Therefore, they do not have to reveal their financial results in the form of annual reports and quarterly statements. They are allowed to retain this information as confidential.

Businesses in the United States are in competition with one another for customers, distributors, better technologies, more efficient operations, and in various other ways for survival. Prudent companies should be aware of what their competitors are doing to win customers, improve processes, cut costs, or implement other actions that will reduce costs, improve technology, expand market share, or otherwise improve profitability. Monitoring these activities and determining their significance is called “business intelligence” or “competitor intelligence.” Gathering such information can be done ethically and legally and when used properly can give a company a competitive advantage.

One element of business intelligence involves determining a competitor’s financial condition. This can include estimating their revenues, cost of sales, research and development expenditures, sales force compensation, margins and profitability, various performance ratios, and any other financial metric the company thinks is of tactical or strategic importance. Some of the elements listed above must be revealed by public companies to satisfy shareholders but many of these elements can be retained as secrets by public companies, and private companies do not have to reveal any of them. Thus, the researcher is challenged when trying to obtain much of this data.

Since privately-held companies do not have to reveal this data, the researcher usually must review and analyze different sources to piece together the data. It is similar to constructing a picture puzzle with pieces that are ill-fitting and a final picture that is unknown. Thus, the goal of constructing a reasonably close facsimile of the financial statement will use elements that must be discerned from masses of surrounding data, which are possibly conflicting, and may not, when finally arranged, be close to the actual company financials. Final confirmation must await access to the company's actual financial statements which are unlikely to be available.

There are many diverse sources from which pieces of the puzzle might be found. Trade and general periodicals might have a quotation from a company official, directories and guidebooks might briefly mention how many employees or annual sales the company has, and market research reports might contain an analyst's estimate or commentary. But all of these sources are not systematic attempts to gather financial data and the data they gather may not be integral to their mission. Therefore, the chance of finding accurate and focused data when using them is low.

Some sources claim to give reasonably accurate insights into private companies' financials. They make a conscientious attempt to gather accurate information about company sales and number of employees or to enable one to create reasonable estimates. Three such sources are CorpTech, which publishes a comprehensive and detailed directory of the nation's high-tech companies; Dun and Bradstreet Information Services, which tries to gather accurate financial data in order to estimate a company's credit worthiness; and

Robert Morris Associates, which gathers together numerous financial statements from companies in a similar line of business to determine the typical financial statement.

However, a source's ultimate accuracy or range of error cannot be determined until a company's actual financial details are compared to that source's estimates. This can be tested when a company "goes public." When a company "goes public," they are seeking to sell stock to the purchasing public. This is officially called an Initial Public Offering. In accordance with Securities and Exchange Commission regulations, the company must publish its financial data and detailed information about operations in a document called a prospectus. One can then compare the company's actual finances to what had been estimated in the sources.

This thesis has taken a random sample of nine high-technology companies that attempted to go public in late 1995 and early 1996 and compares the data from their prospectus' to the data found in each source. It examines each source's strengths, weaknesses, and accuracy. The thesis also explains the process of business intelligence and issuing an initial public offering and the strengths and weaknesses of the various other sources of data.

The Nine Test Companies

Nine high-technology companies were selected at random in late 1995 and early 1996 from comprehensive lists of the nation's companies planning to go public. The nine test companies are located throughout the nation and represent a diverse range of high-technology manufacturing and service activities.

The nine companies are:

1. Advanta Systems (Rockville, Maryland): "Advanta develops, markets, and supports managed health care information systems for payers and providers who offer managed care products and services."¹

2. Catalink Direct/Elcom International (Norwood, Massachusetts): "Elcom International develops and licenses proprietary software systems which enable the conduct of interactive electronic commerce and, through a subsidiary, is currently using this technology to market personal computer products electronically."²

3. CyberCash (Reston, Virginia): "CyberCash is a leading developer of software and service solutions for secure, cost-effective, convenient, and rapid payments over the Internet."³

4. Cylink (Sunnyvale, California): "Cylink Corporation is a leading supplier of network information security products that enable the secure transmission of data over private local area networks and wide area networks and public packet switched networks, such as the Internet."⁴

5. IC Works (San Jose, California): "IC Works designs, develops, manufactures and markets mixed-signal clock products for the personal computer, workstation and communications markets and provides foundry services to selected mixed-signal semiconductor companies."⁵

6. SQA (Woburn, Massachusetts): "SQA develops and markets integrated software products for the automated testing and quality management of Windows-based client/server applications."⁶

7. Techforce (Clearwater, Florida): "Techforce provides integrated network support solutions to corporate clients and specialized support to telecommunications carriers, integrators and manufacturers of PCs, hand-held devices, peripherals and networking equipment on an outsourced basis."⁷

8. Ultradata (Pleasanton, California): "Ultradata is a leading supplier of on-line information processing systems for the credit union market."⁸

9. Verateq (Santa Ana, California): "Verateq is a leading supplier of advanced wet processing equipment providing high performance process solutions for the wafer cleaning, etching and stripping requirements of the semiconductor industry."⁹

A Note About Style

This thesis follows style guidelines as set forth by Turabian's A Manual for Writers 1987. However, Turabian does not contain footnote and bibliographic formats for Internet and World Wide Web data. Thus, this thesis will follow the uniform footnote guidelines as set forth in the American Psychological Association's APA Editorial Style for on-line, CD-ROM, Internet and World Wide Web data. This source does not specify bibliographic citation formats. However, these have been devised to reflect the theory of organization as given in Turabian.

¹Alex. Brown & Sons Incorporated, Advanta Systems, Inc. Prospectus (Baltimore, Maryland: Alex. Brown & Sons Incorporated, 7 November 1995), 3.

²Robertson, Stephens and Company, Elcom International Prospectus (San Francisco, California: Robertson, Stephens and Company, 9 November 1995), 4.

³Hambrecht & Quist, CyberCash Incorporated Prospectus (New York, New York: Hambrecht & Quist, 24 January 1996), 3.

⁴Piper Jaffray Inc., Cylink Corporation Prospectus (Minneapolis, Minnesota: Piper Jaffray Inc., 24 January 1996), 3.

⁵Prudential Securities Incorporated, IC Works, Inc. Prospectus (New York, New York: Prudential Securities Incorporated, 16 November 1995), 3.

⁶Robertson, Stephens and Company, SQA, Inc. Prospectus (San Francisco, California: Robertson, Stephens and Company, 25 October 1995), 4.

⁷Alex. Brown & Sons Incorporated, Techforce Corporation Prospectus (Baltimore, Maryland: Alex. Brown & Sons Incorporated, 22 November 1995), 3.

⁸Salomon Brothers Inc, Ultradata Corporation Prospectus (New York, New York: Salomon Brothers Inc, 26 January 1996), 3.

⁹Cowen & Company, Verteq, Inc. Prospectus (New York, New York: Cowen & Company, 20 November 1995), 3.

CHAPTER 2: BUSINESS INTELLIGENCE

Business in the 1990s is challenging and the globalization of markets have created intense competition for customers.¹ Commanding a market lead by having a good product or service will last only until competitors offer improved products and services. They can do this by studying the weaknesses and vulnerabilities of their peers and improving upon them: "Competition is fierce. Markets are no longer booming. Success depends on finding ways to make gains at the expense of competitors. Survival depends on anticipating the actions of rivals to effectively defend your market share."²

Business intelligence, also called competitor analysis, is the act of gathering information about appropriate competitors, piecing it together to make conclusions about their strengths, weaknesses, strategy and tactics, and determining ways to take advantage of the opportunities presented. Companies do this for a variety of reasons, including defending their current customer base, improving their own products and services to attract new customers, enabling the company to anticipate new technologies, products and services, and to pursue opportunities that emerge from the competitor's missteps or weaknesses.³ One professor's research indicates that imitation can be a very rewarding route to market leadership.⁴

The types of information a company would like to know about its competitors depends upon many factors: the industry it is in, the deciding factors of competition, the nature of how customers are won or lost, and the company's own desires for the future. For

example, to know the monthly water bill of a competitor might be unimportant if that competitor is a retail bookstore but of major importance if that competitor is a brewery.

Thus, a company beginning a competitive analysis program must determine the key competitors to study, the types of information most relevant to its competitive situation, and how information can be analyzed to reveal insights: "Research always involves gathering many bits of information--some of them seemingly insignificant. As you build up data and assemble a picture, new bits of data will become increasingly revealing."⁵

The Foundation Books

This chapter is based upon three books that claim to show how one can research competitors. The first is How To Check Out Your Competition by John M. Kelly (New York, New York: John Wiley & Sons, 1987). It describes how to set up a comprehensive competitor analysis program. This book appears intended for small and medium sized companies because the preface cites that over 60,000 businesses went bankrupt in the last few years; it claims to describe a "turnkey" system that will enable companies with no formal competitor analysis program to create a comprehensive system; and the various data collection worksheets are oriented towards gathering, analyzing, and acting upon day-to-day tactical information rather than discerning strategic or long-term trends.⁶

This thesis also uses The New Competitor Intelligence: The Complete Resource for Finding, Analyzing, and Using Information About Your Competitors by Leonard M. Fuld (New York, New York: John Wiley and Sons, Inc., 1995). It has a helpful outline that organizes the various topics that interest competitive analysts and then suggests sources

for answers. The topics are divided between those that deal with quantitative questions about costs and financial data and qualitative questions about sales, marketing, strategy, and technology.

A third book is Business Information: How To Find It, How to Use It by Michael R. Lavin (Phoenix, Arizona: The Oryx Press, 1992). It concisely describes the challenge of finding financial information about private companies: "Business publications offer an avalanche of financial information on publicly traded firms, but locating data on private (or closely held) companies is much more challenging. . . . Obtaining background information on private companies, subsidiaries, and divisions is possible, but comes at a greater cost of time, effort, and money."⁷

Information Typology

In the realm of business intelligence, information is categorized as either quantitative or qualitative. Quantitative information is numeric: "of, relating to, or expressible in terms of quantity."⁸ For businesses, this includes revenues, profits, expenses, margins, inventory levels, wages, interest rates, and so on. Qualitative information involves descriptions, themes, and explanations.⁹ This includes marketing strategies and tactics, product development plans, advertising campaigns, and so on. In the context of competitive intelligence these data types complement each other and must be examined together to create the rich context from which insights can be derived. William Davidow, a prominent venture capitalist and author, advises that many valuable company assets are not recognized at all by current accounting practices: "Intangible assets such as the skills of

the workers, intellectual property, business infrastructure, databases, and relationships with customers and suppliers are not measurable with our current accounting systems. . . . People are realizing that the success of an enterprise is determined more by its ability to use its intangible assets than by its ability to amass and control physical ones."¹⁰

Other ways in which data is categorized is as either primary or secondary: "A primary source is an original source of information. A secondary source is a source that has recorded or interpreted the information found in the primary source."¹¹ Thus, any single piece of information can be classified as being either quantitative or qualitative and primary or secondary. For example: a marketing director might read about a competitor's new product plans in a trade journal (a secondary source) that also includes a detailed explanation of the production costs (quantitative data). The marketing director might then get additional information from the director of engineering who spoke with the competitor's engineer (a primary source) at a conference and learned that the product will be sold at a loss due to manufacturing difficulties (qualitative information). In this example the diverse pieces of information complement each other and should be brought together to create a fuller understanding of the situation.

The example also illustrates the importance of personal contacts to get better, more detailed information. Mr. Fuld, a prominent business intelligence consultant and author, warns that most information is not printed or published: "Based on the thousands of research projects my firm has completed, I would argue that less than one percent of all business information will ever find its way to print."¹² But he also advises that published, secondary information can guide one to the people who know the information.¹³

Mr. Fuld asserts that gathering competitor intelligence has four steps:

1. Collecting data, which are lone and seemingly unrelated pieces of knowledge
2. Organizing the data into information
3. Analyzing this and other pieces of information to determine possible explanations or reasons
4. Creating intelligence, which are conclusions upon which profitable or productive action can be taken.¹⁴

Mr. Fuld concludes that "Intelligence--not information--helps a manager to respond with the right market tactic or long-term decision."¹⁵

A competent competitive analyst will attempt to gather and analyze all types of information because they complement each other. Mr. Kelly warns: "Don't focus exclusively on quantity and ignore qualitative factors. The most useful competitor data is often "soft [that is] rumors that turn out to be true, rough estimates that indicate major developments, trends and strategies."¹⁶ This is wise advice, for while the competitor's quarterly revenue might be good to know, the more immediate threat might be posed by a new marketing campaign or expansion in production capacity. This is a hypothetical example, of course, and knowing the revenue can reveal strengths and weaknesses in the competitor's operations, but the non-quantitative information is very important to know too; it contains value beyond "the numbers."

Ethics and Business Intelligence

Many business intelligence activities seem analogous to military intelligence or political espionage. However, all of the authors warn against illegal or unethical acts and conclude that they are unnecessary. Mr. Fuld advises that "Unearthing trade secrets is not what companies need in order to compete. They need tactical and strategic intelligence, which they can develop from the information sources all around them."¹⁷ Elsewhere he asserts that 95% of the needed information can come from public sources.¹⁸ Mr. Kelly similarly asserts that a lot of data is already available from legitimate sources.¹⁹ The Code of Ethics of the Society for Competitive Intelligence Professionals includes: "To comply with all applicable laws; to accurately disclose all relevant information, including the identity of the professional and his or her organization, prior to all interviews; to fully respect all requests for confidentiality of information."²⁰ The theme is honest self-identification to all parties involved.

Thesis Focus and Necessary Limitations

This thesis by necessity must focus on quantitative information that has been recorded or documented. The quantitative financial information that a prospectus reveals is typically protected as confidential before the prospectus is published. Since this thesis compares the actuals revealed in the prospectus to the financial data available before, it must be limited to sources that accurately record the knowledge of the moment and are relatively accessible to the public through directories, databases, and publications. Verbal

sources, on the other hand, are temporal, personal, and subject to change as time passes. The vagaries of time and memory preclude interviewing industry analysts or "insiders" about their past estimates of a private company's finances. This does not disregard the necessity to interview these contacts in actual practice, but accommodates the limitations of this type of study. "While most information can be obtained from published sources, field interviews are an essential part of all competitor research. Field sources have the advantage of being timely and pertinent. Their drawback is that the information they give can be subjective and hard to quantify."²¹ Another analyst asserts that whereas most (80%) of the information used is public, it is only 20% important.²² However, this thesis will not include information obtained from personal recollections.

In the sections that follow it is important to remember one book's advice that "The goal of your competitor analysis program is to gain insights into how competitors act and react. An accumulation of data is worthless if it does not supply you with this meaning. The main value of competitor information lies in the action that your company takes."²³

Types of Information Sought

Given the constraints described above this thesis will focus on the secondary, quantitative financial data found in financial statements. One such financial statement, an operating statement, is a summary of the company's financial results over a specified time period such as a quarter or fiscal year. It has three basic sections: the money received from the sale of goods or services, the money spent to produce and sell these goods or services, and the difference between the two, which can either be a profit or loss.²⁴

Typical data that competitors track includes the company's years in business, number of employees, dollar sales, unit sales, market share, financial strength, profitability, outside advisors, key employees, target markets, pricing, advertising themes, promotions and public relations efforts, significant changes, and how the company competes.²⁵ Note how this list combines quantitative and qualitative data that can be obtained from primary and secondary sources. Also note how quantitative data can be used to estimate or determine many of the qualitative items.

Companies that sell securities must include financial statements in their annual and quarterly reports. Private companies do not have to reveal these to the general public; rather, they often retain this data as confidential. Mr. Fuld warns that "Financial statements are the bugaboos of intelligence gathering. They are difficult to derive. Unless a competitor literally hands a statement over to you, you can never be totally sure the financials you have assembled are correct."²⁶ However, private companies that want to sell securities to raise capital must publish the basic data in their prospectus.

Each of the foundation books describe various sources and approaches to getting or estimating this data. The remainder of this thesis will examine the various sources these books describe and apply them to nine companies that have attempted to go public in late 1995 and early 1996. This exercise will reveal the strengths and weaknesses of each source and lead to conclusions about their overall usefulness and applicability.

¹Shari Caudron, "I Spy, You Spy," Industry Week 243 (3 October 1994): 35-40. Dialog, ABI/INFORM, 95-71877.

² John M. Kelly, How to Check Out Your Competition: A Complete Plan for Investigating Your Market (New York, New York: John Wiley & Sons, 1987), 2.

³ Kelly, 4-5.

⁴ Sharon Nalton, "Beating Back the Competition," Nations Business 82 (September 1994): 18-20. This article describes research by Professor Steven P. Schnaars as it appears in Managing Imitation Strategies: How Later Entrants Seize Markets From Pioneers. (The Free Press)

⁵ Kelly, 64-65.

⁶ Ibid., V.

⁷ Michael R. Lavin, Business Information: How to Find It, How to Use It (Phoenix, Arizona: The Oryx Press, 1992), 158.

⁸ Merriam Websters Collegiate Dictionary, 10th ed., s.v. "Quantitative."

⁹ E. Jerome McCarthy and William D. Perreault, Jr., Basic Marketing (Homewood, Illinois: Irwin, 1990), 134.

¹⁰ William Davidow, "Accounting Systems are Completely Wrong," The Red Herring (January 1995): 91.

¹¹ Leonard M. Fuld, The New Competitor Intelligence: The Complete Resource for Finding, Analyzing, and Using Information About Your Competitors (New York, New York: John Wiley & Sons, 1995), 35.

¹² Ibid., 37-38.

¹³ Ibid., 38.

¹⁴ Ibid., 24.

¹⁵ Ibid., 23.

¹⁶ Kelly, 58.

¹⁷ Fuld, 30.

¹⁸ James D. Thayer and Terry Brainerd Chadwick, "Using Databases for Competitive Intelligence and Cost-Effective Market Research," Journal of European Business 4 (September/October 1992): 17-22. Dialog, ABI/INFORM, 92-55981.

¹⁹ Kelly, 68.

²⁰ Society of Competitive Intelligence Professionals, "Code of Ethics," Competitive Intelligence Review 6 (Winter 1995): no page. See also Norman O. Schultz, Allison B. Collins, and Michael McCulloch, "The Ethics of Business Intelligence," Journal of Business Ethics 13 (April 1994): 305-314. Dialog, ABI/INFORM, 95-05970.

²¹ Kelly, 67.

²² Mr. DeGenaro of The Futures Group, as quoted in Caudron, 35-40.

²³ Kelly, 146.

²⁴ McCarthy and Perreault, 470.

²⁵ Laurie B. Zuckerman, On Your Own: A Woman's Guide To Building a Business as cited in Nalton, 18-20.

²⁶ Fuld, 293.

CHAPTER 3: THE INITIAL PUBLIC OFFERING

The Initial Public Offering (IPO) is the process by which a privately-held company sells securities (usually common stock) to the public for the first time. Some privately-held companies issue stock only to a controlled circle of recipients and it is not made available to outside purchasers. The IPO process is strictly regulated by the Securities and Exchange Commission (SEC). The SEC is a Federal agency that implements the Securities Act of 1933, which was designed to prevent the fraudulent and misleading claims in investment instruments that precipitated in the 1929 Stock Market Crash. "The purpose of the federal securities laws is to provide disclosure of financial material and other information on companies seeking to raise capital through the public offering of their securities. . . . This enables investors to evaluate the securities of these companies on an informed and realistic basis."¹ The SEC does not evaluate the quality of securities offered to the public; rather, it monitors the quality and quantity of information that the public is given upon which to make its own investment decisions. "When your registration statement is filed with the SEC, the Division of Corporation Finance rigorously reviews it for adequacy of disclosure and compliance with relevant legislation and regulations."²

The process of making an initial public offering is complicated and demands a great deal of time and commitment from the company's senior management, legal counsel, and underwriting firm. As a result, the senior management of a private company should not make a hasty decision about when to "go public." One prominent advisor to companies seeking an IPO advises: "While capturing a large block of equity capital is enticing, the

process of raising funds by offering common stock to the public for the first time is neither cheap nor easy."³ He advises that the process can take up to two years and that the cost is between ten and fifteen percent of the funds raised.

The primary reason for going public is to obtain working capital to finance various company activities. Typical activities include increasing production, acquiring other businesses, repaying debt, financing research and development projects, or modernizing production facilities.

The Advantages of an Initial Public Offering

The advantages of going public include: having more and better opportunities to obtain funding in the future due to a better net worth and debt-to-equity ratio; being able to negotiate better financing terms if the stock performs well; improving opportunities for mergers or acquisitions which in turn can build up a company's product, sales, and marketing resources; stronger capabilities to take advantages of merger and acquisition opportunities by having the funds available; generating an improved public image due to media attention and exposure; and attracting and retaining talented personnel due to creative stock compensation plans.⁴

The Disadvantages of an Initial Public Offering

The disadvantages of going public include the "loss of control" of the firm by its owners and management who may no longer have full control of the company's operations or destiny: "Depending on the proportion of shares sold to the public, you may be at risk

of losing control of your company now or in the future. Of course, retaining at least 51 percent of the shares will ensure control for now, but subsequent offerings and acquisitions may dilute your control. A wide distribution of your shares will ensure that there is no concentration of voting power in a few hands, reducing the immediate threat to your control. Nevertheless, you may still be susceptible to an unfriendly takeover."⁵ Also, while investors now share in the company's risk they also share in its profits, thus diluting the successful company's recompense to its management and personnel.

Another disadvantage of going public is "disclosure" wherein the company must reveal various information about its operations. Much of this information is of the type that the company would ordinarily protect as confidential: "Your prospectus and ongoing periodic reporting will disclose much information about your company--its sales, profit margins, and competitive position. . . . Some of this information will be eagerly consumed by competitors, employees, labor unions, customers, suppliers, and others."⁶ Other items the company must disclose include financial statements, number of employees, lists of major customers, and debt. One guidebook describes a hypothetical scenario: "When the owners began to review the SEC filings of their public peers, they were shocked to learn that they would have. . . to disclose the compensation of officers and directors as a group, as well as the names of its largest customers because they contributed a majority of revenues. The owners protested that these were competitive secrets and that, if customers knew how profitable the company was, they would squeeze it for price concessions. . . . Company counsel noted that this is exactly the point--investors have a right to know how Never Ready [a fictitious business] conducts its business."⁷

The Process of an Initial Public Offering

Typically, companies that go public must meet certain tangible and intangible criteria. But there is no set equation for calculating the exact time or conditions for a specific company to go public; only generalizations and “rules of thumb” exist.⁸ Tangible criteria include a certain minimum annual revenue and a history of profitability, but even these are subject to many factors: “Generally, investors most readily accept companies that are growing and have revenue of \$20 million or more and net earnings of at least \$1 million. . . . start-up companies with minimal revenue. . . normally have other appeals--such as an innovative new product with a potentially significant market and a proven team--to compensate for the lack of a financial track record.”⁹

Intangible criteria include the company's positive reputation or image, a competent management team, and potential securities buyers who are receptive. This latter factor is a function of the domestic economy and the current or expected performance of the company's industry: “The window of opportunity for new companies to go public generally opens every 3 years, for 9-12 months. An initial public offering (IPO) window refers to those weeks when institutional investors, who purchase the majority of IPO shares, are flush with cash and in a mood to buy IPO shares. The offerings that will fly best are usually profitable businesses that are willing to price their offering at a reasonable P/E ratio [Price/Earnings] and leave their investors with some upside potential.”¹⁰

The IPO window is influenced by other factors such as unwarranted enthusiasm amongst potential buyers and industry analysts. Consider the situation in early 1994 when “multimedia” was a buzzword in the computer industry: “Small and obscure high-tech

companies are finding it easier to land initial public offerings, given the increasing appetite for high-tech stocks. . . . What is more, high-tech firms having a cutting edge image, such as those involved in digital media, can go public in the poorest markets."¹¹ Evidence of the fickle nature of intangible measurements is provided by 3DO of Redwood City which went public in 1993. In a summary of the 1993 IPO arena, one trade publication concluded: "Biggest disappointment: 3DO, which soared as high as \$48.25 (it went out at \$15) on a plume of media-assisted hype only to drop back into the pack as investors realized the company was a lot longer on promise than performance."¹² Another publication observed wryly: "A steady stream of initial stock offerings by often profitless technology companies has turned into a torrent, as companies take advantage of investors' infatuation with all things digital."¹³

All of this means that not all companies that desire to "go public" can do so and that most small companies (the definition of which will vary) will never go public. Thus, a certain segment of firms will always be privately-held so that competitors will not easily get the types of information they would like.

Once the management of a company decides to go public, it must write a business plan, retain an underwriter who will promote the offering, work with auditors to create accurate financial data, and work with attorneys to ensure that the process is conducted properly. Company management then registers with the SEC by submitting a prospectus and other required information in the precise format and sequence specified by the SEC. The SEC may then demand certain revisions to better comply with disclosure requirements. The SEC will formally approve the offering after these changes are implemented satisfactorily.

After that, the securities are offered on the market at a pre-determined date and time typically amidst much publicity. This process usually takes three to four months but can be as long as two years.¹⁴

Disclosure

The SEC specifies the quantity and quality of information that must be revealed, or disclosed, to the public. Different types of IPOs must follow different rules and reveal different types and amounts of information. Most IPOs are required to fulfill the most extensive disclosure requirements: "The prospectus for your initial public offering must generally include audited financial statements for the past three years, although that requirement is reduced in certain circumstances. . . . It may also require selected financial information for the last five years. These disclosure requirements apply only for the years your company has been in existence."¹⁵

In July 1992, the SEC issued the Small Business Initiatives which were designed to enable small and medium-sized businesses to raise capital with less expense and effort. A company can save up to 40% of the process costs because less-rigorous disclosures require only three years of historic financial data (instead of the usual five) and unaudited statements are allowed.¹⁶ In the first year after the Small Business Initiatives were adopted, about two-thirds of the firms filing under this initiative provided audited financial statements.¹⁷ The average revenue of a sample of firms who filed audited statements in one three-month period was \$7.69 million; the average revenue for firms which provided

unaudited statements was \$1.28 million.¹⁸ The large size difference suggests that even very small companies can now consider going public.

The Prospectus

The SEC carefully specifies the contents and spirit of what must be disclosed. The underlying goal is to portray the company honestly. Companies are allowed to offer more information than the minimum specified if such disclosure will present the company more accurately.¹⁹ The following sections are of interest to this thesis:

Selected financial data: The company must disclose summarized financial information about the following: net sales or operating revenues; income or loss from continuing operations; total assets; long-term obligations; and various data about existing securities. Companies are allowed to disclose more detail if "they believe [additional details] would enhance an understanding of and would highlight other trends in their financial condition and results of operations."²⁰ Furthermore, the company is allowed to explain if the numbers are unintentionally misleading: "Discussion of, or reference to, any material uncertainties should also be included where such matters might cause the data reflected herein not to be indicative of the registrant's future financial condition or results of operations."²¹

Regional revenues: The company must disclose the revenue, operating profit or loss, and identifiable assets by geographic area for the same period of years as the selected financial data or years of significant operation in that geographic area.²²

Smaller business segments: The company must identify any segment of similar products or services that accounts for more than 10% of revenues.²³ Significant segments are determined by analyzing revenues, profitability, and the cash needs of the segments: "To the extent any segment contributes in a materially disproportionate way to these items, or where discussion on a consolidated basis would present an incomplete and misleading picture of the enterprise, segment discussion should be included."²⁴

Dependence on single customers: The company must disclose if any segment depends upon one or several customers for 10% or more of business or if the loss of one or more would negatively impact that segment. Furthermore, it must disclose the name of any customer whose purchases in total account for 10% or more of the registrant's revenues.²⁵

Order backlog: The company must disclose the dollar amount of confirmed backorders.²⁶

Employees: The company must disclose the number of employees.²⁷

Seasonal aspects: Various industries have some times of the year that are traditionally stronger than others. For example, Christmas is typically the strongest for retailers. The company must discuss any seasonal aspects of its business which impacts its operations or finances.²⁸

Disagreements with accountants: The company must disclose if there have been any disagreements with its accountant over matters of accounting principles or practices, financial statements, or auditing practices which were not resolved to the accountant's satisfaction.²⁹ Presumably this is to make it harder for the firm to hire unprincipled accountants who will help promote misleading or fraudulent information.

Management's discussion and analysis: This text section does not merely describe the numbers. Rather, it puts them in context by explaining how they reflect the company's operations. This section "Addresses the 'why' for the financial condition and results of operations presented in the financial statements. . . . The purpose of this section is to provide investors with information to assess your company by evaluating cash flows generated from both operations and outside sources of capital."³⁰

Risk factors: The management must clearly explain why the offering is risky or speculative, regardless of the reasons.³¹ This section can give a competitive analyst insight into what the company sees as its own weaknesses and vulnerabilities. The analyst can determine ways to take advantage of these or can identify additional weaknesses and vulnerabilities. Furthermore, this section will provide context for the quantitative data from which other financial figures or ratios can be determined.

Use of proceeds: The company must disclose how the moneys raised are to be used. Typical uses include equipment purchases or facilities construction (although the specific details do not have to be disclosed), paying off debt, or acquiring another business.³²

Restraints on Publicity

The SEC strictly regulates the amount and type of data a company can release in its efforts to publicize its offering. Typically, this means that the company can only publish the preliminary prospectus as well as brief advertisements about the offering. They cannot issue other written literature such as press releases or flashy advertisements. The company can not issue forecasts of revenues or income nor can they release this inside information

surreptitiously to get it published and promoted: "The SEC's prohibition on 'writings' encompasses the distribution of any written commentary by research analysts, as well as cooperation by the company or its underwriters in the preparation of news stories on pending offerings. Not surprisingly, it extends to faxes of "internal use only" memos; more surprisingly, it also extends as far as hard copies of slides in presentations, and even to corporate logos printed on T-shirts."³³ For example, one private company that had readily supplied a prominent market research firm with its product shipment data (fully aware that it would be published) properly declined to provide the data when they were in the registration process later that year.³⁴

Thus, the prospectus has an inherent tension: it must present the company favorably in order to make its shares seem attractive but it must also highlight the investment risks and company weaknesses. One guidebook reassures: "While the final document may not paint as bright a picture as you may have preferred, or indeed considered appropriate, rest assured that underwriters and investors are accustomed to, and thus discount, the tone found in all prospectuses and are adept at extracting the salient factors in the document."³⁵

Road Shows

Company executives are permitted to go on "road shows" in which they meet with industry analysts, prospective institutional investors and members of the underwriting syndicate to answer questions about the offering.³⁶ What this really means is that the company can promote the worthiness of its offering and discreetly impress analysts and institutional investors. One guidebook advises: "Try to identify the securities analysts and

members of the business media who follow your industry and make a special effort to reach them, either through a personal meeting or by including them on your mailing list. Building a good relationship with the press, both trade publications and the national or local business and financial press, will help keep publicity flowing during and after your public offering."³⁷

"Road shows" are controversial because ordinary investors do not have access to the information discussed in such meetings. Discussions often include candid forecasts of earnings and market performance. Critics have charged that these meetings are not consistent with the SEC rules limiting the amount of information that can be disclosed.³⁸ Consider the case of Dataquest, a prominent high-technology market research firm in San Jose, California. Dataquest analysts are in frequent contact with key personnel in private firms and exposed to confidential "insider" information. However, analysts are forbidden to conduct insider trading. That is, they must not disclose or otherwise take advantage of information that "a reasonable investor would think important in deciding whether to buy, hold or sell a stock or other security. . . . Examples of possible material information are sales results, earnings, dividend actions, strategic plans, new products, important personnel changes, acquisition and divestiture plans, marketing plans and joint ventures."³⁹ To avoid potential conflict of interest, Dataquest's name can not appear in a prospectus nor appear to endorse a particular offering. Analysts are allowed, however, to offer opinions about various companies in the context of their respective industries.⁴⁰

Conclusion

Going public is an exciting process that requires a keen perception of the market's receptivity and has the potential to generate much wealth. Only certain types of companies with a particular convergence of financial performance and market potential can go public. Thus, the nine test companies in this thesis may be different than the typical private company that intends to remain so. The test companies will likely get more attention from the press, analysts, and other information sources and are likely to have different financial dynamics due to the particular characteristics of a high-tech company hoping to go public.

¹Disclosure Inc., A Guide to SEC Corporate Filings (Bethesda, Maryland: Disclosure Inc., 1994), 2.

²Ernst and Young, Deciding to Go Public (New York, New York: Ernst and Young, 1993), 22.

³Gary D. Zeune, "Ducks in a Row: Orchestrating the Flawless Stock Offering," Corporate Cashflow 14 (February 1993): 18-21.

⁴Ernst and Young, 3-4.

⁵Ibid., 5.

⁶Ibid.

⁷Zeune, "Ducks in a Row," 18-21.

⁸Ernst and Young, 9.

⁹Ibid.

¹⁰Zeune, 18-21.

¹¹Nancy Rutter, "How to Nab an IPO," Forbes ASAP 154 (29 August 1994): S78.

¹²Bill Snyder, "IPO Impact," PC Week 11 (31 January 1994): A6.

¹³Paul Noglows, "Profits Don't Matter In New IPOs," Inter@active Week (5 June 1995): 45.

¹⁴Ernst and Young, 33.

¹⁵Ibid., 33, 67, 11, 20.

¹⁶Zeune and Baer, "Floating a Stock Offering," Corporate Cashflow 14 (August 1993): 38-42.

¹⁷Gary D. Zeune, "Small Businesses Rush to Capital Markets," The Small Business Controller (Summer 1994): 10.

¹⁸Zeune, "Small Businesses Rush to Capital Markets," 12.

¹⁹Warren, Gorham & Lamont, SEC Guidelines: Rules and Regulations 1995 ed., (Boston, Massachusetts: Warren, Gorham & Lamont, 1995): S-K.21.

²⁰Ibid., S-K.18.

²¹Ibid.

²²Ibid., S-K.8.

²³Ibid., SK6-SK7.

²⁴Ibid., FRR.140.

²⁵Ibid., S-K.7.

²⁶Ibid.

²⁷Ibid.

²⁸Ibid., S-K.23.

²⁹Ibid., S-K.24.

³⁰Ernst and Young, 36.

³¹Warren, Gorham & Lamont, S-K.55.

³²Ibid., S-K.57-58;

³³Tom Pratt, "The IPO Information Gap," Investment Dealers Digest 58 (18 May 1992): 14-18.

³⁴Jerry Houston, Vice President of Marketing, Socket Communications, interview by author, telephone, San Jose, California, 21 May 1995.

³⁵Ernst and Young, 34.

³⁶Ibid., 41.

³⁷Ibid., 13.

³⁸Phillip L. Zweig and Leah Nathans Spiro, "Beware the IPO Market: Individual Investors Are at a Big Disadvantage," Business Week (4 April 1994): 86.

³⁹Dun & Bradstreet Corporation, Policy on Insider Trading (New York, New York: Dun and Bradstreet Corporation, n.d.): 1.

⁴⁰Barbara Scott, Vice President of Personnel, Dataquest, interview by author, telephone, San Jose, California, 21 February 1995.

CHAPTER 4: AN OVERVIEW OF THE SOURCES OF FINANCIAL DATA

Financial data about public companies is easily obtainable because they are required to release the data to the Securities and Exchange Commission in a uniform format. Private companies, on the other hand, are not required to reveal their financial data. They are allowed to protect this as a competitive secret. But they can release data at their discretion if they deem it advantageous. One example is a small company releasing its balance sheet to Dun and Bradstreet Credit Services to show potential creditors that they are financially solid. Another example is an executive boasting to a newspaper reporter that sales have doubled, thus getting favorable publicity. Both of these common situations, however, do not necessarily require that the data be accurate, audited, or comprehensive.

The main sources of published financial data include general business directories, industry-specific directories, guides and yearbooks, local and regional directories, financial statement studies and ratio analyses, credit reports, brokerage house reports, market research analyst reports, press releases and company publications, industry-specific periodicals, and general interest periodicals.

However, published financial data is not always available. The data that is available can be obscure, incomplete, inaccurate, scattered in diverse sources, or lacking context. The researcher must search through many sources to assemble and cross-check data. This chapter examines the factors that influence the quantity and quality of financial data typically found in various sources. This chapter also has an overview of the various

sources. Each type of source typically includes several dominant providers or publishers. Each provider or publisher might have different amounts of data as well as different scopes and intended usage. The following chapters examine three sources to determine strengths, weaknesses, and general guidelines for usage.

The Quantity of Information

Each type of source has different factors that influence how many companies they contain and the types of data they present. Some sources attempt to be comprehensive and so might have very broad definitions of what constitutes a company worthy of inclusion. Other sources might apply a metric based on size or perceived prominence. Each type of source has different characteristic criteria for determining how "large" a company must be to be included in its listings. The definition of a "large" company typically involves objective factors, such as revenue or market share, or subjective factors, such as their current or potential technical or marketing prominence. Larger companies by virtue of their size are more active in their industry and thus of interest to creditors, competitors, and industry observers. As a rule of thumb, larger companies will have more factual or estimated data available.

Most of the general directories try to be comprehensive and include all existing companies in the nation; their definition of "existing" may differ but all are premised on a company having enough transactions to be noticed by others: creditors, the press, or government. Industry-specific directories and local or regional guidebooks may try to include all of the known companies in an industry or region. However, since many small

companies begin and end every year, not every company that exists at any given moment can be included. Therefore, tiny companies, consultants, and home-based businesses will be under-represented.

Financial statement studies and ratio analyses are analytical techniques that can be applied to a company to get an approximate sense of its financial structure. The percentage distributions and ratios are based on the averages of various financial metrics and are generated from the data of many companies in a particular industry sector. Since they are averages, however, they are not always accurate when applied to an individual company. Furthermore, they require some basic knowledge about the candidate company. However, all three source authors consider these techniques to be one of the main tools to develop financial estimates.

Credit reports try to have data on all companies that have credit relationships or might be establishing them. These sources have a strong motive to be comprehensive and accurate because they sell this data to a motivated clientele of creditors. Thus, they are often cited as the most likely place to find detailed financial information about a particular private firm.

Brokerage house reports typically focus on public companies because they are investment opportunities. They might discuss private companies in the context of their relationships to public companies as a threat, opportunity, competitor, or ally. Thus, a company that is deemed large enough to be noticed can be measured in terms of financial resources, market share, technology, venture capital, and any other metric relevant to the opportunity or threat being discussed.

Market research firms who make money by selling their analysis reports and data will focus on topics and companies that will interest the broadest range of potential customers. Consulting or custom research, on the other hand, might focus on smaller or obscure companies. However, the results are rarely published for the public. Thus, the reports that are available tend to focus on the larger or prominent companies in a particular arena. The definition of size or prominence depends upon the scope of the research topic.

Companies in highly competitive industries must promote themselves in many ways to survive; traditional print advertising is no longer enough. Press releases and company publications by their very nature depend on the existence of a formal public relations effort. Public relations is expensive, so the company must have the ability to fund it. The goal of the public relations effort is to get customers to keep the company in mind. The public relations effort will formally announce and promote company events to reporters, analysts, and others who can further the company's message. These people will then be more likely to include the company in articles, new product announcements, and analysis. Many high-tech companies send their press releases and other official announcements electronically on the PR NewsWire or NewsEdge the same day as the official release. These two database services also maintain archives of announcements. Consequently, if a reprint or edited version of the company document does not get included in a periodical, the source document might be available in the database.

Magazines, journals, newspapers, and newsletters cover many different companies with varying degrees of breadth and depth. It is hard to generalize as to the sizes of companies that might be featured in a periodical. Typical sections that might have company data

include articles, editorials, directories, new product announcements, special sections, or in-depth analyses. In all of these, however, the company must be noticed and judged appropriate for inclusion, which ultimately means it must be of interest to the readers. Companies in industries that are receiving a lot of venture capital investment or having many IPOs will tend to get more press and analyst scrutiny because of their financial activity. Companies that announce their intention to go public will have more interest and speculation about their condition. Companies that appear to be prime candidates for an IPO, even if they have not announced it, may also get more attention. Also, cooperative and informative companies tend to get more coverage. Finally, industry-specific periodicals are more likely to feature smaller companies than general interest or cross-industry periodicals.

Mr. Fuld asserts that the amount of information about a specific company is a function of several criteria. He presents the criteria in the context of finding experts to interview. Two of the five are especially relevant to this research project. The first is regionalism, in which the more localized a company, the easier it is to locate people intimately knowledgeable about its operations. The second is dynamism, in which companies in dynamic or quickly growing industries get more attention.¹ Another author begins research by identifying the newspapers found in the company's region and the associations and organizations that are most likely to deal with it.²

The Quality of Information

The SEC requires that financial data published in a prospectus conform to the Generally Accepted Accounting Principles (GAAP) standards for accuracy. Data about private companies, however, can have a wide range of accuracy depending upon the type of source and individual publication. Many factors influence this: the data can be old, incorrect due to poor definition or vague parameters, misquoted or misunderstood, or contain deliberate misinformation. All of these factors introduce a margin of error. The challenge is to determine the margin of error without being able to verify the actuals.

The three source authors display different levels of familiarity with the problems inherent with sources. For example, Mr. Kelly optimistically states that periodicals "tend to be more precise and quantitative than field sources, and are easily accessible. Their main disadvantage is that they are not as current."³ This ignores many potential problems. For example, a magazine article may include an estimate of an increase in a particular company's sales whereas the company spokesperson was referring to product shipments. Also, increased shipments to dealers does not necessarily mean increased product sales. Perhaps the journalist failed to clarify or understand the discussion's parameters. Perhaps the company source made a mistake or deliberately gave misinformation to the journalist. Mr. Kelly also advises that one should "recognize limitations" when reading published sources. By this he means evaluating the source by asking: "Are the facts up-to-date? Are they inclusive? Accurate?" But this advice is simplistic and unrealistic when one lacks confirmed, accurate data for verification or alternative data from other sources might not be available.⁴ Mr. Fuld warns: "Check the corrections in a publication's subsequent

issue before committing yourself to any numbers: 13% sounds an awful lot like 30% over the telephone and if we're talking about market share or profit forecast, it's best to know about the error before you pass on your information to the chief."⁵ This prudence seems admirable until one realizes that the numbers may be wrong no matter how they are presented.

Robert L. Berkman in Find It Fast: How to Uncover Expert Information On Any Subject (New York, New York: Harper & Row, 1990) offers a helpful suggestion for examining information and putting it together to form insights: "Evaluating the quality of your information means being a critical thinker. Critical thinking means not just believing something because everyone says it's so, or because something is repeated often or it is the first opinion you hear. Critical thinking also means questioning, probing, and looking for connections between data until you yourself are convinced of the truth of the matters under investigation."⁶

To evaluate the quality of the published data, Mr. Berkman advises the analyst to determine if the information is primary or secondary. He cautions that secondary data can be misleading when it does not disclose information that qualifies or limits its applicability. Furthermore, data used for partisan or ideological purposes can be biased, limited to only certain views about a topic, or subtly use language to influence the reader's opinion.⁷ All of these can apply to business writing which is where most of this thesis' data will be found. But most importantly, he advises the reader to ask if the "information is presented logically and is it well organized? Is the data internally consistent? Are the conclusions supported by the data and evidence presented?"⁸

Most directories try to include the number of employees and annual revenue as basic financial data; some directories include more information. Directories typically invite a company to submit the data for inclusion. They then judge the accuracy of the data in one of two ways: they trust the company to report the data fairly or they might apply various "standard" ratios to highlight and challenge outliers. Some might not include a company's data if the company refuses to confirm or defend the figures. However, since directories by nature want to include as many relevant companies as possible, their verification efforts are placed on the accuracy of the basic data such as company name, address, line of business and products, and contact names. Basic financial data, which is not the primary mission of most directories, is of secondary or tertiary importance.

Ratios and industry norms are often published for various industries. However, not all industries may be represented and the averages are generated from an aggregate of many company sizes and slightly different profiles of industry involvement. This obscures the different financial dynamics that individual companies may have and that privately-held companies may have different profiles than publicly-held firms (from which most published ratios are developed).

Credit reports strive for accuracy because their business is to help creditors determine if a potential customer is credit worthy. However, Dun and Bradstreet does not require that companies submit their financials to be included in the database. Nor does it penalize companies that refuse to cooperate by labeling them as higher credit risks.

Brokerage house reports typically focus on public companies. However, they might estimate the financials of private companies as they relate to the public companies in their

domain. To get basic data, they might interview company officials with varying degrees of candor and disclosure. They might interview competitors for their estimates of the company's condition. One hopes that their estimates are then derived from a careful and skeptical analysis of the evidence and extensive knowledge of the company's industry. However, unless the analyst can review and disclose the actuals, their estimates will always have some margin of error.

Market research firms tend to use the same techniques as a financial analyst by interviewing company and competitor officials. This has the same strengths and weaknesses as well. Some firms might also use the sources examined in this thesis, which can compound errors. But the market research reports cited in this thesis are not intended primarily to advise investment decisions; they are meant to be one opinion or perspective among several used. Thus, they have less pressure to be rigorously accurate in their financial estimates. However, in many industries a company's market share is seen as an indicator of its financial health, therefore there is much demand for accurate estimates of specific companies' market share. Market share can indicate a company's revenues if there is a total market size figure, but this overall number is of little use for accurately estimating other financial figures which have an indirect relation to market share.

Press releases, advertisements, and company publications exist to promote the company favorably. Unless a company is in registration or has codicils as part of venture funding, a company can publish whatever financial information it deems prudent. Of course, most information is protected as a competitive secret. Typically, the financial figures released are limited to gross revenues, market share estimates, improvements in

quarterly or annual revenue performance, numbers of prominent customers, or dollar amounts of specific sales or contracts. One would expect that a company would be inhibited from publishing blatant exaggerations or distortions because competitors, customers, analysts, and reporters will review this data; revelations of this practice can be embarrassing and degrade good will.

Periodicals tend to have more readers than the sources cited above. Thus, financial figures receive wider exposure and, potentially, more critical analysis. However, the same issues of inadvertent or deliberate errors or distortion are compounded because the figures can be widely disseminated and cited as authoritative by virtue of appearing in this format.

Creating the Profile Matrix

Some of the sources have comprehensive financial details about a specific company; the best example are credit reports. However, data can be old, no longer applicable, or unavailable. In this case, the analyst will have to review several sources to gather and piece together disparate data. This will create a matrix that can be adjusted with additional data and which will reveal unlikely extremes or parameters. Mr. Kelly's book contains worksheets for quantitative data. He advises "Use estimates when you don't have actual figures. . . . Better to use educated guesses than to leave spaces blank. As you gather more data, refine your figures. But don't waste time trying to pin down exact numbers."⁹

Mr. Kelly also advises that "When using a published source, note all relevant information. For example, you may be reading an article to gain an idea of a competitor's

sales level, but also come across information on his research program."¹⁰ These two concepts mean that, properly, the data must be combined with qualitative data to build context and integrity. "Even when information is unearthed, individual bits must be fitted together like pieces of a puzzle. Constructing a larger picture requires analytical skill, ingenuity, and even guesswork. It is almost always necessary to draw conclusions based in part on assumptions."¹¹

There are many diverse sources from which pieces of the puzzle might be found. But many of these sources do not make systematic attempts to gather financial data and the data they gather is not integral to their mission. Therefore, the chances of finding accurate and focused data when using them is low. But three of the sources claim to give reasonably accurate insights into the financial data of private companies. They make a conscientious attempt to gather accurate information about company sales and number of employees or to enable one to create reasonable estimates. The three sources are CorpTech, which publishes a comprehensive and detailed directory of the nation's high-tech companies; Dun and Bradstreet Information Services, which tries to gather accurate financial data in order to estimate a company's credit worthiness; and Robert Morris Associates, which gather together numerous financial statements from companies in a similar line of business to determine averages.

The Role of Electronic Databases

Many of the published sources have versions in electronic database format. Typically, this means that their database can be searched using a computer and a modem or with a

CD-ROM drive. For example, Dun and Bradstreet makes a version of its database available for electronic searches by way of Dialog or Lexis/Nexis. It also publishes the Million Dollar Directory on CD-ROM and calls it the Dun's Million Dollar Directory. CorpTech also offers its data on a CD-ROM. Whenever possible, this thesis will use data obtained from the electronic database. Robert Berkman concludes that "Traditional on-line remains the superior choice for doing efficient in-depth research, including company profiles and analyses, industry analyses, and custom market research."¹² The electronic formats offer several advantages over their print counterparts which will be discussed below.¹³ This thesis will not compare the search techniques of different databases. However, it will examine if a database has particular strengths or weaknesses in its search design or techniques that aid or hinder finding private company information.

Some sources are available via on-line databases for fee-based retrieval. Typically, directories are readily available because they are list-oriented and record-oriented and benefit from Boolean search capabilities. All of the directories have regular print counterparts that appear annually. This format preceded the electronic versions. Credit and financial reports are readily available in databases because timely updates is one of their defining characteristics. Most of the credit reports are printed for individual clients and not compiled into published volumes.

Some of the sources, on the other hand, have limited availability on electronic databases. The main examples of this are periodicals, brokerage house reports, market research reports, and press releases. When in electronic format the current and previous issues or editions of documents can be searched for specific words and phrases.

However, not all publications or publishers are found in these databases, content and coverage for each publication varies, records might be limited to bibliographic citations or abstracts only, or even if full text records exists not everything from each issue or report will be included. All of the electronic publications have print counterparts. Typical sources of electronic databases are Dialog, Lexis/Nexis, InvestText, PR NewsWire and BusinessWire.

The Internet, World Wide Web, and Company Homepages

This thesis will not examine data obtained from various Web sites or company homepages. The World Wide Web is changing too quickly, document versions are unstable and transitory, and sources are harder to verify and authenticate. Also, at this time, there are no sources available on the Web that are not available elsewhere. Mr. Berkman noted that one of the problems with Web pages is determining the ultimate origin: "This seems to be critical as context is so often missing from web sites, especially when you are taken to a page that is 'far' from the home page."¹⁴

Guidelines for Usage

Electronic databases, generally speaking, are powerful tools for the business information searcher because they offer powerful search capabilities of diverse sources. But they are far from perfect. Mr. Fuld, Mr. Berkman, and others warn that databases, because of their speed and mass of information, might entice the users to trust them or rely on them too much. One prominent searcher notes that whereas on-line data providers

have supplied more private company sources, quality control and integrity are still weak. To find obscure data, the searcher must still sort through different databases which have their own indexing schemes and spelling protocols: "Finding information on private companies is similar to playing a sport for which no rules exist, and where the definition of 'winning' is constantly changing."¹⁵ Because much of the information in this thesis was obtained from databases, this section will present usage guidelines based on a consideration of their strengths and weaknesses.

Mr. Berkman advises the searcher to know a few databases well rather than be a generalist in many. He cites the different extent and depth of coverage and different syntax, data structures, and indexing schemes.¹⁶ The searcher must also be aware of a database's inclusion policy, revision delays or embargoes, and how the same publication can be abstracted, indexed, and titled in different databases. Unfortunately, this is rarely documented explicitly by the database producer.¹⁷

Periodicals databases tend not to have all of the text that appears in the print version. Typical omissions include minor, boxed, or sidebar articles; tables, charts, and graphs; syndicated columns and letters to the editor; and correction notices. Other typically omitted items that might contain relevant data about private companies are "Advertisements, events calendars, editorials, personnel announcements, help-wanted advertisements, charts, graphs, photographs, and stock prices."¹⁸ One article notes that it is common for a database provider not to include various attachments, appendices, and supporting documents that public companies must submit when filing the required financial reports. These must be obtained in hardcopy for a fuller insight into the

company.¹⁹ Whereas this example is for public companies, one can envision situations in which analyst or market research reports or government filings might be abbreviated this way. One must know from the database supplier what information is included versus excluded.²⁰

Some publications impose an embargo on their appearance in a database. This is to discourage database users from canceling their subscriptions to the timely hardcopy versions. This means that the current print edition may contain relevant data while the database does not. Also, the database's update might happen just before important data is released in other formats.²¹

Not all publications are contained in all databases or in any electronic format. One must determine the database's ratio of national to regional or local publications. Typically, one is more likely to find information about small, private, or emerging companies in local directories, newspapers, and magazines. Mr. Fuld advises that some databases will omit seemingly redundant articles from different sources. However, each article can have its own unique information.²²

Mr. Berkman advises searchers to verify important information by retrieving the same record from several different sources because inputting items into a database can introduce errors.²³ Also, different database providers might index the same record differently.²⁴

Searching Full Text versus Indexing Terms

The conventional advice to narrow database searches is to use the index terms found in relevant records. Then one can search that database using those terms and retrieve mostly

relevant articles. Also one can then search other databases for known articles and note the indexing term that the new databases assign. Another technique to quickly refine searches includes searching only titles or abstracts.

Mr. Berkman examined how over 20 abstracts found in three major databases compared to their full text counterparts. The databases were PROMT, ABI/Inform, and The Computer Database (from Information Access Company). He noted different levels of detail, frequency of mentioning significant proper names, handling of statistics, and the practice of drawing the abstract from the article's lead paragraph. He noted that PROMT "makes a point of including statistics and other numeric information that one would expect to find in a marketing-oriented database." He noted that both PROMT, The Computer Database, and ABI/Inform "attempt to mention key companies and products, but there is not consistent policy on this." He cites that one, several, or none of the companies featured in an article will be listed in the abstract. The article concluded that all the databases tended to delete the following from their abstracts: "direct quotes, clarifying examples, local color, case histories, anecdotes, [and] various background elements. Some of this material is not essential, but much of it is quite useful, at least for certain purposes."²⁵

However, this thesis requires that database searches be performed upon the entire text of records whenever possible. Searches cannot be limited to indexing terms, titles, or abstracts. Full-text searches will retrieve records with words or names that might not be indexed.

¹ Leonard M. Fuld, Competitor Intelligence (New York, New York: John Wiley & Sons, 1985), 16-17.

² Lelia K. Kight, "The Search for Competitive Intelligence on Divisions and Subsidiaries," Planning Review 17 (May-June 1989): 40. Dialog, Trade & Industry, 07390392.

³ John M. Kelly, How to Check Out Your Competition: A Complete Plan For Investigating your Market (New York, New York: John Wiley & Sons, 1987), 106.

⁴ Ibid., 106.

⁵ Fuld, 152.

⁶ Robert L. Berkman, Find It Fast: How to Uncover Expert Information On Any Subject (New York, New York: Harper & Row, 1990), 250.

⁷ Ibid., 252-254.

⁸ Ibid., 254.

⁹ Kelly, 199.

¹⁰ Ibid., 106.

¹¹ Michael R. Lavin, Business Information: How To Find It, How To Use It (Phoenix, Arizona: The Oryx Press), 179. The author comments: "Instead of being conveniently arranged in comprehensive annual reports or well-written profiles, information on private firms is scattered across a myriad of published and unpublished sources."

¹² Robert Berkman, "Matching the Medium to the Research Project," The Information Advisor 8 (May 1996): 8.

¹³ This thesis must necessarily be limited to databases for which San Jose State University has student access privileges or to which access can be negotiated. Most of the electronic sources examined in this thesis are available through on-line database service providers. These include Dialog, Lexis/Nexis, Dow Jones, and InvestText. Each has a particular scope of coverage and content, search protocols and indexing philosophy.

¹⁴ Robert Berkman, Washington, D.C., electronic mail message posted to Business Librarians discussion list, TL, 13 June 1996, BUSLIB-L@IDBSU.ISBSU.EDU.

¹⁵ Marydee Ojala, "Dreams of Private U.S. Company Data," Online 18 (January 1994): 91-99. Dialog, ABI/INFORM, 94-60193.

¹⁶ Berkman, Find it Fast, 190.

¹⁷ Reva Basch, "The Seven Deadly Sins of Full-Text Searching," Database 12 (August 1989): 15. Dialog, Trade & Industry, 07843013.

¹⁸ Fuld, 158.

¹⁹ Ann Monroe, "How to Spy on Your Rivals," CGO: The Magazine for Senior Financial Executives 10 (March 1994): 57-61. Dialog, ABI/INFORM, 94-87022.

²⁰ Fuld, 159.

²¹ Ibid., 158.

²² Ibid.

²³ Berkman, Find it Fast, 190 .

²⁴ For an example of this see Wallys W. Conhaim, "Your Business Research Toolkit," Link-Up 10 (September-October 1993): 10. Dialog, Trade & Industry, 14795135. The author compares how CompuServe and America Online list the same company with different descriptions.

²⁵ Robert Berkman, "Online Database Abstracts: What's Left Out," The Information Advisor 3 (August 1991): 1 passim.

CHAPTER 5: CORPORATE TECHNOLOGY INFORMATION SERVICES

Corporate Technology Information Services (Woburn, Massachusetts) maintains a database of over 45,000 high-technology companies. They package various output from the database under the CorpTech label. (Hereafter, CorpTech will mean this company and its products.) Suggested uses of the data include sales prospecting and lead generation, competitor research, and identifying vendors and potential joint-venture or acquisition candidates.¹ As of the end of 1995, the printed annual directory cost \$525 and a one-year subscription to the quarterly CD-ROM version cost \$1,900.

CorpTech promotional literature stresses its inclusion of high-tech companies that other directories typically do not include. For example, CorpTech claims that out of a random sample of 200 companies, 80% were not in the Dun and Bradstreet Million Dollar Directory, 90% were not in Standard and Poors Register of Corporations, and 73% were not in Ward's Business Directory.² CorpTech also emphasizes that it includes smaller companies. For example, it claims that in a random sample of companies in its directory with fewer than 100 employees, 93% were not large enough to be eligible for inclusion in the Dun and Bradstreet Million Dollar Directory, 97% were private, thus not eligible for inclusion in Standard and Poors Register of Corporations, and 75% were high-technology, thus not in Ward's Business Directory.³ Thus, in its directory approximately 71% of the companies are privately-held and 93% have fewer than 1,000 employees.⁴

Contents

The CD-ROM version of the database claims to contain 42,430 companies that “develop or manufacture high-tech products in the U.S. or own companies that do so.”⁵ Accompanying documentation indicates that 54.3% have annual sales of less than \$5 million, 12.4% have sales between \$5 and \$10 million, and the remainder have sales of \$10 million or more.⁶ CorpTech adds about 5,000 new company listings each year and will delete companies that go bankrupt, become absorbed into others through mergers or acquisitions, or become otherwise unlocatable.⁷ In 1994 and 1995 this led to the removal of approximately 4,500 companies: 2,000 were absorbed into others through mergers or acquisitions and the remaining 2,500 went bankrupt or were otherwise unlocatable.

CorpTech recognizes that its rate of inclusion can be measured in different ways. CorpTech claims that it captures 95% of all high-tech businesses that are “easily recognized as being involved in the industry, are developing products or otherwise having some sort of impact.” But if one widens the definition to include companies that are “somehow involved but not through developing products or having some sort of impact,” then CorpTech will have between 60% to 90% of relevant firms.⁸ This broadness suggests an inclusion criteria that is not rigorously defined.

Information Fields

The most complete company listing includes name (and “formerly known as” and “Also Known As” names as appropriate); street address; basic company history including founding year; private or public status and stock ticker symbol; the current number of

employees as well as the count twelve months prior and the expected number twelve months hence; actual, estimated, or a range of sales; ranges of the percentage of business from foreign customers (the ranges are: under 2.5%, 2.5%-10%, 10%-25%, and 25%+); executive names and titles; lists of basic employee fringe benefits offered; primary and secondary SIC codes and industries; and a brief paragraph describing the company's products or services. Many listings, however, contain much less information because each company is allowed to determine for itself how much data to reveal. The most basic listing will include company name, street address, primary industry and SIC code, and key executive names.

CorpTech segments companies into one of seventeen industries: automation, telecommunications, photonics, subassemblies and components, test and measurement, computer hardware, computer software, biotech, chemicals, pharmaceuticals, medical, advanced materials, manufacturing, energy, environmental equipment, transportation, and defense. CorpTech does not include distributors or manufacturers' representatives.⁹

Criteria for Inclusion and New Entry Identification

CorpTech invites companies to submit a completed "free listing questionnaire" for inclusion in the database. Forms are found in the appendix of print directories. The questionnaire includes the caveat "Companies will be listed in all CorpTech's products that are published after the data have been received and verified."¹⁰ CorpTech claims to actively seek out new listings by searching the Internet for new company sites, requesting

data from various state economic development departments, and scanning buyer's guides, trade show attendee lists, and association membership lists.¹¹

Data Inclusion and Verification Processes

Companies do not have to reveal their sales or employee counts to be included. Most companies submit employee counts from which CorpTech will estimate sales by use of ratios. CorpTech will not estimate employee counts. CorpTech officials claim that approximately 30% to 40% of companies do not disclose actual sales but that most companies will verify a range estimate. CorpTech encourages companies to provide a sales figure by first asking for a general range and then a real number if the company acquiesces.¹² This emphasis on obtaining any sort of sales figure is understandable given their stated use as a sales prospecting tool.

CorpTech's sales estimates are derived from industry-specific sales-to-employee ratios that it calculates each year. It develops the annual ratios by "selecting all firms in one industry that provide actual sales and employee information, the sales/employee [ratio] is calculated for each, the top and bottom 10% are eliminated, and a weighted average is computed for that industry."¹³ They then apply the ratio for what they consider to be the company's "primary" industry.

CorpTech describes several approaches to companies who provide different amounts of data:

1. If a company provides an employee count but not a sales range or actual sales figure, CorpTech will apply “weighted industry sales productivity averages” to estimate actual sales.¹⁴

2. If a company declines to provide an employee count (but provides an actual or range sales figure), the database will indicate that the company declined to provide the employee count.

3. If the company declines to provide both employee counts and sales information, CorpTech will print their name and address and a footnote stating that the company refused to provide the data.

4. If the company provides an employee count and actual or range sales figure, CorpTech will double-check this number by applying one of the ratio multipliers.

5. If the resultant number falls within the range provided by the company, then CorpTech will print their own calculated actual sales number and indicate it is a CorpTech estimate.

6. If the resultant number is out of the company’s stated range, then CorpTech will print the range into which the resultant number falls and state that the company declined to provide the information.¹⁵

CorpTech also includes employment growth rates for the previous twelve months and company estimates for employment growth for the next twelve months. If a company indicates more than a 20% growth rate for a given year, CorpTech will call to verify this.¹⁶

Analysis

CorpTech's method of data capture and cleaning has several strengths. Offering a free directory listing is an effective way to increase inclusion. CorpTech's favorable reputation will increase as its listings grow and it is perceived as an important directory in which one must have a listing. Furthermore, it is distinguished from other larger directories by its focus on high-tech companies. CorpTech also does an excellent job of presenting detailed yet concise information for use by sales reps and procurement officers. It focuses on high-technology companies and contains many fields of interest to its readership.

But the CorpTech method for collecting financial and employment data has several weaknesses. This is unfortunate because CorpTech positions itself as a tool for business intelligence. Statistics about the amount of actual sales figures support this. Seven pages of listings were randomly selected from CorpTech's publication Technology Resource Guide: Greater Silicon Valley to determine the relative distribution of estimated sales compared to actual sales.¹⁷ The results for the 67 companies in this sample are:

	Private Company	Public Company
Declined data	4	0
Estimated data	28	7
Range estimate	10	4
Actual data	11	3

Over two thirds (69%) of the listings had either real number or range estimates for sales. Of these, over three quarters (78%) were estimated actuals; the remainder were

range estimates. CorpTech documentation claims that only 30% to 40% contain estimates.

CorpTech claims to include smaller companies that other directories tend to leave out. Indeed, 83% of the companies listed on these pages were private companies. Of these, 68% had not disclosed their actual sales but had either a real number estimate (three quarters of the 68%) or range estimates (the remaining 26% of the 68%). Only 20% had actual sales and 7% declined to provide any information.

Of the public companies listed, only 36% included actual sales. The remaining 64% listed “estimated” sales. This latter statistic is odd because these companies are public, their financial records are easily available, and the listings include prominent firms such as Apple and Intel. CorpTech does not appear to be estimating the portion of revenue derived from the technology sub-segment in which the listing appears. Rather, CorpTech appears to be applying ratios to the overall employee counts of the entire company. The three listings for specific divisions only listed the parent company’s total revenue.

Thus, the above suggests that CorpTech’s foundation ratios are based upon a relatively small number of firms that reveal actual sales. Smaller samples increase the possibility of unusual or non-representative companies distorting the data. Private companies that reveal data may not be representative for two main reasons. First, only a fifth of private firms revealed sales; it would be misleading to apply ratios generated from public company data to private firms. Second, private firms can have different financial characteristics, practices, and motivations. One must be cautious in assessing the breadth and solidity of the data upon which the annual ratios are calculated.

CorpTech's survey form requests a range percentage of sales from exports: under 2.5%, 2.5%-10%, 10%-25%, and 25%+. Note the overlapping percentages: this oversight creates problems for companies on the border who must classify themselves. Some companies will select the larger range, others will select the smaller. One can not be sure how the distribution of error will fall. Smaller companies might tend to select the category that overstates their size.

Companies are allowed to classify themselves into one of CorpTech's 17 primary product areas. The survey form does not request an SIC code unless the company indicates it is "non-high tech." This creates problems because the primary product areas listed are not distinct and unambiguous. For example, the form asks for the company's "primary industry," which is described as "the single category that best describes your primary product area." The word "industry" can mean the buyer's industry whereas the word "product" suggests the good or service produced, regardless of the buyer's industry. For example, consider a company that writes "computer software" that is purchased by "Defense" sub-contractors. The company might chose "computer software" or "defense" as their primary industry. This section also overlaps with the intent of another section which requests "Markets: primary industries sold to." The latter section does not have a standardized list, only a space for a free-text response. Thus, this introduces even more potential for ambiguity. Consider the software company above: it could write "defense subcontractors," "aerospace firms," "data processing centers," "engineering departments," or many other equally valid responses.¹⁸

The above suggests that CorpTech's data collection is not verified extensively and companies are not rigorously classified. And indeed this methodology is acceptable for a directory that is meant to be used for sales prospecting. But CorpTech also issues annual employment forecasts and various other demographic analyses of the industries and companies in its database. The lack of rigorous research creates a wider margin of error to such forecasts and analyses. The lack of rigorous classification also raises concerns as to how incorrect industry assignments can affect the annual employee-to-sales ratios.

Overall Themes of Test Data Critique

Of the nine test companies, only four had records in the CorpTech CD-ROM version 10.3 dated December 1995. This is surprising given CorpTech's generous inclusion policy. Perhaps some companies do not see a listing in the CorpTech directory as important to their business.

Quality of Financial data

CorpTech had reasonably correct sales figures for only two companies of the four included. One of these companies had declined to provide an actual figure. CorpTech had incorrect data for the other two companies. For example, the first listing for Verteq's headquarters was correct, but the incorrect Process Systems Division listing doubled Verteq's apparent size. And CorpTech had no data for five companies: Advanta (nor for its earlier name, AIH Systems), Catalink Direct/Elcom International, IC Works,

Techforce, or Ultradata. CorpTech had one listing for an Ultradata, but it was a different company with the same name.¹⁹

Quality of Employment Data

For two of the three companies for which there is data, CorpTech undercounts the number of employees. This is not surprising because these particular test companies are growing and thus more likely to hire. But for the third company, CorpTech effectively doubles the company's size by severely overstating employment. The fourth company chose not to reveal data to CorpTech.

Quality of International Sales Data

The results are mixed. In some of the test cases CorpTech appears to assign an appreciable amount of sales to foreigners, whereas the prospectus does not mention it. SEC guidelines state that companies must disclose the regional breakdown of their sales; perhaps companies are allowed to interpret whether their sales are "significant" and thus require disclosure. Or, some companies might exaggerate their international sales to CorpTech to boost prestige.

Relationship Between Primary Industry and SIC Code

For the most part these are correct; it would not be in a company's interest to incorrectly describe itself. However, Verteq's record has vagueness that contributes to its overall errors.

Thus, the effectiveness for CorpTech is mixed: one can not know which listings are accurate until they are compared with either the actuals or other reliable sources.

CyberCash Corp Tech Listing²⁰

2100 Reston Pkwy, Suite 430

Reston, Virginia 22091

703-620-4200

“This information was confirmed by a telephone interview on 13 Apr 95”

Sales

Declined to give the range of annual sales.

Percentage from international business

No data in listing.

Employment

"Decline to give the range of employees; the employee growth rate for the year prior to interview is unknown."

Primary SIC code

7372 (Prepackaged software)

Primary industry

Computer Software (SOF)

CyberCash Prospectus Data

2100 Reston Pkwy, Suite 430

Reston, Virginia 22091

703-620-4200

Prospectus publication date

January 24, 1996

Sales

Prospectus indicates 0 (zero) revenues because "The Company is a development stage company founded in August 1994 and presently has only a limited number of banks, merchants and financial institutions utilizing its Credit Card service. . . . Since its inception, the Company has not recognized any revenue and, as of December 31, 1995, had an accumulated deficit of approximately \$11 million."²¹

Percentage from international business

No data given due to lack of revenues.

Employment

"As of December 31, 1995, the Company had a total of 65 employees."²²

Primary industry

"CyberCash, Inc. is a leading developer of software and service solutions for secure, cost-effective, convenient and rapid payments over the Internet."²³

Analysis of CyberCash

Record Datedness

Approximately ten months elapsed between CorpTech's data confirmation and the prospectus being issued. CyberCash did not divulge any information to CorpTech. There are several possible explanations:

1. The company was in the development stage so it did not want to mislead CorpTech readers by indicating zero sales. But one would expect an employee count.
2. CorpTech sought this information when CyberCash was in registration, thus prohibited from divulging any data that might be construed as promoting the offering.
3. CyberCash wanted to protect this information as confidential.
4. The company was experiencing losses and wanted to obscure this condition.

Financial data

No data to compare between CorpTech and the prospectus.

Employee data

No data to compare between CorpTech and the prospectus.

Percentage from international business

No data to compare between CorpTech and the prospectus.

Primary industry

The primary SIC code does not seem appropriate because CyberCash at this time is developing the infrastructure for electronic commerce over the Internet which does not require the personal computer user to have a software package. Rather, CyberCash is a

software developer who is negotiating to write custom programs for large retailers and Internet service providers.

Cylink CorpTech Listing²⁴

910 Hermusa Court

Sunnyvale, California 94086

408-735-5800

"This information was confirmed by a telephone interview on 09 Sep 95"

Sales

\$10 million-\$25 million annual sales.

Percentage from international business

Over 25% of sales are from international business.

Employment

"200 Employees; 25% employment growth in the year prior to interview; no employment change projected for the next fiscal year; an average of 18 jobs per year have been created since formation. Formed in 1984."

Primary SIC code

3669 (Communications Equipment, Not Elsewhere classified)

Primary industry

Telecommunications (TEL)

Cylink Prospectus Data

910 Hermusa Court

Sunnyvale, California 94086

408-735-5800

Prospectus publication date

January 24, 1996

Sales²⁵

1994 fiscal year: \$26.65 million

1993 fiscal year: \$26.29 million

Percentage from international business

The prospectus does not cite the percentage of sales from international clients.

Employment

“As of December 31, 1995, the Company had 265 employees. . . . Of these employees, 251 were located in the United States.”²⁶

Primary industry

“Cylink Corporation is a leading supplier of network information security products that enable the secure transmission of data over private local area networks and wide area networks and public packet switched networks, such as the Internet.”²⁷

Analysis of Cylink

Record Datedness

Approximately five months elapsed between CorpTech's data confirmation and the prospectus being issued.

Financial data

CorpTech's sales ranges are too broad: they should use smaller increments to better differentiate between companies of different sizes. By using CorpTech's range estimate, one does not know if the sales estimate is closer to \$10 million or \$25 million, a 250% difference. Given the actual sales it appears that CorpTech's company contact put their company into the correct range, but they could have assigned themselves into the next larger category to mislead the competition.

Employee data

The company appears to have provided an approximate employee count to CorpTech which was understated by approximately 25%. This might be a legitimate difference due to the time lag between the records. But the company did not appear to be growing quickly to account for much additional hiring.

Percentage from international business

The CorpTech record cites a large percentage of international sales whereas the prospectus does not give a figure. The prospectus would have to cite the figure if it was considered significant. This might be an error on CorpTech's part, an error on the part of the company contact, or even an error with the prospectus' disclosure.

Primary industry

The CorpTech record correctly describes the company's primary activity.

Software Quality Automation CorpTech Listing²⁸

10 State Street

Woburn, Massachusetts 01801

617-932-0110

"This information was confirmed in writing on 26 Jan 95"

Sales

\$10 million-\$25 million

Percentage from international business

10%-25% of sales are from international business.

Employment

"50 employees; no employment change in year prior to interview; an average of eight jobs per year have been created since formation."

Primary SIC code

7372 (Prepackaged Software)

Primary industry

Computer Software (SOF)

Software Quality Automation Prospectus Data

10 State Street

Woburn, Massachusetts 01801

617-932-0110

The prospectus confirms that the company is also known as SQA.²⁹

Prospectus publication date

October 25, 1995

Total revenue³⁰

1994 fiscal year: \$4.4 million (\$3.4 million from license fees and \$1 million from services)³¹

Percentage from international business

Approximately 23.3% of total revenues are from international business.³²

Employment

As of September 30, 1995, the company had 85 full-time employees. The prospectus does not have data for 1994.³³

Primary industry

“SQA develops and markets integrated software products for the automated testing and quality management of Windows-based client/server applications.”³⁴

Analysis of Software Quality Automation

Record Datedness

Approximately nine months elapsed between CorpTech's data confirmation and the prospectus being issued.

Financial data

CorpTech's sales figure is double the actual: the company at \$4.5 million is less than half the lower boundary of the range estimate (\$10 million-\$25 million).

Employee data

CorpTech also appears to undercount the number of employees and annual employee growth. However, it is difficult to verify because this company may have hired many people in the years prior to trying to go public. If this is not the case, then CorpTech undercounts the number of employees by approximately a third.

Percentage from international business

CorpTech's listed percentage of international sales are in the correct range.

Primary industry

The primary industry appears to be correct compared to the company's activities described in the prospectus.

Verteq CorpTech Listing³⁵

1241 East Dyer Road, Suite 100

Santa Ana, California 92705

714-708-0330

"This information was confirmed by a telephone interview on 25 May 95"

Sales

Estimated annual sales: \$55 million.

Percentage from international business

10% to 25% of sales are from international business.

Employment

"500 employees; no employment change in year prior to interview; no employment change projected for the next fiscal year; an average of 45 jobs per year have been created since formation. Formed in 1985."

Primary SIC code

6719 (Holdings companies, Not Elsewhere Classified)

Primary industry

Manufacturing Equipment (MAN)

Verteq Process Systems Division CorpTech Listing³⁶

1241 East Dyer Road, Suite 100

Santa Ana, California 92705

714-708-0330

This division is an operating unit of Verteq, Inc. as listed above.

“This information was confirmed by a telephone interview on 23 May 95”

Sales

Estimated annual sales: \$35 million

Percentage from international business

10% to 25% of sales are from international business.

Employment

"320 employees; the employee growth rate for the year prior to interview is unknown."

Primary SIC code

3559 (Special Industry Machinery, Not Elsewhere classified)

Primary industry

Manufacturing Equipment (MAN)

Verteq Prospectus Data

1241 East Dyer Road, Suite 100

Santa Ana, California 92705

714-708-0330

Prospectus publication date

November 20, 1995

Sales³⁷

1995 fiscal year: \$44,031,000

1994 fiscal year: \$24,236,000

Percentage from international business

International sales: \$5.2 million (21%) in Fiscal Year 1994 and \$9.7 million (22%) in Fiscal Year 1995.³⁸

Employment

As of September 30, 1995, the company employed 432 employees.³⁹ The formation year is correct.

Primary industry

“Verteq, Inc. is a leading supplier of advanced wet processing equipment providing high performance process solutions for wafer cleaning, etching and stripping requirements of the semiconductor industry.”⁴⁰

Verteq Phoenix Process Automation Prospectus Data

“Phoenix Process Automation, Inc. was incorporated in Oregon on May 23, 1991. . . . Effective August 15, 1994, Phoenix entered into an agreement and plan of reorganization with Verteq, Inc. pursuant to which Phoenix became a wholly owned subsidiary of Verteq.”⁴¹ This division was renamed Verteq Systems Automation, Inc.⁴²

Sales⁴³

1994 (first seven months): \$3,728,300

1993 fiscal year : \$3,882,900

Employment

The prospectus does not break down the division’s employment.

Percentage from international business

No data is given.

Primary industry

The prospectus does not describe the exact product from this division.

Analysis of Verteq

Record Datedness

Approximately six months elapsed between CorpTech's data confirmation and the prospectus being issued.

Financial data

This is a difficult record to assess because company revenues almost doubled between fiscal year 1994 and fiscal year 1995. The CorpTech data appears to be based upon a rough fiscal year 1995 employment estimate because the data was confirmed near the end of the fiscal year. Consider that CorpTech's sales-to-employee ratio is \$110,000 and the ratio from the prospectus is very close at \$101,932.

The largest mistake is found in the CorpTech record for the Process Systems Division. CorpTech overstates the division's size by a factor of ten, enlarging the division from an actual \$3 million to \$35 million.

Thus, the combined CorpTech records portray a \$90 million company whereas the prospectus states that the company had approximately \$48 million in revenues in fiscal year 1995.

Employee data

The combined CorpTech records state that the company has 820 employees whereas it actually has approximately 432 employees.

CorpTech also states that there had not been any hiring in the previous year at the main company. This is an odd error since the same record shows that the company almost doubled in size financially.

Percentage from international business

No data is available to compare CorpTech data and the prospectus.

Primary industry

CorpTech classifies Veriteq as a “holding company.” This appears correct given that the company was “organized in 1985 for the purpose of acquiring the quartz division and megasonic cleaning and spin rinser dryer product lines of the Furon Company. In 1989, the Company acquired the horizontal rinser dryer and megasonic cleaning divisions of Eastman Kodak, and substantially all of the assets of ACT, Inc.”⁴⁴

But these records illustrate the complexity of tracking divisions and acquisitions. The prospectus suggests but does not directly state that the Veriteq Systems Division is located in Oregon. However, it lists Santa Ana as the mailing address. But at no time was the division called the “Process Systems Division” per CorpTech’s listing. This appears to be a combination of the old name (Phoenix Process Automation) with the new name (Veriteq Systems Automation).

¹Corporate Technology Information Services, Inc., (December 1995). Documentation [CD-ROM]. The Corporate Technology Database 10.3, 1.

²Deborah Nielsen, CorpTech Technology Industry Growth Forecaster 37 (October 1995): 1 passim.

³Corporate Technology Information Services, Inc., CorpTech Directory of Technology Companies 1995 (Woburn, Massachusetts: Corporate Technology Information Services, Inc., 1994): 1 passim.

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- ⁴Steve Parker, Vice President, Corporate Technology Information Services, Inc., interview by author, telephone, 29 November 1995.
- ⁵Corporate Technology Information Services, Inc., (December 1995). Documentation [CD-ROM]. The Corporate Technology Database 10.3, 1.
- ⁶Corporate Technology Information Services, Inc., (December 1995). Demographics [CD-ROM]. The Corporate Technology Database 10.3, 2.
- ⁷Parker.
- ⁸Ibid.
- ⁹Corporate Technology Information Services, Inc., (December 1995). Demographics [CD-ROM]. The Corporate Technology Database 10.3, 2.
- ¹⁰Corporate Technology Information Services, Inc., Technology Resource Guide: Greater Silicon Valley 1993/94 ed. (Woburn, Massachusetts: Corporate Technology Information Services, Inc., 1993), 279.
- ¹¹Parker.
- ¹²Ibid.
- ¹³Corporate Technology Information Services, Inc., "Customers' Questions Answered," CorpTech Focus 2 (Winter 1990), no pagination.
- ¹⁴Corporate Technology Information Services, Inc., Technology Resource Guide: Greater Silicon Valley, 278.
- ¹⁵Parker.
- ¹⁶Ibid.
- ¹⁷The statistics were compiled from a random selection of pages from the Technology Resource Guide: Greater Silicon Valley. The pages are 104-110.
- ¹⁸Corporate Technology Information Services, Inc., Technology Resource Guide: Greater Silicon Valley: Free Listing Questionnaire 1993/94 ed. (Woburn, Massachusetts: Corporate Technology Information Services, Inc., 1993), 279.
- ¹⁹Corporate Technology Information Services, Inc., Ultradata [CD-ROM]. The Corporate Technology Database 10.3, Item: 10977.
- ²⁰Corporate Technology Information Services, Inc., CyberCash [CD-ROM]. The Corporate Technology Database 10.3, Item: 58578.
- ²¹Hambrecht & Quist, CyberCash Incorporated Prospectus (New York, New York: Hambrecht & Quist, 24 January 1996), 5.
- ²²Ibid., 42.
- ²³Ibid., 3.
- ²⁴Corporate Technology Information Services, Inc., Cylink [CD-ROM]. The Corporate Technology Database 10.3, Item: 39145.
- ²⁵Piper Jaffray Inc., Cylink Corporation Prospectus (Minneapolis, Minnesota: Piper Jaffray Inc., 24 January 1996) 15. Company fiscal year ends December 31.
- ²⁶Ibid., 37.
- ²⁷Ibid., 3.
- ²⁸Corporate Technology Information Services, Inc., Software Quality Automation [CD-ROM]. The Corporate Technology Database 10.3, Item: 20416.

²⁹Robertson, Stephens and Company, SOA, Inc. Prospectus (San Francisco, California: Robertson, Stephens and Company, 25 October 1995), 3. Company fiscal year ends December 31.

³⁰*Ibid.*, 5.

³¹*Ibid.*, 18.

³²*Ibid.*, 33.

³³*Ibid.*, 37.

³⁴*Ibid.*, 4.

³⁵Corporate Technology Information Services, Inc., Veriteq [CD-ROM]. The Corporate Technology Database 10.3, Item: 44168.

³⁶Corporate Technology Information Services, Inc., Veriteq Process Systems Division [CD-ROM]. The Corporate Technology Database 10.3, Item: 42040.

³⁷Cowen & Company, Veriteq, Inc. Prospectus (New York, New York: Cowen & Company, 20 November 1995), 17. Company fiscal year ends June 30.

³⁸*Ibid.*, 18.

³⁹*Ibid.*, 35.

⁴⁰*Ibid.*, 3.

⁴¹*Ibid.*, F-25.

⁴²*Ibid.*, 3.

⁴³*Ibid.*, F-22. Division fiscal year ends December 31.

⁴⁴*Ibid.*, 18.

CHAPTER 6: DUN AND BRADSTREET INFORMATION SERVICES

Dun and Bradstreet Information Services is a division of Dun and Bradstreet Corporation ranked as number 242 on the 1996 Fortune 500 list of the nation's largest businesses ranked by revenue.¹

Contents

Dun and Bradstreet Information Services (DBIS) maintains an electronic database of over ten million businesses in the United States. Basic data about each business includes business name, street address or location, telephone number, and whether it is a headquarters, division, or branch office location. DBIS states that as of July 1995 approximately 80% of the records included either an actual or estimated sales volume figure and 95% had actual or estimated employee counts.²

Approximately four of the ten million of the records are called "Business Information Reports" because they include additional data. Data varies for each company but can include detailed financial statements, operational facts such as primary accounts and territories, historical information such as company age and officers' biographies, and payment histories and capital spending.³ Each year Dun and Bradstreet receives approximately 250 million "payment experiences" from over 5,000 product and service suppliers. Payment experiences are derived from accounts receivable logs for a diverse range of business purchases. These are automatically matched every week against individual company records. Dun and Bradstreet then calculates the company's "Paydex

Score" for comparison against the industry average. This helps vendors decide if the company is credit worthy and likely to meet its financial obligations in a timely manner.⁴

Approximately 1.2 of the four million Business Information Reports also include full financial statements and balance sheets which have been provided by the company. Many of the companies that provide this level of detail are privately held.⁵

Dun and Bradstreet assigns a unique, randomly-generated 9-digit number to each business location in the database. A business location is one that has a "unique, separate and distinct operation." Thus, single locations, headquarters, divisions, branch offices, subsidiaries, and parent companies get their own DUNS number.⁶ The DUNS number is a powerful tool by which to track companies, their complex relationships, and the nation's overall business demographics.

Dun and Bradstreet concedes that the database is extensive but not complete due to several factors: new businesses start and established businesses fail, businesses relocate, the relationships between the different locations of a business can be ambiguous and changing, and very small or obscure businesses may not be prominent enough to come to Dun and Bradstreet's attention. Therefore, Dun and Bradstreet does not officially estimate how many discrete businesses there are in the nation at any given time.

Criteria for Inclusion and New Entry Identification

Dun and Bradstreet Information Services analysts actively search for new companies to add to the database. Dun and Bradstreet began an initiative in early 1995 to add new businesses and branch locations of existing businesses. Dun and Bradstreet claims that it

is striving to be comprehensive so that only very small, inactive or very low-profile companies or consultants are not in the database.⁷

Another aspect of the initiative is to update each existing record at least once a year. An update involves a phone call or site visit to confirm and revise basic company data. Of course, if a company or branch location is no longer in business the record will be deleted from the database. If the company refuses to confirm or revise basic data, the record will indicate that they declined to do so.

Since Dun and Bradstreet Information Services' main business is to help clients decide to extend credit, companies who are the subject of credit inquiries will receive the most attention in this update and verification process. And the more inquiries about a company, the more senior the investigating analyst will be.⁸ Furthermore, companies who have many inquiries about them will be requested to submit a detailed set of financial statements. Reports for this group of companies comprise the most detailed Business Information Reports. Companies can decline to provide full financial statements; however, this may result in a credit rating being changed to reflect their ambiguity.⁹

Data Inclusion and Verification Processes

If a company submits a full financial statement, Dun and Bradstreet will verify the numbers by applying fourteen "industry norm" ratios for profitability, solvency, and efficiency. These norms are proprietary to Dun and Bradstreet and have been calculated from data submitted to Dun and Bradstreet by other comparable firms. Dun and Bradstreet's industry norm ratios are available at the four-digit SIC code level and if Dun

and Bradstreet has data from enough companies it can calculate ratios for each of four national regions. If a company's particular numbers fall outside the norms, Dun and Bradstreet will challenge the company to clarify or defend their numbers.¹⁰

Based on its investigation, Dun and Bradstreet will assign a company up to six SIC codes in descending order of revenue. The analyst will determine the appropriate codes in the course of interviewing the respondent company. The vast majority of companies have only one SIC code because they are small businesses with one specific product or service.¹¹

Products Offered

Dun and Bradstreet offers access to its main data in several formats: paper directories, CD-ROM discs, on-line via database providers, and direct from Dun and Bradstreet Information Services. Each format has different levels of detail, inclusion, and currency.

Probably the most familiar printed directory from Dun and Bradstreet is the annual Million Dollar Directory. The 1995 edition (available in April of 1995) includes over 160,000 companies, of which approximately 90% are private. To be included in this directory a company must be a headquarters or single location and meet one of the following criteria: net worth greater than \$500,000, annual sales greater than \$25 million, or 250 or more employees at that location. Branch offices and divisions are not listed because they do not submit separate financial statements. Subsidiaries who submit their own financial statements can be listed if they meet the above criteria. The individual company listing will include annual sales volume and range number of employees and up

to six SIC codes with the primary shown first. The Directory does not list net worth even though it is a criteria for inclusion. Dun and Bradstreet offers a CD-ROM version of the Million Dollar Directory called the Million Dollar Disc. It is updated quarterly.¹²

On-line Databases

Dun and Bradstreet offers access to its database via several on-line services including Dialog. The two Dialog files are File 516: Dun's Market Identifiers and File 519: Dun's Financial Records Plus.

Dun's Market Identifiers is the most comprehensive version of the database with over ten million individual business locations as well as government and education sites. However, the Dialog bluesheet notes that the file "includes only those records that have been updated in the last 12 months."¹³ Additional data fields include annual sales amounts (some with historical data), number of employees at the location and the company in total, net worth, growth in sales and employment, number of accounts, names and titles of various executives, and an expanded set of site descriptor terms, including "Public Company," "Business In The Home," and "Minority Owned."¹⁴

The file is updated monthly and includes fields that identify important revisions to individual records. One can identify company name and ownership changes, address and telephone changes, top executive changes, and new entities such as businesses that emerge from sales, mergers, divestitures or spin-offs. One can also identify new businesses and existing businesses which have not been included in Dun and Bradstreet databases before.¹⁵

Dun's Financial Records Plus contains the detailed versions of the Market Identifier company reports. This file is updated quarterly and claims to have "up to three years of comprehensive financial statements for over 700,000 private and public companies."¹⁶ Each report costs \$106 which is comparable to the reports received directly from Dun and Bradstreet, but possibly older than the current Dun and Bradstreet record due to the quarterly update cycle.¹⁷

Custom Database Products

Dun and Bradstreet sells Business Information Reports and many other company profile products directly to clients. Each Business Information Report costs approximately \$75 and a comprehensive Dun's Financial Profile costs approximately \$135.¹⁸ The advantage of obtaining reports directly from Dun and Bradstreet is timeliness since individual records are culled directly from the centrally-maintained and constantly updated Dun and Bradstreet database.

Searches of Test Companies

The following Market Identifier Reports were obtained from Dialog File 516 in late 1995 and early 1996. The Business Information Reports were obtained directly from Dun and Bradstreet Information Services in early 1996. Note: Dun and Bradstreet defines "net worth" as "A company's total assets minus its total liabilities."¹⁹

Overall Themes of Test Data Critique

Of the nine test companies, eight headquarter locations have Market Identifier Reports. Eight headquarter locations also have Business Information Reports. However, a different headquarters is missing in each case: Techforce in the former and Advanta in the latter. Six Business Information Reports contain financial statements; Cylink, CyberCast and Catalink do not include financial statements. All addresses are correct and only one telephone numbers is incorrect.

Record Datedness

The Market Identifier Reports do not indicate the specific year represented by the "Latest Year" heading. Nor do they indicate if the figure represents a fiscal or calendar year.

The date field labelled Record Last Revised dates in both the Market Identifier Reports and Business Information Reports is vague and apparently inconsistent. This field is general: it does not specify the fields or data to which it applies, nor to the extent of the revisions. In the Business Information Report, the accompanying date is similarly vague even though it is applied to specific sections (most typically the Finance and Operations fields). For example, in Ultradata's Market Identifier Report the "latest revision date" is May 2, 1995. The same date appears in both the Finance and Operations sections of its Business Information Report. However, the Business Information Report contains a detailed financial statement for fiscal year 1991, fiscal year 1992, and fiscal year 1993

which was obtained from the Michigan Department of Commerce on June 7, 1995.

Another note in the same section reads: "From Feb. 8, 1995 to May 31, 1995 several unsuccessful attempts were made to contact the principles of the business."²⁰ Therefore, it is not clear to what the date "May 2, 1995" refers even though it has visual prominence. But records for other companies appear to be correctly, or at least consistently labeled. The Market Identifier Report for IC Works, for example, lists a latest revision date of August 14, 1995. Indeed, in the very first section of its Business Information Report appears a news item with the same date.²¹ And in the Finance section in which a detailed financial statement appears, a notice states that the figures were supplied on February 8, 1995 by the accounting manager.²²

Dun and Bradstreet does not clearly explain if this means the date that any of the sales or financial data were last revised in any way by a Dun and Bradstreet analyst or if it is the end of the company's fiscal year. For example, Ultradata's Market Identifier Report lists an annual sales revision date of July 19, 1995. However, nowhere in the Finance section does this date appear appended to any data or comments. The fiscal year for this company ends on December 31. The Market Identifier Report for IC Works lists an annual sales revision date of April 13, 1995 and the Business Information Report has a Statement Update field with the same date and containing a detailed statement dated April 1, 1995.

Financial Data

Analysis shows that only three Business Information Reports contain accurate financial information. These companies (IC Works, SQA, Techforce) cooperated fully by

submitting a detailed financial statement. The other Business Information Reports and Market Identifier Reports show severe errors. One company (Advanta) lacks a Business Information Report entirely. Three companies (Cylink, CyberCash, Catalink) refused to submit financial statements. (CyberCash was actually suffering losses when the Market Identifier Report showed sales of \$3.2 million.) Another Market Identifier Report (Ultradata) reports a sharp downturn in company revenues (from \$18.9 million to \$9.3 million) whereas the company grew to \$25.7 million. Another company's financial profile (Verteq) understates the company because a subsidiary is not included properly in the company's total revenue. Thus, if the Business Information Report includes a financial statement, it is likely to be accurate. And the errors are revealed only when the actuals in the prospectus are known. This is the most disturbing aspect: researching private companies has uncertainty because possible errors can remain unknown.

Employment Data

Neither type of report indicates the date of the employee count. Is it the beginning, middle, or end of the calendar or fiscal year? Is it an average or a figure disclosed by the company without much verification? Furthermore, it does not specify who qualifies as an employee. Does it include contractors, temporaries, part-time workers, and seasonal employees?

But the employee counts, even if vaguely defined, seem fairly close when adjusted for subsequent company growth. However, this company growth is only realized by data revealed in the prospectus. Therefore, unless one has information that establishes the

company activity since the Business Information Report was last revised, one can not adjust the numbers or be confident they are revised appropriately and with a reasonable magnitude.

Presence or Absence of Branch Offices

The Market Identifier Reports were obtained via Dialog in late 1995 and the Business Information Reports were obtained directly from DBIS in early 1996. The vast majority of branch offices that existed contemporaneous to the creation of these records are not listed. This creates problems because clients use these reports to determine the range of a company's operations. Also, Dun and Bradstreet positions its ten million record database of business locations as a comprehensive listing of the nation's active businesses, thus usable for demographic and economic analysis. But the uncounted branch offices contain many employees who are indeed included in a company's total employees field. Of the branch offices that are listed, a common mistake is to have an incorrect SIC code such as designating a branch office as being involved in a different industry.

Advanta Systems Market Identifier Report²³

30 West Gude Drive

Rockville, Maryland 20850-1161

301-251-8600

Sales revised

December 29, 1994

Record last revised

February 13, 1995

Duns Number

86-945-0221

Status

A single location

Sales in latest year

Not listed in report

Net worth

Not listed in report

Number of employees

100-249

Employees total (latest year)

105

Employees at location (latest year)

105

Square footage

Not listed in report

Number of accounts

Not listed in report

Primary SIC code

7373 Computer Integrated Systems Design, NSK

Business

Designs and develops systems and software for medical service plans

Branch offices

None listed

Advanta Systems Business Information Report

There was no Business Information Report as of January 22, 1995.

Advanta Systems Prospectus Data

30 West Gude Drive

Rockville, Maryland 20850-1161

301-251-8600

Prospectus publication date

November 7, 1995

Sales²⁴

1994: \$22,435,000

1993: \$15,654,000

Net worth

1994 total assets: \$10,167,000

1994 total liabilities: \$14,162,000 plus \$6,395,000 stockholders equity

Number of employees

"As of September 30, 1995, the Company had a total of 170 employees." The prospectus does not specify how many employees are at each location.²⁵

Square footage

"The Company leases approximately 46,000 square feet of office space in Rockville, Maryland for its corporate headquarters. The Company also leases approximately 3,800 square feet in Seattle, Washington for regional sales."²⁶

Number of accounts

"The company currently has licenses with 61 Amisys clients supporting 68 sites nationwide."²⁷

Primary SIC code or business

"Advanta develops, markets and supports managed health care information systems for payers and providers who offer managed care products and services."²⁸

Analysis of Advanta

Record datedness

The Market Identifier Report was last revised in early 1995, approximately nine months before the prospectus. As of January 22, 1995 there was no Business Information Report. But this is surprising given the size of the company and that it was prominent enough in its field to go public.

Financial data

The Market Identifier Report does not contain any financial data. This is unusual given that the other Market Identifier Report's evaluated in this thesis contain some data. The lack of a Business Information Report is also unusual given that the company is relatively large with fiscal year 1994 sales of about \$22 million and has enough prominence in its industry that it could issue an IPO.

Employment data

The Market Identifier Report states that the company has 105 employees. The true count is 170 which is 60% more. The difference can be accounted for by business growth if one makes several broad assumptions. Consider the following: the date of the Market Identifier Report's data is vague. "Latest year" might mean the year in which the report was last updated (which could be late December 1994 or February 1995) or it might mean the year in which the Market Identifier Report was extracted from the Dialog database. Additionally, the figure might be a snapshot of a certain time of the year or it might be an average. Thus, if one assumes the Market Identifier Report's employee count is for the

end of calendar year 1994 and the prospectus notes that revenue grew approximately 43% between fiscal year 1993 and fiscal year 1994, the 60% difference between estimated 1994 employment and the actual employment seven months later can be accounted for.

However, these assumptions can not be verified given the incomplete and vague data in the Market Identifier Report and the limited data in the prospectus.

Employee-to-sales ratio

Dun's Market Identifier Report: can not be calculated

Prospectus: \$136,423²⁹

Presence or absence of branch offices

The Market Identifier Report does not have any branch offices listing whereas the prospectus lists one small branch office in Seattle. This omission is not surprising since it appears Advanta did not participate with Dun and Bradstreet's information gathering.

Consistency amongst headquarters and branch office records

Not applicable

Catalink Direct Market Identifier Report³⁰

The company announced one week before publishing its prospectus that it would restructure into two wholly-owned subsidiaries: Catalink Direct, and Elcom Systems. The parent company would be named Elcom International.³¹ The restructuring did not involve purchasing or divesting any companies or operating units. The company's previous name (Catalink Direct) is the official name in the contemporaneous Dun and Bradstreet file.

10 Oceana Way

Norwood, Massachusetts 02062-2671

617-762-0202

Sales revised

March 31, 1995

Record was last revised

September 1, 1995

Duns Number

80-914-1088

Status

Headquarters, ultimate location

Sales in latest year

\$63.3 million (estimate)

Sales in trend year (1993)

Not listed in report

Sales in base year (1991)

Not listed in report

Net worth

Not listed in report

Number of employees

100-249

Employees total (latest year)

350

Employees total (trend year)

Not listed in report

Employees total (base year)

Not listed in report

Employees at location (latest year)

100

Square footage

Not listed in report

Number of accounts

Not listed in report

Primary SIC code

5734 Computer and Software Stores

Business

"Resellers of computer and computer equipment."

Branch offices

1. Edison, New Jersey: a branch with 34 employees. The SIC code is the same as the headquarters' code.³²

Catalink Direct Business Information Report

The Business Information Report states that "On March 20 1995 Larry Multern, treasurer (sic), deferred financial information." ³³

Elcom International Prospectus Data

Just before the prospectus was published the company announced that it would restructure into two wholly-owned subsidiaries: Catalink Direct and Elcom Systems. The parent company is Elcom International.³⁴

10 Oceana Way

Norwood, Massachusetts 02062-2671

617-440-3333

Prospectus publication date

November 9, 1995

Sales³⁵

1995: \$233,056,000

1994: \$28,844,000

1993: \$5,856,000

Note about 1995 data: The Company acquired two companies in 1995: Computerware (February 6) and Lantec (June 22). Lantec remarkets PC products solely in the United Kingdom. In the calendar year of 1994, these companies had \$91,210,000 and \$77,056,000 in net sales, respectively.

Net worth³⁶

1995 total assets (first nine months): \$82,282,256

1995 total liabilities (first nine months) : \$74,184,120 plus \$43,167,038 stockholders equity

1994 total assets: \$12,714,252

1994 total liabilities: \$7,904,136 plus \$6,510,459 stockholders equity

1993 total assets: \$1,720,782

1993 total liabilities: \$2,518,778 plus \$661,862 stockholders equity

Number of employees

"As of September 30, 1995, the Company had a total of 630 employees."³⁷ The prospectus does not specify how many are in the United States or the United Kingdom or how many work specifically for Elcom, Computerware, or Lantec.

Square footage³⁸

The company has 16 locations, of which 15 are field sales and support offices and one is a retail outlet. Field sales and support offices include: Norwood, Connecticut (which also functions as headquarters); Hartford, Connecticut; Stamford, Connecticut; New York City, New York; Edison, New Jersey; Wilmington, Delaware; Bristol, Pennsylvania; Dallas, Texas; Austin, Texas; Atlanta, Georgia; Phoenix, Arizona; Charlotte, North Carolina; San Francisco, California; Chicago, Illinois; and Alexandria, Virginia. The retail outlet is in Allentown, Pennsylvania.

Number of accounts³⁹

The company targets its sales efforts at corporate, business, government, and educational accounts. The prospectus does not list how many major or long-standing accounts it has.

Primary SIC code or business

"Elcom International, develops and licenses proprietary software systems which enable the conduct of interactive electronic commerce and, through a subsidiary, is currently using this technology to market personal computer products electronically."⁴⁰

Analysis of Catalink Direct/Elcom International

Record datedness

The prospectus appeared two months after the Dialog record was revised. The phone number is different in the two sources.

Financial data

This company is difficult to analyze due to the many companies purchased in 1994 and 1995. The Business Information Report states that the company did not cooperate with Dun and Bradstreet in giving financial or employee data. Thus, the employee and revenue figure may be a Dun and Bradstreet estimate based on the large acquisitions in 1995.

Employment data

Not surprisingly the employment data in the Dun and Bradstreet records is half the actual number in the prospectus.

Employee-to-sales ratio

Dun's Market Identifier Report: \$180,857

Prospectus: \$369,930⁴¹

Presence or absence of branch offices

The Market Identifier Report does not account for 216 employees. However, the record was published in time to account for the purchase of Computerware which could account for the difference. However, the company's total revenues are then understated by at least \$60 million if one uses 1994 revenue figures and does not estimate any actual growth through early 1995.⁴² The prospectus lists 15 field sales and support offices, only

one of which is in the Market Identifier Report. The prospectus does not indicate which were added with the acquisitions.

Consistency amongst headquarters and branch office records

The SIC code is correct and consistent between headquarters and branch offices.

CyberCash Market Identifier Report⁴³

2100 Reston Parkway, Suite 430

Reston, Virginia 22091

703-620-4200

Sales revised

December 7, 1995

Record was last revised

December 22, 1995

Duns Number

87-823-8716

Status

Headquarters, ultimate location

Sales in latest year

\$3.2 million (estimate)

Sales in trend year (1993)

Not listed in report

Sales in base year (1991)

Not listed in report

Net worth

Not listed in report

Number of employees

20 - 49

Number of employees (latest year)

50

Number of employees (trend year)

Not listed in report

Employees total (base year)

Not listed in report

Employees at location (latest year)

42

Square footage

Not listed in report

Number of accounts

Not listed in report

Primary SIC code

7374 Data Processing and Preparation

Business

Computer payment service

Branch offices

1. Redwood City, California: a branch with eight employees. The SIC code is the same as the headquarter's code.⁴⁴

CyberCash Business Information Report

The Finance section states that in January 30, 1995 the company principals were not available for interview, therefore no financial statement is included.⁴⁵

CyberCash Prospectus Data

2100 Reston Parkway, Suite 430

Reston, Virginia 22091

703-620-4200

Prospectus publication date

January 24, 1996

Sales

The prospectus indicates 0 (zero) revenues because "The Company is a development stage company founded in August 1994 and presently has only a limited number of banks, merchants and financial institutions utilizing its Credit Card service. . . . Since its inception, the Company has not recognized any revenue and, as of December 31, 1995, had an accumulated deficit of approximately \$11 million."⁴⁶

Net worth

1995 total assets: \$7,386,000

1995 total liabilities: \$2,273,000 plus \$5,113,000 stockholders equity, accounted as a deficit.

Number of employees

"As of December 31, 1995, the Company had a total of 65 employees."⁴⁷

Square footage

"The Company leases its principal facilities totaling approximately 37,000 square feet in Reston, Virginia, together with smaller facilities in Redwood City, California, [and] Mission, Kansas" ⁴⁸

Number of accounts

This concept is not applicable to this business at this time: "The Company intends to distribute its software to businesses and individuals free of charge and to effect a significant amount of its software distribution through bundling arrangements with the developers of various Web browsers, as well as hardware and software vendors." ⁴⁹ To this end, the Company has formed technology licensing agreements with key industry players including CompuServe, Sun Microsystems and American Express. ⁵⁰

Primary SIC code or business

"CyberCash is a leading developer of software and service solutions for secure, cost-effective, convenient and rapid payments over the Internet". ⁵¹

Analysis of CyberCash

Record datedness

The Market Identifier Report and prospectus dates are only one month apart.

Financial data

The Market Identifier Report has a serious error in that the start-up company actually had no revenues during its entire existence and is in debt. However, the prospectus lists working capital of \$3.4 million. The Market Identifier Report notes that its sales figure is an estimate; it appears to be generated from a ratio applied to the number of employees. The Business Information Report states that on January 30, 1995 the company principals were not available for interview.⁵² This may account for the inaccurate and misleading data in the Market Identifier Report.

Employment data

The Market Identifier Report understates the actual number of employees by 30% even though the data purports to be recent. The Business Information Report contains an interesting discrepancy: one section notes that the company has a total of 50 employees (which is the same as cited in the Market Identifier Report), whereas the section entitled "Operation" and dated January 30, 1995 notes that the company had 18 employees.⁵³ It is not clear how these two fields are related even though they purport to contain the same type of data.

Employee-to-sales ratio

Dun's Market Identifier Report: \$64,000

Prospectus: not applicable⁵⁴

Presence or absence of branch offices

Both the Market Identifier Report and prospectus report the existence of the Redwood City branch office. However, the Market Identifier Report lacks the Kansas City office even though its data was updated only one month before the publication of the prospectus. It is possible, but unlikely, the Kansas City office was opened in the one month between these separate reporting vehicles.

Consistency amongst headquarters and branch office records

The Market Identifier Report's SIC codes are relevant and coordinated between the headquarters and the branch office.

Cylink Market Identifier Report⁵⁵

910 Hermosa Court

Sunnyvale, California 94086

408-735-5800

Sales revised

June 2, 1995

Record was last revised

November 7, 1995

Duns Number

12-136-6280

Status

Headquarters, manufacturing location, ultimate location

Sales in latest year

\$19.5 million (estimate)

Sales in trend year (1993)

Not listed in report

Sales in base year (1991)

Not listed in report

Net worth

Not listed in report

Number of employees

100 - 249

Employees total (latest year)

230

Employees total (trend year)

Not listed in report

Employees total (base year)

Not listed in report

Employees at location (latest year)

208

Square footage

Not listed in report

Number of accounts

500

Primary SIC code

3663 Radio and TV Communications Equipment

Business

Manufacturing encryption devices and communications equipment

Branch offices

1. Norcross, Georgia on Corners Parkway: a branch with three employees. The SIC code is 51120401 Stationary and Office Supplies: Computer Paper, which is very different from the headquarters location.⁵⁶

2. Norcross, Georgia on Holcomb Bridge Road: a branch with three employees. The SIC code is 51120401 Stationary and Office Supplies: Computer Paper, which is very different from the headquarters location.⁵⁷

3. Saint Charles, Illinois: a branch with four employees. The SIC code is 3663, the same as the headquarters location.⁵⁸

4. New York, New York: a branch with five employees. The SIC code is 5065 Electronic Parts and Equipment, Not Elsewhere Classified, which is somewhat different from the headquarters location.⁵⁹

5. Fairfax, Virginia: a branch with three employees. The SIC code is 5065 Electronic Parts and Equipment, Not Elsewhere Classified, which is somewhat different from the headquarters location but the same as the New York City branch office.⁶⁰

Cylink Business Information Report

No financial data is available because "On December 6, 1995 Frank Pettebone, controller, declined financial information."⁶¹

Cylink Prospectus Data

910 Hermosa Court

Sunnyvale, California 94086

408-735-5800

Prospectus publication date

January 24, 1996

Sales⁶²

1995: \$34,902 million

1994: \$26,646 million

1993: \$26,294 million

Net worth

1995 total assets: \$22,725,000

1995 total liabilities: \$6,616,000 plus \$14,605,000 shareholders equity

1994 total assets: \$20,663,000

1994 total liabilities: \$6,223,000 plus \$14,149,000 shareholders equity

Number of employees

"As of December 31, 1995, the Company had 265 employees. . . . Of these employees, 251 were located in the United States"⁶³

Employees at location

The prospectus does not indicate the specific number of employees at the headquarters.

Square footage

The prospectus is vague or possibly contradictory about the number and location of the sales offices. Compare "The Company's direct sales force operates from the Company's headquarters in Sunnyvale, California and from four sales offices. . . ." ⁶⁴ with "The Company's headquarters occupies 86,000 square feet in Sunnyvale, California. . . . The company also leases facilities for sales offices in New Jersey, Virginia [and various foreign cities]. . . ." ⁶⁵ Note that the specific cities are not cited. The New Jersey office also functions as a service and support center.

Number of accounts

The prospectus does not indicate the specific number of accounts, but states "To date, the customers for the Company's information security products have primarily consisted of Fortune 1000 companies, financial institutions, government agencies, and telecommunication carriers. . . . From inception through December 31, 1995, the Company sold over \$100 million dollars of information security products in the U.S. and abroad." A table lists 24 prominent accounts. ⁶⁶

Primary SIC code or business

"Cylink Corporation is a leading supplier of network information security products that enable the secure transmission of data over private local area networks and wide area networks and public packet switched networks, such as the Internet." ⁶⁷

Analysis of Cylink

Record datedness

The two DBIS records for this company exhibit dating anomalies. The Market Identifier Report was retrieved from the Dialog Market Identifiers file on January 15, 1996 and states that the record was revised November 7, 1995. The Business Information Report was retrieved directly from the Dun and Bradstreet Information Services database only one week later, on January 22, 1996, but it contains data as of December 6, 1995. This discrepancy is hard to account for because the Dialog file claims to be updated once a month. It is possible that the Market Identifier Report actually has a two-month delay because if the Dialog record retrieved in January was current as of the end of December 1995 it would have contained the latest notice from December 6, 1995 as cited in the Business Information Report. This inexplicable disparity illustrates the hazards of going to third-party database suppliers rather than directly to the vendor: Dun and Bradstreet Information Services retrieves records directly from the living database not an archive.

Additionally, the Prospectus data is dated December 31, 1995, which is only one month after the current version of the Dialog database was made available (assuming a late November database mounting as explained above). This is too short a time to account for the large difference in data sets.

Financial data

The Market Identifier Report's "latest year sales" is 1994 which it reports to be approximately \$19.5 million. The actual was approximately 33% larger at \$26 million.

The Market Identifier Report never clearly defines what constitutes an "account," thus the figure given is of little value in light of the Prospectus' vague explanation of its accounts.

Employment data

The difference in total employment is harder to evaluate because one year exists between the Market Identifier Report data and the Prospectus data. It is hard to determine how reasonable it is to assume that the company added 15% in the year prior to going public when this year saw an approximate 33% increase in revenues.

Employee-to-sales ratio

Dun's Market Identifier Report: \$84,782

Prospectus: \$131,706⁶⁸

Presence or absence of branch offices

The prospectus is vague or possibly contradictory about the number and locations of the sales offices. Compare "The Company's direct sales force operates from the Company's headquarters in Sunnyvale, California and from four sales offices. . . " ⁶⁹ with "The Company's headquarters occupies 86,000 square feet in Sunnyvale, California. . . . The company also leases facilities for sales offices in New Jersey, Virginia [and several foreign cities]. . . " ⁷⁰ The specific U.S. cities are never given. The prospectus does not indicate the closing or opening of specific offices, but it notes that selling and marketing expense as a percentage of revenue increased from 21.4% in 1993 to 27.4% in 1995 "primarily due to costs associated with the expansion of the Company's direct sales force. . . " ⁷¹ The Market Identifier Report cites four branch offices: one in Virginia, but none in

New Jersey. Thus, between the two data sources there are three branch locations unaccounted for that are presumably sales offices.

Consistency amongst headquarters and branch office records

The Market Identifier Report's SIC codes are diverse and incorrect. The codes for the headquarters and one branch office are wrong: the company is involved in computer data networks, not radio or television communications. One branch office appears to be even further off: it is listed as a computer paper supplier. The remaining two branch offices are coded incorrectly but at least they are in the computer component area.

Other anomalies

The Market Identifier Report lists two small branch offices in the same city. The street addresses, Dun's numbers, and site contacts are different yet the SIC code is the same: computer paper supplier. This odd coincidence of incorrect SIC code yet the same city suggests a possible error to be further investigated.

IC Works Market Identifier Report⁷²

3725 North First Street

San Jose, California 95134-1708

408-922-0202

Sales revised

April 13, 1995

Record was last revised

August 14, 1995

Duns Number

78-870-6075

Status

A single location

Sales in latest year

\$26,009,022

Sales in trend year (1993)

Not listed in report

Sales in base year (1991)

Not listed in report

Net worth

\$7,458,635

Number of employees

100-249

Employees total (latest year)

160

Employees total (trend year)

Not listed in report

Employees total (base year)

Not listed in report

Employees at location (latest year)

160

Square footage

45,000

Number of accounts

Not listed in report

Primary SIC code

3674 Semiconductors and Related Devices

Business

Manufacturing integrated circuits and wafers

IC Works Business Information Report⁷³

The Record contains detailed financial statements:⁷⁴

	FY93	FY94	FY95	1Q96
Total assets	-	\$16,349,451	\$20,373,911	\$22,548,198
Current assets	\$7,415,952	\$10,193,103	\$13,588,902	\$12,739,370
Current liabilities	\$3,993,854	\$7,818,859	\$7,252,301	\$14,534,117
Sales	-	\$22,876,056	\$26,009,022	\$7,620,674
Net profit	-	\$825,806	(\$111,310)	\$429,551

The financial statements also contain detailed data about current assets and liabilities, operating expenses, taxes, and working capital.

The Business Information Report also states that the company "Develops fabrication processes and provides wafer and other foundry services to fabless semiconductor companies (60%) and manufactures internally designed integrated circuits (40%)" and that the sales regions are "United States (80%) and International (20%)."⁷⁵

IC Works Prospectus Data

3725 North First Street

San Jose, California 95134-1700

408-922-0202

Prospectus publication date

November 16, 1995

Sales⁷⁶

1995: \$26,009,000

1994: \$22,876,000

Net worth⁷⁷

1995 total assets: \$20,564,000

1995 total liabilities: \$12,915,000 plus \$7,649,000 shareholders equity

1994 total assets: \$16,349,000

1994 total liabilities: \$13,378,000 plus \$2,971,000 shareholders equity

Number of employees

"As of September 30, 1995, the Company had 190 employees."⁷⁸

Square footage

The Company leases a 42,500 square foot facility in San Jose, California and maintains sales offices in Lebanon, Ohio and Raleigh, North Carolina.⁷⁹

Number of accounts

The prospectus does not state how many customers or accounts the company has.

Primary SIC code or business

"IC Works designs, develops, manufactures and markets mixed-signal clock products for the personal computer, workstation, and communications markets and provides foundry services to selected mixed-signal semiconductor companies."⁸⁰

Analysis of IC Works

Record datedness

The latest data for the first quarter of fiscal year 1996 in the Business Information Report is dated July 25, 1995, approximately four months before the prospectus publication. The company most likely did not report their 2Q96 results to Dun and Bradstreet because the IPO was imminent and might qualify as prohibited promotions.

Financial data

The company provided extensive and accurate financial details to Dun and Bradstreet. It is one of the few companies in the sample who cooperated so thoroughly. Discrepancies can be accounted for by the timing of the data release: the fiscal year 1995 data in the Business Information Report was unaudited and thus records a slight loss when the company actually posted a small profit. One item not found in the other Business Information Reports is the result for the first quarter. The improvement they show is propitious given the proximity of the IPO.

The Business Information Report gives the percentage breakdown for the revenues: 60% of revenue is derived from foundry services and 40% is from integrated circuit sales. The specific dollar amounts represented by this are listed in the prospectus as foundry revenues and product revenues. The Business Information Report contains additional data on regional breakdowns not found in the prospectus but which is of interest to marketers.

Employment data

The Market Identifier Report data of 160 employees is reasonable because the company grew 10% in one quarter after modest growth.

Employee-to-sales ratio

Dun's Market Identifier Report: \$162,557

Prospectus: \$136,889⁸¹

Presence or absence of branch offices

The prospectus lists two other sales offices which are not listed in Dun and Bradstreet's records. The Dun and Bradstreet records, however, imply that the company had no branches by citing the same figure for "total employees" and "employees at the headquarters location."

Consistency amongst headquarters and branch office records

The company is categorized correctly in the Market Identifier Report record as a manufacturer of integrated circuits and wafers.

SQA Market Identifier Report⁸²

10 State Street

Woburn, Massachusetts 01801-6820

617-932-0100

Sales revised

May 9, 1995

Record last revised

December 13, 1995

Duns Number

62-726-2686

Status

A single location.

Sales in latest year

\$4,449,615

Sales in trend year (1993)

\$1,654,862

Sales in base year (1991)

\$500,000

Net worth

\$1,848,797

Number of employees

Not listed in report

Employees total (latest year)

83

Employees total (trend year)

45

Employees total (base year)

4

Employees at location (latest year)

Not listed in report

Square footage

14,237

Number of accounts

600

Primary SIC code

7371 Custom Computer Programming Services

Business

Computer software development

SQA Business Information Report

The Record contains detailed financial statements for fiscal years 1992 through 1994.⁸³

	FY92	FY93	FY94
Current assets	\$231,171	\$1,983,382	\$3,839,494
Current liabilities	\$1,220,003	\$878,127	\$2,232,301
Working capital	(\$988,832)	\$1,105,255	\$1,607,193
Other assets	\$156,647	\$155,756	\$242,194
Worth	(\$850,288)	\$1,261,011	\$1,848,797
Sales	\$643,363	\$1,654,862	\$4,449,615
Net profit (loss)	(\$1,515,602)	(\$1,686,477)	(\$2,422,869)

SQA Prospectus Data

10 State Street

Woburn, Massachusetts 01801-6820

617-932-0100

Prospectus publication date

10/25/95

Sales⁸⁴

1994: \$4,450,000

1993: \$1,655,000

1992: \$643,000

1991: \$213,000

Net worth⁸⁵

1994 total current assets: \$3,780,000

1994 total current liabilities: \$2,172,000 plus \$6,046,000 stockholders equity

1993 total current assets: \$1,983,000

1993 total current liabilities: \$878,000 plus \$3,602,000 stockholders equity

Number of employees

"As of September 30, 1995, the Company had 85 full-time employees, 82 of whom were based in the United States."⁸⁶

Square footage

The Company maintains a 15,000 square foot headquarters in Woburn, Massachusetts and leases "additional facilities and offices, including locations in California, Illinois and the United Kingdom."⁸⁷ The prospectus states that "Since 1994, the Company has opened a limited number of direct field sales offices in North America to complement its telesales effort." It does not explicitly identify if the California and Illinois sites comprise these new sales offices.⁸⁸

Number of accounts

"As of September 30, 1995, SQA has sold over 18,000 software licenses to more than 1,900 organizations. No single customer accounted for more than 5% of the Company's total revenues. . . ."⁸⁹

Primary SIC code or business

"SQA develops and markets integrated software products for the automated testing and quality management of Windows-based client/server applications."⁹⁰

Analysis of SQA

Financial data

SQA submitted its full financial statement to DBIS for inclusion. As a result, much of the data is the same between the prospectus and Dun and Bradstreet reports in general. One difference does appear, however, between the prospectus' fiscal year 1991 sales of \$213,000 and the Market Identifier Report's figure of \$500,000.

Employment data

The employment figures are very close which suggests that the company had not added any people in 1995. This is not surprising given the heavy losses the company had sustained through the last three fiscal years. Not surprisingly the employee-to-sales ratio is low.

Employee-to-sales ratio

Dun's Market Identifier Report: \$53,610

Prospectus: \$52,353⁹¹

Presence or absence of branch offices

The Market Identifier Report record does not list any branch offices and the prospectus is vague as to the exact number and location of its branch offices. It is unusual for a prospectus to be this vague.

Other anomalies

The Business Information Report states that the company has 600 accounts. The prospectus promotes its sales in a different way: it states that the company has sold over

18,000 software licenses to more than 1,900 organizations. The difference might be due to different definitions, rapid company growth, or typographical errors.

Techforce Market Identifier Report

The headquarters location (Duns Number 62-424-9330) is not listed in the Market Identifier Report.

The full record for this company has many errors in Dialog File 516.⁹² File 516 lists four branch locations each of which is linked to the same headquarters and corporate family Duns number. The locations are: Clearwater, Florida; Hingham, Massachusetts; Gaithersburg, Maryland; and Memphis, Tennessee.⁹³ There is no record for the headquarters location itself, however a branch office is listed at the street address the prospectus identifies as the headquarters. A search for the headquarter's Duns Number did not retrieve the headquarters record either. The following data is about the four confirmed branch offices in the Market Identifier Report:

Sales in latest year

\$5,634,000 (approximate; one branch does not have any sales listed)

Employees total

176 (approximate; one branch does not have an employee count listed)

Techforce Business Information Report

The Business Information Report has more information. It lists the correct headquarters address and telephone number. It notes that the company relocated its headquarters in September 1995. However, the address of the former headquarters is not included in the Market Identifier Report's list of branch locations. Thus, the Market Identifier Report not only lacks the current headquarters location but the original headquarters location as well. It includes the following statement:⁹⁴

	FY92	FY93	FY94
Current assets	\$1,273,909	\$2,869,977	\$15,994,467
Current liabilities	\$200,000	\$943,910	\$9,449,529
Working capital	\$1,073,909	\$1,926,067	\$6,544,938
Other assets	\$56,467	\$75,407	\$8,881,285
Worth	\$1,130,376	\$2,001,474	\$3,316,312
Sales	\$4,442,822	\$8,898,672	\$30,737,725
Net profit (loss)	\$1,327,791	\$2,005,094	\$1,590,475

The financial statements also contain detailed data about the components of current assets and liabilities, operating expenses, and taxes. The Business Information Report also states that the company has a sales office in Elmhurst, Illinois and has a total of 350 employees, 100 of which are at the headquarters location.⁹⁵

Techforce Prospectus Data

15950 Bay Vista Drive

Clearwater, Florida 34620

813-532-3600

Prospectus publication date

November 22, 1995

Sales⁹⁶

1994: \$30,738,000

1993: \$8,899,000

Net worth⁹⁷

1994 total current assets: \$15,994,467

1994 total current liabilities: \$12,328,548

Number of employees

"As of November 20, 1995, the Company had 400 employees, of whom 334 were full-time employees, 52 were full-time contract employees and 14 were part-time employees."⁹⁸ The prospectus does not specify how many were located in the United States.

Square footage

In late 1995 the company relocated its headquarters from Atlanta, Georgia to a 22,000 square foot facility in Clearwater, Florida. It maintains a 52,000 square foot Technical

Operations Center for repairs in Memphis, Tennessee. The Company also maintains a 4,425 square foot sales and marketing office in Chicago, Illinois. The Company has five small, remote sales offices in the United States and Canada but does not specify which are specific to the United States.⁹⁹

Number of accounts

"The Company has over 500 customers in the United States, Canada and the United Kingdom."¹⁰⁰ It does not specify how many are specifically in the United States.

However, Packard Bell and FedEx accounted for 24.1% and 12.8% of the Company's 1994 revenues, respectively.¹⁰¹

Primary SIC code or business

"TechForce provides integrated network support solutions to corporate clients and specialized support to telecommunications carriers, integrators and manufacturers of PCs, hand-held devices, peripherals and networking equipment on an outsourced basis."¹⁰²

Analysis of Techforce

Record datedness

The absence of a headquarters location severely limits the Market Identifier Report listing because the total company sales and employee data are missing. The Business Information Report, however, has reasonably accurate data which suggest the company fully disclosed this. The Market Identifier Report's lack of certain data found in the Business Information Report is inexplicable.

Financial data

The company cooperated with Dun and Bradstreet Information Services by submitting its detailed financial statements in May 1995. Thus, the data in the Business Information Report are essentially the same as the company's actuals.

Employment data

The Business Information Report records indicate the company has 350 employees.¹⁰³ Even if the exact age of the data is uncertain, this is very close to the actual of 400 employees.

Employee-to-sales ratio

Dun's Market Identifier Report: \$87,822

Prospectus: \$76,845

Presence or absence of branch offices

The Techforce branch office in Tennessee has the most employees and corresponds to Techforce's main repair depot. However, the prospectus does not specify the cities in

which the branch offices' are found thus making it difficult to determine the amount of error in the Market Identifier Report's list of branch office locations. However, both the Business Information Report and prospectus indicate a sales office in Elmhurst, Illinois.

Consistency amongst headquarters and branch office records

The Market Identifier Report's primary SIC for three of the four branch offices appears correct: 7629 Electrical Repair Shops. But the fourth branch office is listed as 5045 Computers, Peripherals and Software Wholesaling. The prospectus does not describe any such company activity.

Also, one Market Identifier Report record describes a "Single Location Business" named "Techforce" that appears to be connected with the other branch offices: it is in the same metropolitan area as the headquarters and is involved with computer repair activities. However one can not verify its connection to the other branch offices because it lacks a Parent Duns Number.

Ultradata Market Identifier Report¹⁰⁴

5020 Franklin Drive

Pleasanton, California 94588

510-463-8356

Sales revised

July 19, 1995

Record was last revised

May 2, 1995

Duns Number

06-976-6145

Status

Headquarters, ultimate location

Sales in latest year

\$9.3 million (estimate)

Sales in trend year (1993)

\$18,969,124

Sales in base year (1991)

\$14,936,998

Net worth

\$2,119,610

Number of employees

50 - 99

Employees total (latest year)

118

Employees total (trend year)

118

Employees total (base year)

95

Employees at location (latest year)

99

Square footage

25,000

Number of accounts

Not listed in report

Primary SIC code

7374 Data Processing and Preparation

Secondary SIC Code

5045 Computers, Peripherals, And Software

Business

Data processing service and wholesale computer software and systems

Branch offices

1. Carrollton, Texas: a branch with one employee. The SIC code is the same as the headquarter's code.¹⁰⁵

Ultradata Business Information Report

The Business Information Report contains an actual financial statement for the fiscal years 1991, 1992, and 1993 (the fiscal year ends December 31).¹⁰⁶ The Business Information Report indicates the data was obtained from the Michigan Department of Commerce on June 7, 1995. The Business Information Report also states that the company declined to provide any information or confirmation for the financial statement.¹⁰⁷

	FY91	FY92	FY93
Current assets	\$4,279,820	\$4,412,351	\$6,372,481
Current liabilities	\$3,695,977	\$3,611,585	\$6,625,608
Working capital	\$583,843	\$800,766	(\$253,127)
Other assets	\$1,581,175	\$2,104,306	\$2,600,487
Worth	\$1,463,655	\$1,672,366	\$2,119,610
Sales	see below		
Net profit (loss)	see below		

The financial statements also contain detailed data about the components of current assets and liabilities, operating expenses, and taxes. However, the printout of the Business Information Report has some problems. Due to inconsistent column formatting it is not clear to which years the following two sales figures belong: \$14,871,877 and

\$18,969,124. Also, it is not clear to which years the following two net profit figures belong: \$130,773 and \$208,711.

The Business Information Report lists a total of six branch sales offices (San Francisco, Atlanta, Detroit, Boston, New York, and Dallas) and two support facilities in Atlanta and Dallas. It does not state if the support facilities are in the same buildings as the two sales offices.¹⁰⁸

Ultradata Prospectus Data

5020 Franklin Drive

Pleasanton, California 94588

510-463-8356

Prospectus publication date

January 26, 1996

Sales¹⁰⁹

1995: \$31,134,000

1994: \$25,691,000

1993: \$25,534,000

1992: \$18,643,000

1991: \$14,840,000

Net worth¹¹⁰

1995 total assets: \$15,135,000

1995 total liabilities: \$13,617,000 plus \$1,518,000 stockholders equity

1994 total assets: \$9,186,000

1994 total liabilities: \$7,522,000 plus \$1,664,000 stockholders equity

Employees total

As of December 31, 1995 the Company had a total of 238 employees.¹¹¹ The prospectus does not specify the number of employees by location.

Square footage

The company has a headquarters of approximately 42,500 square feet in California. Sales offices are located in Atlanta, Boston, Chicago, Detroit, New Jersey, and South Carolina. The company also maintains a Disaster Recovery Center in Carrollton, Texas.¹¹²

Number of accounts

The prospectus contains a detailed explanation of the company's customer base: "The Company's installed customer base includes approximately 150 credit unions with in-house ULTRAFIS systems. Eight credit unions use the Company's on-line service bureau. In addition, the Company has licensed four service bureaus to use the ULTRAFIS system to provide on-line services to over 150 additional subscriber credit unions throughout the United States. The Company receives annual revenues from these relationships. The Company's installed base of products currently serves approximately four million, or 6%, of the approximately 65 million total credit union members in the United States."¹¹³

Primary SIC code or business

"Ultradata is a leading supplier of on-line information processing systems for the credit union market."¹¹⁴

Analysis of Ultradata

Record datedness

The Market Identifier Report is approximately seven months older than the prospectus.

Financial data

The data for fiscal year 1991 is close to the prospectus' actual numbers. However, the Market Identifier Report's 1993 estimates are closer to the company's 1992 actuals whereas the 1993 actual is approximately 35% more. Additionally, the Market Identifier Report's estimate for fiscal year 1994 is wrong: \$9.3 million versus an actual of \$25.7 million (and the following year the company grew 21% to \$31.1 million). The Market Identifier Report does not explain its sharp downturn and the Business Information Report does not list any data for fiscal year 1994. Furthermore, the Business Information Report's poor formatting creates larger questions beyond to which year the two sales figures belong. The Market Identifier Report lists 1991 sales as \$14,936,998 and 1993 sales as \$18,969,124. Indeed, the first number in the Business Information Report is similar, but not exactly the same (\$14,871,877) and the second is exactly like the 1993 number (\$18,969,124). However, if these are the correct year assignments the Business Information Report lacks a number for 1992.

Employment data

The Market Identifier Report and Business Information Report list less than half the actual number of employees. However, using the employee-to-sales ratio of 1993 to adjust these numbers to reflect the different reporting timeframes, the resultant

employment using actual fiscal year 1995 data would be 194 employees. This is only a 18% difference which seems to be an acceptable range of error.

Employee-to-sales ratio

Dun's Market Identifier Report: \$160,755 (using 1993 data); \$78,814 (using estimated 1994 data)

Prospectus: \$130,815¹¹⁵

Presence or absence of branch offices

The Market Identifier Report lists only one branch office in Carrollton, Texas with one employee. The prospectus describes this as a 24-hour, 365-days a year Disaster Recovery Center, therefore one employee seems very understaffed for its extensive mission. The Market Identifier Report also has an inexplicable discrepancy of 18 employees between the total employees and the sum of those listed at the branch office and at the headquarters. However, the Business Information Report lists at least six other locations besides the headquarters, one of which is a sales and support facility in Dallas (but not specifically labeled Carrollton). The prospectus also lists six sales offices, of which three are in the same cities as the Business Information Report but which the other three are in entirely different states. Thus, the company's existent locations are unaccounted for or ambiguous based on the Market Identifier Report and Business Information Report.

Consistency amongst headquarters and branch office records

The SIC codes in the Market Identifier Report is correct and the same between headquarters and branch offices. The Business Information Report cites leased office space approximately 70% less than the figure found in the prospectus, but given that the

company grew 73% between fiscal year 1991 and fiscal year 1994, this difference seems reasonable.

Verteq Market Identifier Report¹¹⁶

1241 East Dyer Road, Suite 100

Santa Ana, California 92705-5611

714-708-0330

Sales revised

December 28, 1994

Record was last revised

November 21, 1994

Duns Number

13-927-3494

Status

Headquarters, ultimate location

Sales in latest year

\$24,236,100

Sales in trend year (1993)

Not listed in report

Sales in base year (1991)

Not listed in report

Net worth

\$6,010,900

Number of employees

100 - 249

Employees total (latest year)

270

Employees total (trend year)

Not listed in report

Employees total (base year)

Not listed in report

Employees at location (latest year)

200

Square footage

52,000

Number of accounts

100

Primary SIC code

Primary SIC: 35599927 Semiconductor Manufacturing Machinery and 25599939

Electronic Component Making Machinery

Business

Manufactures semiconductor and electronic manufacturing machinery

Branch offices

1. San Jose, California: a branch with five employees. The SIC code is 50650309 Semiconductor Devices.¹¹⁷ This is incorrect since the company makes semiconductor manufacturing machinery, not the semiconductors themselves.
2. Corvallis, Oregon: "Phoenix Process Automation " is a subsidiary with \$24 million in sales and 135 employees in the latest year, \$12 million and 74 total employees in the trend year (1993), and \$2 million and 17 employees in the base year (1991). It has 25 accounts and 21,000 square feet. Its net worth is not available. The SIC code is 35599937 Recycling Machinery.¹¹⁸ This is incorrect.

Verteq Business Information Report

The company submitted an interim statement dated approximately seven weeks earlier than the prospectus' publication.¹¹⁹ The following financial information was included:¹²⁰

	FY93	FY94	FY95
Current assets	\$7,218,200	\$11,461,100	\$20,008,800
Current liabilities	\$4,110,500	\$8,286,700	\$16,576,000
Working capital	\$3,107,700	\$3,174,400	\$3,432,800
Other assets	\$3,101,400	\$4,253,700	\$5,538,600
Worth	\$5,584,500	(\$7,793,500)	(\$10,526,700)
Sales	\$19,031,700	\$24,236,100	\$44,030,800
Net profit (loss)	\$805,800	\$411,200	\$141,200

The fact that fiscal year 1994 sales contained in the Market Identifier Report and Business Information Report are the same as found in the prospectus suggests the company had been submitting this data before it went public.

Verteq Prospectus Data

1241 East Dyer Road, Suite 100

Santa Ana, California 92705-5611

714-708-0330

Prospectus publication date

November 20, 1995

Sales¹²¹

1995: \$44,031,000

1994: \$24,236,000

Sales for Phoenix Process Automation¹²²

1993: \$3,882,900

1994 (first seven months): \$3,728,300.

Employees total

"As of September 30, 1995, the Company employed 432 employees."¹²³ The prospectus does not breakdown the number of employees by location.

Net worth¹²⁴

1995 current assets: \$27,811,300

1995 current liabilities: \$15,353,100 plus \$8,262,800 stockholders equity

1994 current assets: \$15,714,800

1994 current liabilities: \$8,286,700 plus \$7,679,600 stockholders equity

Square footage

"The Company leases space for its principal administrative and production facility in Santa Ana, California. This lease covers an aggregate of approximately 63,000 square feet. . . . The Company also leases approximately 44,000 square feet for VSA's operations in Corvallis, Oregon. . . . In addition, the Company maintains sales or service offices in (Tempe) Arizona, (San Jose) California, (Corvallis) Oregon and (Austin) Texas."¹²⁵

Number of accounts

The prospectus lists the top 20 customers for fiscal 1995. Four of these customers accounted for a total of 60.6% of net sales.¹²⁶

Primary SIC code or business

"Verteq is a leading supplier of advanced wet processing equipment providing high performance process solutions for the wafer cleaning, etching and stripping requirements of the semiconductor industry."¹²⁷

Analysis of Verteq

Record datedness

Approximately one year passed between the Dun and Bradstreet record update and prospectus publication.

Financial data

Verteq's dramatic leap from \$24 million in fiscal year 1994 to \$44 million in fiscal year 1995 is difficult to account for. The prospectus is unclear: "This increase was attributable to the Company's commencement of shipments of wet process systems following the acquisition of VSA in August 1994 and an increased volume of module sales, particularly megasonic modules."¹²⁸ However, prospectus data about VSA portrays the company as having only \$3 million a year in revenues. The prospectus asserts that VSA is in Corvallis, Oregon. The Market Identifier Report refers to the subsidiary at this location as the Phoenix Process Automation subsidiary and lists approximately \$24 million in sales in 1994. If this amount is added to the original Verteq revenues in the prospectus, then the sum is closer to the total revenue in the prospectus.

Employment data

Adding the 135 employees claimed for Phoenix Process Automation found in the Market Identifier Report to the true Verteq employment of 270 results in 405 employees, which is reasonably close to the prospectus' reported total of 432 employees as of September 1995.

Employee-to-sales ratio

Dun's Market Identifier Report: \$89,763 (including Phoenix Process Automation);
\$59,843 (without Phoenix Process Automation).

Prospectus: \$101,924¹²⁹

Presence or absence of branch offices

Three of the four branch sales office locations are not listed in the Market Identifier Report. The Business Information Report lists 200 employees at the headquarters, five at one branch office, and a total of 270 employees. The difference of 65 are unaccounted for. The Market Identifier Report states that the company leases a 52,000 square foot headquarters and 21,000 square feet for the VSA subsidiary. The prospectus lists 63,000 and 44,000 square feet, respectively. It is not known if the difference is due to rapid company growth or other reasons. VSA sales data from 1991 to 1994 suggest the subsidiary grew rapidly thus requiring additional footage.

Consistency amongst headquarters and branch office records

One branch office in the Market Identifier Report has incorrect SIC codes: 5065 Semiconductor Devices (the actual chips) whereas the headquarters' code is 3559 Semiconductor Manufacturing Machinery (which makes the chips). The company does not make or sell chips, only the machinery to make them. Similarly, the Market Identifier Report lists the Corvallis Operation as being primarily involved with 3559 Recycling Machinery, whereas the prospectus states that "VSA currently manufactures semiautomatic and fully automated wet process systems, as well as robotics and software used in the VcS [Verteq's main product]." ¹³⁰

¹"The Fortune 500," Fortune Magazine 133 (29 April 1996): F-47.

²Dun and Bradstreet Incorporated, Dun's Million Dollar/Middle Market Disc User Manual (New York, New York: Dun and Bradstreet Incorporated, 1995), no pagination.

³Rob Papalardo, Sales Manager, Dun and Bradstreet Incorporated, interview by author, personal, 29 November 1995.

⁴*Ibid.* The payment history portion of the Business Information Report functions as a "Credit Report." But Dun and Bradstreet can provide an estimated credit scoring report on each of the ten million businesses based on a proprietary algorithm that includes the line of business and years in existence.

⁵Dun and Bradstreet Incorporated, Dun and Bradstreet Information Services: Turning Information Into Knowledge for The Changing World of Business (New York, New York: Dun and Bradstreet Incorporated, 1995), 8.

⁶Dun and Bradstreet Incorporated, The DUNS Number: Keeping Track of the World's Business (New York, New York: Dun and Bradstreet Incorporated, 1995), 6.

⁷Papalardo.

⁸*Ibid.*

⁹*Ibid.* Mr. Papalardo stated that not providing information did not penalize a company. However, the Business Information Report for Eurodesign (Duns Number 06-913-0938), a small, privately-held furniture company, explicitly stated that "The rating was changed on May 14, 1996 because the company has not submitted a current financial statement." Previously Eurodesign had submitted all requested documentation but now declined to thwart competitors. Eurodesign, Ltd. Business Information Report printed on 12 September 1996.

¹⁰Papalardo.

¹¹*Ibid.*

¹²Dun and Bradstreet Incorporated, Million Dollar Directory 1995 series (New York, New York: Dun and Bradstreet Incorporated, 1995), vi-vii.

¹³Dialog Incorporated, "File 516: Dun's Market Identifiers," Dialog Bluesheets (21 June 1995), 1.

¹⁴*Ibid.*

¹⁵Dialog Incorporated, "Dun and Bradstreet Consolidates U.S. Files, Provides New Monthly Update," Chronolog (March 1995): 95:51.

¹⁶Dialog Incorporated, "File 519: Dun's Financial Records Plus," Dialog Bluesheets (9 April 1994), 1.

¹⁷Dialog Incorporated, Dialog Price List (Palo Alto, California: Dialog Incorporated, January 1996), 9.

¹⁸Dun and Bradstreet Incorporated, "Dun and Bradstreet Express Services Price List", Dun and Bradstreet Infifax, (6 October 1995), no pagination. "Approximately" is used because contract and volume purchase discounts are available.

¹⁹Dun and Bradstreet Incorporated, Million Dollar Directory 1993 series (New York, New York: Dun and Bradstreet Incorporated, 1993), xii.

²⁰Dun and Bradstreet Incorporated, "Finance," Ultradata Corporation Business Information Report [on-line]. (22 January 1996).

²¹Dun and Bradstreet Incorporated, "Special Events," IC Works Incorporated Business Information Report [on-line]. (9 January 1996).

²²Dun and Bradstreet Incorporated, "Finance," IC Works Incorporated Business Information Report [on-line]. (9 January 1996).

²³Dun and Bradstreet Incorporated, "Advanta Systems," [on-line] (November 29, 1995). Dialog, Dun's Market Identifiers, 09728157.

²⁴Alex. Brown and Sons, Advanta Systems, Inc. Prospectus (Baltimore, Maryland: Alex. Brown and Sons, 7 November 1995), 14. Company fiscal year ends December 31.

²⁵Ibid., 33.

²⁶Ibid.

²⁷Ibid., 30.

²⁸Ibid., 3.

²⁹This figure is derived from revenues for the first nine months of 1995 (\$23,192,000).

³⁰Dun and Bradstreet Incorporated, "Catalink Direct," [on-line]. (22 November 1995). Dialog, Dun's Market Identifiers, 07931804.

³¹"Elcom International Inc., formerly Catalink Direct Inc., files amendment to registration statement for initial public offering," [on-line]. (10 November 1995). NewsEdge, BusinessWire, BW0034.

³²Dun and Bradstreet Incorporated, "Catalink Direct," [on-line]. (22 November 1995). Dialog, Dun's Market Identifiers, 10404789.

³³Dun and Bradstreet Incorporated, "Finance," Elcom Systems Incorporated Business Information Report [on-line]. (9 January 1996).

³⁴"Elcom International Inc., formerly Catalink Direct Inc., files amendment to registration statement for initial public offering," [on-line]. (10 November 1995). NewsEdge, BusinessWire, BW0034.

³⁵Robertson, Stephens and Company, Elcom International Prospectus (San Francisco, California: Robertson, Stephens and Company, 9 November 1995), 21-24. Company fiscal year ends December 31; data is for nine months ending September 30, 1995.

³⁶Ibid., F-6.

³⁷Ibid., 52.

³⁸Ibid., 51.

³⁹Ibid., 45.

⁴⁰Ibid., 4.

⁴¹This uses 1995 financials which are for the first nine months of the year.

⁴²This uses the prospectus data of calendar year 1994 sales of \$28.8 million plus ComputerWare's sales of \$91.2 million, which sums to \$119 million. Compare this to Dun and Bradstreet's estimate of only \$63.3 million for 1994.

⁴³Dun and Bradstreet Incorporated, "CyberCash," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 09987512.

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- ⁴⁴Dun and Bradstreet Incorporated, "CyberCash," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 10921769.
- ⁴⁵Dun and Bradstreet Incorporated, "Finance," CyberCash Incorporated Business Information Report [on-line]. (22 January 1996).
- ⁴⁶Ibid., 5.
- ⁴⁷Hambrecht and Quist, CyberCash Incorporated Prospectus (New York, New York: Hambrecht and Quist, 24 January 1996), 42.
- ⁴⁸Ibid., 42.
- ⁴⁹Ibid., 8.
- ⁵⁰Ibid., 34-35.
- ⁵¹Ibid., 3.
- ⁵²Dun and Bradstreet Incorporated, CyberCash Incorporated Business Information Report [on-line]. (22 January 1996).
- ⁵³Ibid.
- ⁵⁴Company did not have revenues in 1995.
- ⁵⁵Dun and Bradstreet Incorporated, "Cylink," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 0219604.
- ⁵⁶Dun and Bradstreet Incorporated, "Cylink," [on-line]. (25 May 1996). Dialog, Dun's Market Identifiers, 07708085.
- ⁵⁷Dun and Bradstreet Incorporated, "Cylink," [on-line]. (25 May 1996). Dialog, Dun's Market Identifiers, 04022760.
- ⁵⁸Dun and Bradstreet Incorporated, "Cylink," [on-line]. (25 May 1996). Dialog, Dun's Market Identifiers, 0532227.
- ⁵⁹Dun and Bradstreet Incorporated, "Cylink," [on-line]. (25 May 1996). Dialog, Dun's Market Identifiers, 05340347.
- ⁶⁰Dun and Bradstreet Incorporated, "Cylink," [on-line]. (25 May 1996). Dialog, Dun's Market Identifiers, 06029636.
- ⁶¹Dun and Bradstreet Incorporated, Cylink Business Information Report [on-line]. (22 January 1996).
- ⁶²Piper Jaffray Inc., Cylink Corporation Prospectus (Minneapolis, Minnesota: Piper Jaffray Inc., 24 January 1996), 15. Company fiscal year ends December 31.
- ⁶³Ibid., 37.
- ⁶⁴Ibid., 30.
- ⁶⁵Ibid., 37.
- ⁶⁶Ibid., 30.
- ⁶⁷Ibid., 3.
- ⁶⁸This is based on fiscal year 1995 data.
- ⁶⁹Ibid., 30.
- ⁷⁰Ibid., 37.
- ⁷¹Ibid., 18.
- ⁷²Dun and Bradstreet Incorporated, "IC Works," [on-line]. (22 November 1995). Dialog, Dun's Market Identifiers, 06671001.

⁷³Dun and Bradstreet Incorporated, IC Works Incorporated Business Information Report [on-line]. (9 January 1996).

⁷⁴The audited fiscal year 1994 and 1993 data is dated 8 February 1995. The unaudited fiscal year 1995 data is dated 1 April 1995.

⁷⁵Dun and Bradstreet Incorporated, "Operation," IC Works Incorporated Business Information Report [on-line]. (9 January 1996).

⁷⁶Prudential Securities Incorporated, IC Works, Inc. Prospectus (New York, New York: Prudential Securities Incorporated, 16 November 1995), 18. Company fiscal year ends March 31.

⁷⁷Ibid., F-3.

⁷⁸Ibid., 39.

⁷⁹Ibid.

⁸⁰Ibid., 3.

⁸¹The prospectus uses fiscal year 1995 sales (ending March 31) and employee counts as of September 30, 1995. No data is available in the prospectus to determine the actual employment figure as of March 31, 1995. The DBIS count of 160 may be reasonably close to the actual at that time.

⁸²Dun and Bradstreet Incorporated, "SQA," [on-line]. (25 January 1996). Dialog, Dun's Market Identifiers, 06060734.

⁸³Dun and Bradstreet Incorporated, "Finance," SQA Business Information Report [on-line]. (9 January 1996). Company fiscal year ends December 31. Fiscal year 1992-1994 data dated 27 April 1995; unknown if audited.

⁸⁴Ibid., 18.

⁸⁵Ibid., F-3.

⁸⁶Ibid., 37.

⁸⁷Ibid., 37.

⁸⁸Ibid., 33.

⁸⁹Ibid., 31.

⁹⁰Ibid., 4.

⁹¹The ratio is calculated using fiscal year 1994 data.

⁹²Dialog File 516, search conducted 22 November 1995.

⁹³The following branch locations were listed in the Dun's Market Identifiers File 516 on Dialog as of 25 January 1996:

1. Techforce Branch Office #1 (Dialog, Dun's Market Identifiers, 09565266) 15950 Bay Vista Drive, Clearwater, Florida 34620-3119

2. Techforce Branch Office #2 (Dialog, Dun's Market Identifiers, 08730410) 14704 Braemar Cres, Gaithersburg, Maryland 20878

3. Techforce Branch Office #3 (Dialog, Dun's Market Identifiers, 06604957) 3783 Lamar Ave, Memphis, Tennessee 38118-3706

4. Techforce Branch Office #1 (Dialog, Dun's Market Identifiers, 09537504) 11 Boulder Glen Road, Hingham, Massachusetts 02043-1463

⁹⁴Dun and Bradstreet Incorporated, "Finance," Techforce Business Information Report [on-line]. (9 January 1996). Fiscal year 1992 to 1994 data dated 3 May 1995; unknown if audited.

⁹⁵Dun and Bradstreet Incorporated, "Operation," Techforce Business Information Report [on-line]. (9 January 1996). It can not be determined if the employee figure was released in October 30, 1995, which would make it less than one month before the Prospectus was published. "Operation" section dated October 30, 1995.

⁹⁶Alex. Brown and Sons, Techforce Prospectus (Baltimore, Maryland: Alex. Brown and Sons, 22 November 1995), 12. Company fiscal year ends December 31.

⁹⁷Ibid., F-3.

⁹⁸Ibid., 31.

⁹⁹Ibid., 31-32.

¹⁰⁰Ibid., 29.

¹⁰¹Ibid., 30.

¹⁰²Ibid., 3.

¹⁰³Dun and Bradstreet Incorporated, "Operation," Techforce Business Information Report [on-line]. (9 January 1996).

¹⁰⁴Dun and Bradstreet Incorporated, "Ultradata," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 01308102.

¹⁰⁵Dun and Bradstreet Incorporated, "Ultradata," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 09934036. No other records account for the discrepancy between total employees, employees at location and this single employee here. A search of Dialog File 516 for Dun's Headquarters Number 06-976-6145 did not retrieve records besides Carrollton, Texas. The search was conducted on February 29, 1996.

¹⁰⁶Dun and Bradstreet Incorporated, "Finance," Ultradata Business Information Report [on-line]. (22 January 1996). Fiscal year 1991-1993 data dated 2 May 1995; unknown if audited.

¹⁰⁷Dun and Bradstreet Incorporated, Ultradata Business Information Report [on-line]. (22 January 1996).

¹⁰⁸Dun and Bradstreet Incorporated, "Operation," Ultradata Business Information Report [on-line]. (22 January 1996). "Operation" section is dated 2 May 1995. The company's fiscal year ends December 16.

¹⁰⁹Saloman Brothers Inc, Ultradata Corporation Prospectus (New York, New York: Saloman Brothers Inc, 26 January 1996), 16. The company's fiscal year ends December 31.

¹¹⁰Ibid., F-3.

¹¹¹Ibid., 43.

¹¹²Ibid., 43.

¹¹³Ibid., 38.

¹¹⁴Ibid., 3.

¹¹⁵The ratio is calculated using fiscal year 1995 data.

¹¹⁶Dun and Bradstreet Incorporated, "Verteq, Inc," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 02958521.

¹¹⁷Dun and Bradstreet Incorporated, "Verteq, Inc," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 06786015.

¹¹⁸Dun and Bradstreet Incorporated, "Verteq, Inc Phoenix Process Automation," [on-line]. (15 January 1996). Dialog, Dun's Market Identifiers, 06015721.

¹¹⁹Dun and Bradstreet Incorporated, "Statement Update," Verteq, Inc Business Information Report [on-line]. (9 January 1996). The statement was received on December 14, 1995.

¹²⁰Dun and Bradstreet Incorporated, "Finance," Verteq, Inc Business Information Report [on-line]. (9 January 1996). Data from fiscal years 1993 to 1995 is dated June 30, 1995; unknown if audited.

¹²¹Cowen and Company, Verteq, Inc. Prospectus (New York, New York: Cowen and Company, 20 November 1995), 17. The company's fiscal year ends June 30.

¹²²*Ibid.*, F-21-F-22.

¹²³*Ibid.*, 35.

¹²⁴*Ibid.*, F-3. Data is as of June 30.

¹²⁵*Ibid.*, 36.

¹²⁶*Ibid.*, 32. These four customers were Motorola (26.4%), Santa Clara Plastics (16.2%), STEAG MicroTech (10.8%), and Intel (7.2%).

¹²⁷*Ibid.*, 3.

¹²⁸*Ibid.*, 19.

¹²⁹This figure is derived from revenues for fiscal year 1995.

¹³⁰Cowen and Company, Verteq, Inc. Prospectus, 18.

CHAPTER 7: FINANCIAL STATEMENT ANALYSIS

Financial statement analysis is related to the common financial technique of ratio analysis. Financial statement analysis is the act of summing and averaging the financial statements from a sample of similar businesses. Businesses are typically grouped according to size and main line of business. The resultant percentage distributions can then be used as a measure to determine how much an individual business deviates from that average. Ratio analysis is related to this but manipulates the data found on balance sheets and income statements differently. Rather than deriving average percentage distributions, ratios are developed by summing, multiplying, and dividing interrelated figures.¹ The resultant ratios can then be used to quickly assess the relative financial performance or health of a company. Companies use ratios to understand their financial condition and spot trends between periods. Banks and creditors use ratios to analyze a company to determine its relative health and credit worthiness.

Industry norm ratios and financial statement studies are usually derived by aggregating the results of similar companies. Similar companies are identified according to their Standard Industrial Classification (SIC) code. The SIC code is assigned by the Federal Government to identify their various products or services. SIC codes are assigned “(1) To facilitate the collection, tabulation, presentation, and analysis of data relating to establishments, and (2) to promote uniformity and comparability in the presentation of statistical data describing the economy.”² Most businesses in the nation offer only one type of product or service (e.g. Electronic Computer Manufacturers, SIC code 3571 or

Photofinishing Laboratories and Services, SIC code 7384). However, larger or diversified businesses are assigned an SIC code for each of their major activities. But even these businesses will have a primary SIC code if that activity produces between 70% to 80% of the establishment's economic value.³ Of course, actual business activities can be diverse and difficult to segment. The SIC code is an approximate guide to the extent of a company's activities.

Financial Ratios

There are three main classes of financial ratios:⁴

1. Solvency ratios indicate how financially secure the company is and how well it can meet its financial obligations. One example of this is the Current Ratio, which is derived by dividing the total current assets by total current liabilities. It measures the company's ability to cover its immediate liabilities with readily available cash and accounts receivables. The minimum recommended ratio is 1.0 meaning that the firm has \$1 in available cash for every \$1 of liability. A ratio that is low might mean that the company would have trouble paying off debt if it was required to do so quickly. A high ratio could indicate that the company had excess cash that could be profitably invested.
2. Profitability ratios measure the company's overall performance. The main example of this type of ratio is the Return-on-Assets ratio which divides the net profit with the assets that were expended to obtain those profits. Higher numbers are better.
3. Efficiency ratios assess how well the company uses its assets and the quality of its accounts receivables. One example is the Assets-to-Sales ratio derived by dividing net

sales by total assets. It reveals the percentage of investment in assets that are required for a certain volume of sales. A low ratio could indicate that the company is over-extending itself with sales. A high ratio could indicate that the company is not selling enough to justify its assets.

A less common ratio, but one that is used in business intelligence, is Sales-per-Employee. This is commonly used when the number of employees is known and an approximate industry norm is known, thus multiplying them gives an approximate gross sales.

Financial Statement Studies

Financial statement studies typically offer average percentage distributions for many of the categories found on a statement. The main publishers of statement studies are Dun and Bradstreet's Industry Norms and Key Business Ratios and Robert Morris Associates' RMA Annual Statement Studies. Since another product of Dun and Bradstreet is evaluated in this thesis, this chapter will concentrate on Robert Morris Associates (RMA). Robert Morris Associates is a trade association with over 17,500 commercial loan and credit officers as members representing approximately 3,000 commercial banks, savings banks, and Savings and Loans. RMA claims that "These institutions account for 75% of all commercial and industrial loans extended by U.S. banks."⁵

Using Financial Statements Studies and Ratios

Competitors, if they have access to known or estimated financial data, can use financial statement studies to estimate other elements of a company's statement. Then, based on these estimates, they can determine the approximate financial ratios to estimate the company's strength, efficiency, and productivity. Misters Fuld, Kelly, and Lavin cite statement studies and ratio analysis as the main way that competitors can estimate the internal, confidential financial conditions of private companies: "If all you have are a few data items, such as sales and current assets, you can construct a more complex income statement of balance sheet using industry financial ratios. A tricky tool, they can nevertheless give you a good sense of a company's proportions if you are careful in their use."⁶ Mr. Fuld does not advise relying on the estimates themselves, rather, he counsels that they provide a basis for discussion and analysis by various experts.⁷ Of course, additional and more accurate financial data will lead to better estimates of the missing pieces.

But this technique as a business intelligence tool has several limitations:

1. Industry norms are averages; they might not reflect the true condition of any particular company to which they are applied.
2. A company might have different ratios yet still perform acceptably.
3. Industry norm ratios are typically aggregated from many companies in similar, but not exactly the same, industries. Furthermore, larger companies may have several SIC codes all of which will be subsumed under the primary SIC code and its ratios.

4. Related to the above, companies may have different operational models and financial objectives, yet have the same SIC code. Thus, their financial statements will differ yet still be considered “normal.”

5. The industry norm ratios might be generated using data from larger or smaller companies.

6. Industry norm ratios might be generated from a non-random sample, thus biased. For example, the RMA book prominently displays on its inside cover: “The financial statements used in the Statement Studies are not selected by any random or statistically reliable method. RMA member banks voluntarily submit the raw data they have available each year provided that the companies’ total assets are less than \$250 million.”⁸

7. Industry norm ratios established from the data of publicly-held companies might not apply to privately-held companies. For example, publicly-held companies might order their financial activities to maximize the stock price. Privately-held companies can have other motivations or dynamics that influence their financial composition.⁹

These limitations are vexing because a competitor can never verify how accurate the estimates are. It must assume that the ratios have generated a reasonable approximation of the actuals. One source optimistically states “Ratios can also be used to evaluate the validity of financial estimates arrived at by other means, or to analyze unaudited figures obtained from other sources,” but then warns that “if the given numbers lie well outside industry norms, their accuracy may be questioned.”¹⁰ However, this is not necessarily true because individual firms may have particular conditions that successfully defy the norms. The RMA Statement Studies concludes on its inside cover with the following caveat:

“RMA does not recommend the Statement Studies figures be considered as absolute norms for a given industry. Rather the figures should be used only as general guidelines and in addition to the other methods of financial analysis. RMA makes no claim as to the representativeness of the figures printed in this book.”¹¹

To conclude, ratio analysis is the main tool for estimating various financial data about competitors. But it is limited because its estimates can not ordinarily be verified. Each ratio and derived figure must be assessed critically with analysis and insight into a particular industry.

Robert Morris Associates

The RMA Statement Studies cover 466 separate four-digit SIC codes. For the test companies, the primary SIC code assigned by Dun and Bradstreet will be used because it has proven to be correct when compared to the company's description of itself in its prospectus. The prospectus does not typically list the SIC code because it is rarely used outside of tax and business demographics arenas.

The RMA Statement Studies studies contain detailed percentages for various statement elements as a function of company assets and annual sales. It generates these averages for six business size categories. For assets, the categories are \$0-\$500,000; \$500,000-\$2 million; \$2 million-\$10 million; \$10 million-\$50 million; \$50 million-\$100 million; and \$100 million-\$250 million. For annual sales, the categories are \$0-\$1 million; \$1 million-\$3 million; \$3 million-\$5 million; \$5 million-\$10 million; \$10 million-\$25 million; and \$25 million and over. Note the overlapping categories. Thus, if a company has \$10 million in

sales, one is uncertain which set of percentages to use. And it is not clear if RMA rounds or adjusts sales figures. For each four-digit SIC code, RMA will indicate the number of statements that were used to generate each category of percentages and the total net sales and assets that these companies represent.

Another ambiguity occurs in RMA's definitions. RMA has the following components to its income data percentages: net sales, gross profit, operating expenses, operating profit, all other expenses (net), and profit before taxes. RMA explains that operating expenses are limited to "All selling and general and (sic) administrative expenses. Includes depreciation, but not interest expense."¹² However, on the typical statement the following items are counted under operating expenses: general and administrative, selling and marketing, and research and development costs. In its ambiguity RMA seems to categorize the latter two as "all other expenses," which it defines as "miscellaneous expenses not included in general and administrative expenses."¹³ However, given the percentage distributions on the RMA statements and the similar percentages found on the statements of the test companies, one must conclude that selling, marketing, and research and development expenses are all included under RMA's first "operating expenses" category. This ambiguity is not helpful.

RMA also provides the upper quartile, median, and lower quartile for its ratios. RMA does this instead of using the average to reduce the impact of outliers and to better reflect the range of typical ratios. RMA does not judge if the ratios indicate strength or weakness: "In interpreting ratios, the 'strongest' or 'best' value is not always the largest numerical value, nor is the 'weakest' always the lowest numerical value."¹⁴

The following analysis will not evaluate the relative financial strength or health of each company. Rather, it is to show how each company compares to the “norms” and thus understand the range of deviation. It must be remembered that these companies are in a unique financial position: private companies that are growing quickly and attempting to go public. It seems reasonable that this will create unique financial dynamics.

RMA had statement studies for seven of the nine test companies. RMA does not include SIC codes ending in 9 which means “not elsewhere classified.” The reasoning may be that such categories combine too many divergent companies, thus making comparisons illegitimate. Thus, Techforce which is 7629 (Electrical Repair Shops, not elsewhere classified) and Veriteq which is 3559 (Special Industry Machinery, not elsewhere classified) are not examined below.

Analysis of Test Companies

It quickly becomes apparent that statement studies are not a meaningful activity for these test companies. In most cases, the RMA percentage distribution for income data is very different from the test companies. A competitor would receive possibly misleading data if they inserted an estimated sales figure and tried to calculate gross profits, operating expenses, and profits. The main reason is that most of the test companies are not profitable: five of the seven companies have losses and one had only minor profits. Of course, mature, established companies would not survive this way in the marketplace. But the test companies are young and growing quickly with a popular product, thus planning to go public even though they are not profitable. The promise to investors is future

profitability. Statement studies are not really appropriate for them because they are a special case. Therefore, it is not possible to determine themes as to the differences or similarities between the RMA percentage distribution and the test companies actual distributions.

The ratios of Current Assets to Total Assets and Current Liabilities to Total Liabilities are somewhat similar. However, even here the variance is typically 10% to 30%. For most of the test companies, the Current Ratio tends to be near the median. It appears that the companies, even if not profitable, are keeping a reasonable balance between assets and liabilities. This may be because sound business operations demand such a balance.

Venture capitalists and other funding sources may expect initial losses but will want the debt to be within bounds. The two companies with much higher ratios (meaning their current assets surpass their current liabilities; a seemingly positive situation) are different: the first is a very young startup probably rich with new venture capital (CyberCash), the second is the result of a recent merger (Advanta and AIHI).

The Return-on-Assets ratio is usually much lower than the norms because most of the test companies are experiencing losses. This is to be expected.

The Assets-to-Sales ratio tends to be near the median because these companies have strong sales and are well funded. The only solidly profitable company (Ultradata) is above the upper percentile.

Below, three test companies that illustrate different aspects of the RMA statement studies are examined in detail.

CyberCash

This company is an interesting example of how statement studies and ratios must be developed and examined together (see Table 1).¹⁵ Consider the following: the company has no revenues, has \$11 million in accumulated debt, and yet its Current Ratio is very high compared to the average. Thus, the history and market context in which the company is operating must be examined. CyberCash is trying to develop products for the Internet which has been subject to a lot of excited industry and media interest. The company was established in August 1994 which is only one year prior to seeking an IPO. Furthermore, it is heavily in debt and lost over \$10 million in fiscal year 1995. The company admits that it is in the “development stage” and “All of the Company’s services are designed as a means of enabling payments over the Internet. The market for the company’s services is at a very early stage of development. . . . As is typical for a new and rapidly evolving industry, demand and market acceptance for recently introduced products and services are subject to a high level of uncertainty.”¹⁶ Since the company has funded itself through private placements, the company’s Current Ratio is high compared to the averages because it has substantial assets compared to liabilities.¹⁷ Consider that its current assets are much higher than the RMA average (77.1% versus 62.4%) whereas its current liabilities are much lower (30.8% versus 43.5%). The other ratios, which are calculated based on revenues, are zero.

Table 1.--Percentage Distributions and Ratio Ranges for CyberCash Inc.

		Actual Distribution	RMA Statement Studies	Difference (%)
Net sales	\$ -	100.0%	100.0%	
Gross profit	\$ -		-	-
Operating expenses	\$ 10,149		99.2%	-
Operating profit	\$ (10,149)		0.8%	-
Profit before taxes	\$ -		0.7%	-
Total current assets	\$ 5,694,000	77.1%	62.4%	0.2%
Total assets	\$ 7,386,224	100.0%	100.0%	
Total current liabilities	\$ 2,273,022	30.8%	43.5%	4.0%
Total liabilities	\$ 7,386,224	100.0%	100.0%	
Current Ratio		2.51	1.0, 1.6, 2.6	
Return-on-Assets		0	(-8.1), 3.7, 16.5	
Assets-to-Sales		0.00	1.3, 2.7, 3.7	

IC Works

This company began in May 1992 and illustrates that a young company, especially one that seeks to go public, has a different financial profile than the averages in the RMA studies.¹⁸ Table 2 illustrates its profile.¹⁹ Whereas its gross profit is much higher than the average (68.2% versus 29.8%), its operating expenses are also much higher (64.3% versus 21.9%). As a result, the company's profits are lower: its operating profit is approximately half the RMA average (3.9% versus 7.9%) and its profit before taxes are very small (0.4% versus 7.0%). Thus, its Return-on-Assets and Assets-to-Sales ratios are far below

average because of the slim profits. However, the company's assets and liabilities are very near the RMA averages; as a result its Current Ratio is within range. Whereas it is beyond the scope of this thesis to judge the company's ultimate viability, the fact that IC Works seeks to go public indicates that its financial performance is considered acceptable or within reason for its class of company. The RMA averages do not seem to apply to this company's operating situation.

Table 2.--Percentage Distributions and Ratio Ranges for IC Works Inc.

		Actual Distribution	RMA Statement Studies	Difference (%)
Net sales	\$ 15,462,000	100.0%	100.0%	
Gross profit	\$ 10,547,000	68.2%	29.8%	38.4%
Operating expenses	\$ 9,942,000	64.3%	21.9%	42.4%
Operating profit	\$ 605,000	3.9%	7.9%	4.0%
Profit before taxes	\$ 64,000	0.4%	7.0%	6.6%
Total current assets	\$ 13,779,000	67.0%	67.2%	0.2%
Total assets	\$ 20,564,000	100.0%	100.0%	
Total current liabilities	\$ 7,252,000	35.3%	39.3%	4.0%
Total liabilities	\$ 20,564,000	100.0%	100.0%	
Current Ratio		1.90	1.6, 2.2, 3.0	
Return-on-Assets		0	4.8, 10.9, 18.3	
Assets-to-Sales		0.75	1.2, 1.5, 2.0	

Ultradata

This case highlights an awkward omission from the statement studies: the lack of gross profit averages for service companies (see Table 3).²⁰ Whereas all of the test service companies provide such data in their prospectus, the RMA studies do not. Instead, they use only the net sales figure and calculate other percentages from that. When Ultradata is adjusted accordingly, it has very similar percentage distributions. Its operating profit is 8.9% compared to 9.7% and its profit before taxes is 9.0% compared to 9.5%. However, this company has a high rate of current liabilities (80.5% versus 34.2%) compared to current assets, thus its Current Ratio is in the bottom quartile (0.85 versus 1.2). Since the company's profits are similar to the percentage found in the RMA studies, its Return-on-Assets and Assets-to-Sales ratios are within range. The Assets-to-Sales ratio is firmly in the top quartile because the company has large net sales compared to its assets; but a similar ratio that measured company sales compared to liabilities would find a negatively high ratio.

Table 3.--Percentage Distributions and Ratio Ranges for Ultradata Corp.

		Actual Distribution	RMA Statement Studies	Difference (%)
Net sales	\$ 25,691,000	100.0%	100.0%	
Gross profit	\$ 12,473,000	48.6%	-	-
Operating expenses	\$ 11,445,000	44.5%	90.2%	45.7%
Operating profit	\$ 1,028,000	4.0%	9.7%	5.7%
Profit before taxes	\$ 1,035,000	4.0%	9.5%	5.5%
Total current assets	\$ 5,129,000	55.8%	54.6%	1.2%
Total assets	\$ 9,186,000	100.0%	100.0%	
Total current liabilities	\$ 6,055,000	80.5%	34.2%	46.3%
Total liabilities	\$ 7,522,000	100.0%	100.0%	
Current Ratio		0.85	1.2, 1.5, 2.1	
Return-on-Assets		11	9.1, 13.1, 22.0	
Assets-to-Sales		2.80	1.2, 1.6, 2.3	

¹Dun & Bradstreet Information Services, Understanding Financial Statements: A Guide for Non-Financial Professionals (Murray Hill, New Jersey: Dun & Bradstreet, Inc., 1993), 10-13.

²Executive Office of the President: Office of Management and Budget, Standard Industrial Classification Manual 1987 edition (Washington, D.C.: Government Printing Office), 699.

³Ibid., 702.

⁴Dun & Bradstreet Information Services, Understanding Financial Statements: A Guide for Non-Financial Professionals, 10-13.

⁵Robert Morris Associates Central Coast Group, "What is RMA?," [On-line]. Available: [http://www.cob.sjsu.edu/facstaff/cochr_b/rma.html#Robert Morris Associates](http://www.cob.sjsu.edu/facstaff/cochr_b/rma.html#Robert%20Morris%20Associates). (4 December 1996).

⁶Leonard M. Fuld, New Competitor Intelligence: The Complete Resource for Finding, Analyzing, and Using Information About Your Competitors (New York, New York: John Wiley & Sons, 1995), 54.

⁷Ibid., 300.

⁸Robert Morris Associates, RMA Annual Statement Studies 1995 edition (Philadelphia, Pennsylvania: Robert Morris Associates, 1995), 2. Averages are derived from statements of companies with fiscal year ends between April 1, 1994 and March 31, 1995.

⁹Fuld, New Competitor Intelligence, 298-300.

¹⁰Michael R. Lavin, Business Information: How to Find It, How to Use It (Phoenix, Arizona: The Oryx Press), 172.

¹¹Robert Morris Associates, RMA Annual Statement Studies, 2.

¹²*Ibid.*, 6.

¹³*Ibid.*, 6.

¹⁴*Ibid.*, 8-9.

¹⁵*Ibid.*, 674-675.

¹⁶Hambrecht & Quist, CyberCash Incorporated Prospectus (New York, New York: Hambrecht & Quist, 24 January 1996), 3.

¹⁷*Ibid.*, 22.

¹⁸Prudential Securities Incorporated, IC Works, Inc. Prospectus (New York, New York: Prudential Securities Incorporated, 16 November 1995), 19.

¹⁹Robert Morris Associates, RMA Annual Statement Studies, 162-163.

²⁰*Ibid.*, 674-675.

CHAPTER 8: CONCLUSION

The desire to understand the financial makeup of one's competitor is an accepted business practice. Noted experts in business intelligence advise how to gather and analyze such data. Furthermore, various sources claim to provide the basic financial data from which the analyses can be generated. However, this exercise has shown that the foundational data itself can not automatically be assumed to be accurate or even reasonably close. Indeed, individual records might be acceptably accurate, but the overall pattern of errors, inconsistencies and datedness make all data suspect. This thesis had the relative luxury of using companies which had been forced to release their actuals in order to ascertain what had been estimated or represented about them prior to their self-disclosure. Trying to analyze private companies is vexing because the analyst can never confirm the margin or range of errors of an individual source unless given insider knowledge. At best the analyst can use several different sources which make similar claims about the company or use different methodologies to come to the same general conclusion. But even this will never completely resolve the issue of how accurate the estimated finances are. Therefore, as all of the authors advise, the highest quality business intelligence will also use professional judgment and a broad range of sources to corroborate or test estimates. There can be no substitute for talking with diverse experts and company observers.

The list below indicates the availability of CorpTech and Dun and Bradstreet Business Information Reports for each test company:

	CorpTech listing	Dun and Bradstreet Business Information Report
1. Advanta	no	no
2. Catalink	no	yes
3. CyberCash	yes	yes
4. Cylink	yes	yes
5. IC Works	no	yes
6. SQA	yes	yes
7. Techforce	no	yes
8. Ultradata	no	yes
9. Verteq	yes	yes

Analysis of Companies That Appeared in Both Sources

CyberCash

The company appeared to decline to disclose data to CorpTech and the data contained in the Dun and Bradstreet records was wrong; this suggests that Dun and Bradstreet estimated the data. At the time these records were gathered the company had severe losses; it did not have any revenue. Indeed, the Dun and Bradstreet record notes that company officials were not forthcoming with information.

Cylink

The CorpTech record offers minimally accurate ranges into which the company correctly fits. The Dun and Bradstreet record also has data that appears reasonably accurate once company growth is factored in. But the Dun and Bradstreet record suffers from vague labeling and ambiguous data. It is possible that company officials were deliberately vague or ambiguous with both sources, thus causing CorpTech to resort to using ranges and Dun and Bradstreet to try to (unsuccessfully at times) estimate the actual data.

SQA

The financial data in the CorpTech record effectively doubles the company size whereas the Dun and Bradstreet record contains actual financial statements and is, for the most part, reasonably accurate. This is the one company for which records exist in both sources that the nature of the errors are not similar. For this company Dun and Bradstreet appears to have the most accurate record.

Verteq

CorpTech consistently doubles the size of the company whereas Dun and Bradstreet understates the company's size by ambiguously tracking a subsidiary. Thus, neither record is reasonably accurate and comparing them would cause great confusion due to their extreme divergence.

Companies That Only Appeared in Dun and Bradstreet

The most striking result is that three of the four companies who appeared in Dun and Bradstreet but were not in CorpTech had submitted financial statements to Dun and Bradstreet. This reflects poorly on CorpTech's claim to be comprehensive. It is reasonable to assume that any company that is prominent in their industry and seeks to be considered credit worthy will be featured in CorpTech, either by virtue of their own publicity or by being identified by CorpTech and invited to be listed. The two remaining companies had problematic Dun and Bradstreet records and lacked a corresponding CorpTech record to possibly highlight these problems.

Conclusion

The companies that have been examined for this exercise are unusual: most companies never go public and the transition from private to public company is sure to create an unusual financial situation. Therefore, the fact that errors are found in the various sources is not surprising. However, the preceding analysis has shown that even when the growth of the company is accounted for these errors are very large and misleading. One can never be sure how accurate or erroneous the financial data in a report is until the actual data is reviewed alongside. This is frustrating. It is not even a foregone conclusion that one can find and use records from both Dun and Bradstreet and CorpTech to "average" a company's true condition. One or both records might be wrong. This is readily apparent if the data is widely divergent.

The final recommendation for the use of these sources for companies going public:

1. It is best to use only Dun and Bradstreet records that include a financial statement.

However, this will have to be adjusted for an estimated growth or decline in the intervening period.

2. If a financial record is not available, compare the Dun and Bradstreet data with its CorpTech peer, if available. If the data are within the same general range, then they might be reasonably accurate. If they are widely divergent, then one must consider using other sources to test which data is most reasonable.

3. If only a CorpTech record is available, this data must be regarded skeptically until other data confirms or revises it.

4. The average percentage distributions in RMA Statement Studies do not apply to companies going public. The ratios, however, are similar but they reflect good financial management that any company should practice for survival.

There is no single source which has accurate data for the vast majority of companies. This reinforces the source books' assertions that printed data is only part of the intelligence gathering process. The data must be examined by experts who bring their professional experience to verify, adjust, or dismiss the numbers.

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