HARVARD BIOSCIENCE INC
Form 10-K
March 11, 2009
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

x **Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**
For the fiscal year ended December 31, 2008

or

¨ **Transition report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**
For the transition period from to

Commission File Number 001-33957

HARVARD BIOSCIENCE, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**04-3306140**
(State or other jurisdiction of Incorporation or organization)	(I.R.S. Employer Identification No.)

84 October Hill Road, Holliston, Massachusetts 01746

(Address of Principal Executive Offices, including zip code)

(508) 893-8999

(Registrant s telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, $0.01 par value	**The NASDAQ Stock Market LLC**
Preferred Stock Purchase Rights	

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES ¨ NO x

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES ¨ NO x

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES x NO ¨

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ¨ Accelerated filer x
Non-accelerated filer ¨ (Do not check if a smaller reporting company) Smaller reporting company ¨
Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act. YES ¨ NO x

The aggregate market value of 22,200,117 shares of voting stock held by non-affiliates of the Registrant as of June 30, 2008 was approximately $103,230,544 based on the closing sales price of the Registrant s Common Stock, par value $0.01 per share (Common Stock) on that date. Shares of the Registrant s Common Stock held by each officer and director and each person known to the registrant to own 10% or more of the outstanding voting power of the registrant have been excluded in that such persons may be deemed affiliates. This determination of affiliate status is not a determination for other purposes.

At February 27, 2009, there were 29,934,869 shares of the Registrant s Common Stock issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Company s definitive Proxy Statement in connection with the 2009 Annual Meeting of Stockholders (the Proxy Statement), to be held on May 14, 2009, are incorporated by reference into Part III of this Form 10-K. Except with respect to information specifically incorporated by reference in this Form 10-K, the Proxy Statement is not deemed to be filed as part hereof.

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2008 ANNUAL REPORT ON FORM 10-K

FOR THE YEAR ENDED DECEMBER 31, 2008

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PART I

This Annual Report on Form 10-K contains statements that are not statements of historical fact and are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. The forward-looking statements are principally, but not exclusively, contained in Item 1: Business and Item 7: Management s Discussion and Analysis of Financial Condition and Results of Operations. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Forward-looking statements include, but are not limited to, statements about management s confidence or expectations, our business strategy, our ability to raise capital or borrow funds to consummate acquisitions and the availability of attractive acquisition candidates, our expectations regarding future costs of product revenues, our anticipated compliance with the covenants contained in our credit facility, the adequacy of our financial resources and our plans, objectives, expectations and intentions that are not historical facts. In some cases, you can identify forward-looking statements by terms such as may, will, should, could, would, expects, plans, anticipates, believes, estimates, projects, predicts, intends, potential and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. We discuss many of these risks in detail under the heading Item 1A. Risk Factors beginning on page 10 of this Annual Report on Form 10-K. You should carefully review all of these factors, as well as other risks described in our public filings, and you should be aware that there may be other factors, including factors of which we are not currently aware, that could cause these differences. Also, these forward-looking statements represent our estimates and assumptions only as of the date of this report. We may not update these forward-looking statements, even though our situation may change in the future, unless we have obligations under the federal securities laws to update and disclose material developments related to previously disclosed information.

Item 1. ***Business.***

Overview

Harvard Bioscience, Inc., a Delaware corporation, is a global developer, manufacturer and marketer of a broad range of specialized products, primarily apparatus and scientific instruments, used to advance life science research at pharmaceutical and biotechnology companies, universities and government laboratories worldwide. We sell our products to thousands of researchers in over 100 countries primarily through our 900 page catalog (and various other specialty catalogs), our website, and through distributors, including GE Healthcare, Thermo Fisher Scientific Inc. and VWR. We have sales and manufacturing operations in the United States, the United Kingdom, Germany and Spain and sales facilities in France and Canada.

Our History

Our business began in 1901 under the name Harvard Apparatus and has grown over the intervening years with the development and evolution of modern life science tools. Our early inventions included the mechanical syringe pump in the 1950s for drug infusion and the microprocessor controlled syringe pump in the 1980s.

In March 1996, a group of investors led by our CEO and President acquired a majority of the then existing business of our predecessor, Harvard Apparatus. Following this acquisition, we redirected the focus of the Company to participate in the higher growth areas, or bottlenecks, within life science research by acquiring and licensing innovative technologies while continuing to grow the existing business through internal product development and marketing, partnerships and acquisitions. Since March 1996, we have completed 19 business or product line acquisitions related to our continuing operations and internally developed many new product lines including: new generation Harvard Apparatus syringe pumps, advanced Inspira ventilators, GeneQuant DNA/RNA/protein calculators, Ultrospec spectrophotometers, our new microliter spectrophotometer, 2D electrophoresis products, UVM plate readers and the BTX-MOS 96 well electroporation system.

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In July 2005, we announced plans to divest our Capital Equipment Business segment. The decision to divest this business was based on the fact that market conditions for the Capital Equipment Business segment had been such that this business did not meet our expectations and the decision to focus our resources on our Apparatus and Instrumentation Business segment. As a result, we began reporting our Capital Equipment Business segment as a discontinued operation in the third quarter of 2005. In November 2007, we completed the sale of the assets of our Genomic Solutions Division and the stock of our Belgian subsidiary, Maia Scientific, both part of our Capital Equipment Business Segment. In September 2008, we completed the sale of assets of our Union Biometrica Division including our German subsidiary, Union Biometrica GmbH, representing at that time the remaining portion of our Capital Equipment Business Segment.

Unless otherwise indicated, the discussion of our business and our products is focused on our Apparatus and Instrumentation Business.

Our Strategy

Our goal is to become a leading provider of tools for life science research.

Our strategy is to have a broad range of highly specialized but relatively inexpensive products that have strong positions in niche markets in life science research:

We believe that having a broad product offering reduces the risk of being dependent on a single technology;

We believe that having relatively inexpensive products reduces the volatility associated with expensive capital equipment; and

We believe focusing on niche markets reduces head-to-head competition with the major instrument companies.

We seek to grow this range of products through internal development of new products and the acquisition of closely related products. We use acquisitions to expand our product offerings because we believe we can use our well-established brands and distribution channels to accelerate the growth of these acquired products. We also believe that our expertise in operational management frequently allows us to improve profitability at acquired companies.

Our Products

Today, our broad product range is generally targeted towards two major application areas: ADMET testing and molecular biology.

ADMET Testing

The goal of ADMET testing is to identify compounds that have toxic side effects or undesirable physiological or pharmacological properties. These pharmacological properties consist of absorption, distribution, metabolism and elimination, which together with toxicology, form the acronym ADMET. We have a wide range of products that our customers use to help their researchers conduct better experiments on cells, tissues, organs and animals.

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We primarily sell these products under the Harvard Apparatus, BTX, KD Scientific, Hugo Sachs Elektronik, Panlab and Warner Instruments brand names. The individual sales prices of these products are often under $5,000 but when combined into systems such as the Hugo Sachs isolated organ system the total sales price can be over $25,000. We typically sell our ADMET products through our catalogs and website with support from technical specialists, although BTX and KD Scientific branded products are primarily sold through distributors. Some of these products are described below:

Absorption Diffusion Chambers

A diffusion chamber is a small plastic chamber with a membrane separating the two halves of the chamber used to measure the absorption of a drug into the bloodstream. The membrane can either be tissue such as intestinal tissue or a cultured layer of cells such as human colon cells. This creates a miniaturized model of intestinal absorption. We entered this market with our 1999 acquisition of the assets of NaviCyte Inc., a wholly-owned subsidiary of Trega Biosciences (now SYGNIS Pharma AG) and today we manufacture and sell a wide range of tissue handling products under the Warner Instruments brand name.

Distribution 96 Well Equilibrium Dialysis Plate for Serum Protein Binding Assays

Our 96 well equilibrium dialysis plate contains 96 pairs of chambers with each pair separated by a membrane. The protein target is placed on one side of the membrane and the drug on the other. The small molecule drug diffuses through the membrane. If it binds to the target, it cannot diffuse back again. If it does not bind, it will diffuse back and forth until equilibrium is established. Once equilibrium is established, the concentration of the drug can be measured thereby indicating the strength of the binding. This product is principally used for ADMET testing to determine if a drug binds to blood proteins. A certain level of reversible binding is advantageous in order to promote good distribution of a drug through the human body. However, if the binding is too strong, it may impair normal protein function and cause toxic effects. These products are part of our sample preparation product line which we began offering in 2000 after our acquisition of Amika.

Metabolism and Elimination Organ Testing Systems

Organ testing systems use glass or plastic chambers together with stimulators and recording electrodes to study organ function. Organ testing systems enable either whole organs or strips of tissue from organs such as hearts, livers and lungs to be kept functioning outside the body while researchers perform experiments with them. This typically allows for multiple studies on a single donor animal. Studies on isolated livers are useful in determining metabolism and studies on kidneys are useful in determining elimination. We have sold basic versions of these systems for many years, but significantly expanded our product offerings through our 1999 acquisition of Hugo Sachs Elektronik and our 2007 acquisition of Panlab s.l. (Panlab).

Toxicology Precision Infusion Pumps and Behavioral Products

Infusion pumps, typically syringe pumps, are used to accurately infuse very small quantities of liquid, commonly drugs. Infusion pumps are generally used for long-term toxicology testing of drugs by infusion into animals, usually laboratory rats. We sell a wide range of different types of syringe pumps and many other products for infusing samples into and collecting samples from tissues, organs and animals. We expanded our range of infusion pumps with the acquisition of KD Scientific in 2004. We also design and manufacture behavioral products used in neuroscience, cardiology, psychological and respiratory studies to evaluate the effects of situational stimuli, drugs and nutritional infusions on motor and sensory, activity and learning and test behavior. We expanded our behavioral product offerings with the acquisition of Panlab in October 2007.

Cell Injection Systems

Cell injection systems use extremely fine bore glass capillaries to penetrate and inject drugs into or around individual cells. Cell injection systems are used to study the effects of drugs on single cells. Injection is accomplished either with air pressure or, if the drug molecule is electrically charged, by applying an electric

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current. We entered this market with our 1998 acquisition of the research products of Medical Systems Corporation and considerably expanded our presence in this market with our acquisitions of Clark Electromedical Instruments in 1999 and Warner Instruments in 2001.

Ventilators

Ventilators use a piston driven air pump to inflate the lungs of an anesthetized animal. Ventilators are typically used in surgical procedures common in life science research and are part of our Harvard Apparatus product line. In the late 1990 s we launched our advanced Inspira ventilators, which have significant safety and ease of use features, such as default safety settings. We further expanded our ventilator product line with the MiniVent acquired as part of our acquisition of Hugo Sachs Elektronik in 1999 and expanded our presence in anesthesia with our acquisition of International Market Supply, Ltd. in 2001.

Electroporation Products

Acquired with our purchase of the BTX division of Genetronics Biomedical Corporation in January 2003, our electroporation products include systems and generators, electrodes and accessories for research applications including in vivo, in ovo and in vitro gene delivery, electrocell fusion and nuclear transfer cloning. Through the application of precise pulsed electrical signals, electroporation systems open small pores in cell membranes allowing genes and/or drugs to pass through the cell membranes. The principal advantages of electroporation over other transfection techniques are speed, and the fact that electroporation does not require harsh chemicals that can interfere with or change cell function. In 2004, we launched our BTX MOS 96 well electroporation system, which can greatly increase the throughput of this otherwise essentially manual technique.

Distributed Products

In addition to our proprietary manufactured products, we buy and resell through our catalog products that are made by other manufacturers. We have negotiated supply agreements with the majority of the companies that provide our distributed products. These supply agreements specify pricing only and contain no minimum purchase commitments. Each of these agreements represented less than one percent of our revenues for the year ended December 31, 2008. Distributed products accounted for approximately 15% of our revenues for the year ended December 31, 2008. These distributed products enable us to provide our customers with a single source for their experimental needs. These complementary products consist of a large variety of devices, instruments and consumable items used in experiments involving cells, tissues, organs and animals in the fields of proteomics, physiology, pharmacology, neuroscience, cell biology, molecular biology and toxicology. We believe that our proprietary manufactured products are often leaders in their fields; however, researchers often need complementary products in order to conduct particular experiments. Most of these complementary products come from small companies that do not have our extensive distribution and marketing capabilities to reach these researchers.

Molecular Biology

We primarily sell these products through our distributors, including GE Healthcare, under their brand names. These products are mainly scientific instruments such as spectrophotometers and plate readers that analyze light to detect and quantify a wide range of molecular and cellular processes or apparatus such as gel electrophoresis units. The instrumentation products are typically sold for a price ranging from $5,000 to $10,000. The apparatus products typically sell for less than $5,000.

Molecular Biology Spectrophotometers

A spectrophotometer is an instrument widely used in molecular biology and cell biology to quantify the amount of a compound in a sample by shining a beam of white light through a prism or grating to divide it into component wavelengths. Each wavelength in turn is shone through a liquid sample and the spectrophotometer measures the amount of light absorbed at each wavelength. Microliter spectrophotometry is a technique used to measure extremely small sample sizes. This enables the quantification of the amount of a compound in a sample.

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We sell a wide range of spectrophotometers under the names UltroSpec, NovaSpec, Libra, Biowave and Lightwave. Our Biochrom subsidiary manufactures these products, and we primarily sell them through our distribution arrangements with GE Healthcare and other distributors.

DNA/RNA/Protein Calculators

A DNA/RNA/protein calculator is a bench top instrument dedicated to quantifying the amount of DNA, RNA or protein in a sample. It uses a process similar to that of a molecular biology spectrophotometer. These are sold under the GeneQuant name. Launched in 1993, we believe that it was the first such instrument sold. Our Biochrom subsidiary manufactures these products, and we primarily sell them through GE Healthcare.

Multi-Well Plate Readers

Multi-well plate readers are widely used for high throughput screening assays in the drug discovery process. The most common format is 96 wells per plate. Plate readers use light to detect chemical interactions. We introduced a range of these products in 2001 beginning with absorbance readers and followed by luminescence readers. Our Asys Hitech subsidiary manufactures these products, and we primarily sell them through distributors. In June 2006, we expanded our multi-well plate reader offerings with the purchase of selected assets of Anthos Labtec Instruments GmbH (Anthos), a subsidiary of Beckman Coulter, Inc. We acquired Asys Hitech in December 2001 through our Biochrom subsidiary.

Amino Acid Analysis Systems

An amino acid analysis system uses chromatography to separate the amino acids in a sample and then uses a chemical reaction to detect each one in turn as they flow out of the chromatography column. Amino acids are the building blocks of proteins. In June 2000, we acquired substantially all of the amino acid analysis systems business of the Biotronik subsidiary of Eppendorf-Netheler-Hinz GmbH and integrated it with the existing amino acid analysis systems business in our Biochrom subsidiary. We sell these systems, which are more expensive than most of our products, through our Biochrom direct sales force and through distributors.

Low Volume, High-Throughput Liquid Dispensers

A liquid dispenser dispenses low volumes, typically microliters, of liquids into high density microtitre plates used in high throughput screening processes in life science research. Our unique technology enables dispensing to take place without the need for contact between the droplet and the liquid already present in the plate, thereby removing any risk of cross-contamination from the process. We primarily market these products, and we sell them under distributor brand names as well as our own Asys Hitech name. Asys Hitech develops, manufactures and markets both these liquid dispensers and a line of plate readers (see above for a description of plate readers).

Gel Electrophoresis Systems

Gel electrophoresis is a method for separating and purifying DNA, RNA and proteins. In gel electrophoresis, an electric current is run through a thin slab of gel and the DNA, RNA or protein molecules separate out based on their charge and size. The gel is contained in a plastic tank with an associated power supply. We entered this market with the acquisition of Scie-Plas in November 2001 and greatly expanded our range of gel electrophoresis products with our November 2003 acquisition of Hoefer. The majority of Hoefer revenues come from a distribution partnership with GE Healthcare but we have also added new distributors and have established a catalog/web distribution channel under the Hoefer name.

Our Customers

Our end-user customers are primarily research scientists at pharmaceutical and biotechnology companies, universities and government laboratories, including the U.S. National Institutes of Health, or NIH. Our academic customers have included major colleges and universities such as Baylor College, Cambridge University, Harvard University, Johns Hopkins University, Massachusetts Institute of Technology, Yale University and the University

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of Texas MD Anderson Center. Our pharmaceutical and biotechnological customers have included pharmaceutical companies and research laboratories such as Amgen, Inc., AstraZeneca plc, Genentech, Inc. and Johnson & Johnson.

We conduct direct sales in the United States, the United Kingdom, Germany, France, Spain and Canada. We also maintain distributors in other countries. Aggregate sales to our largest customer, GE Healthcare, a distributor with end-users similar to ours, accounted for approximately 15% of our revenues for the year ended December 31, 2008 compared to approximately 17% of our revenues for the year ended December 31, 2007. We have several thousand customers worldwide and no other customer accounted for more than 5% of our revenues for such periods.

Sales and Marketing

For the year ended December 31, 2008, revenues from direct sales to end-users through our Harvard Apparatus catalog (and various other specialty catalogs) represented approximately 30% of our revenues; revenues from direct sales to end-users through our direct sales force represented approximately 16% of our total revenues; and revenues from sales of our products through distributors represented approximately 54% of our revenues.

Direct Sales

We periodically produce and mail a Harvard Apparatus full line catalog, most recently launched during February 2008, which contains approximately 11,000 products on 900 pages and is printed in varying quantities ranging from 50,000 to 100,000 copies. The latest catalog, which is accessible on our website, serves as the primary sales tool for the Harvard Apparatus product line, which includes both proprietary manufactured products and complementary products from various suppliers. Our leadership position in many of our manufactured products creates traffic to the catalog and website and enables cross-selling and facilitates the introduction of new products. In addition to the comprehensive catalog, we create and mail abridged catalogs that focus on specific product areas along with direct mailers and targeted e-mailers, which introduce or promote new products. We distribute the majority of our products ordered from our catalog, through our worldwide subsidiaries. In those regions where we do not have a subsidiary, or for products which we have acquired that had distributors in place at the time of our acquisition as the distribution channel, we use distributors.

Distributors

GE Healthcare is our largest distributor, accounting for 15%, 17% and 19% of our revenues for the years ended December 31, 2008, 2007 and 2006, respectively.

Historically, GE Healthcare has been our primary distributor, marketer and seller of a significant portion of our spectrophotometer and DNA/RNA calculator product lines of our Biochrom subsidiary. In April 2008, our Biochrom subsidiary entered into a new distribution agreement with GE Healthcare. This distribution agreement between Biochrom and GE Healthcare, formerly Amersham Biosciences, is a continuation of a long standing relationship between the companies. Under the terms of the agreement, GE Healthcare will serve as the exclusive, worldwide (except Canada) distributor, marketer and seller of a significant portion of the spectrophotometer and DNA/RNA calculator product lines sold by Biochrom, including the recently launched microliter spectrophotomer to which GE Healthcare has exclusive access on a worldwide basis including Canada.

The term of the agreement expires December 31, 2012, may be extended by GE Healthcare for additional one-year periods and may be terminated by either party upon one year advance written notice after March 27, 2009. Additionally, upon breach of certain terms of the agreement by either party, the agreement may be terminated with a 60-day notice period.

In November 2003, in connection with the acquisition of Hoefer from GE Healthcare (formerly Amersham Biosciences), we entered into a separate distribution agreement with GE Healthcare for the distribution of the Hoefer products. This contract has a five year term with an automatic five-year renewal period, provides for

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minimum purchases for the first three years, allows us to use the Hoefer name (which we acquired in the transaction) on direct sales by us to end users or through other distributors, and may be terminated after five years with a one year advance notice upon certain circumstances. Additionally, upon breach of certain terms of the agreement, such as pricing, exclusivity and delivery, by either party, the agreement may be terminated with a 30-day notice period.

In addition to engaging GE Healthcare as the primary distributor for our Biochrom and Hoefer products, we also engage distributors for the sales of Harvard Apparatus, Warner, BTX, KD Scientific, Asys Hitech, Anthos, Panlab and SciePlas branded products in certain areas of the world and for certain product lines. In those regions where we do not have a subsidiary, and for products which we have acquired that had distributors in place at the time of our acquisition as the distribution channel, we use distributors.

Backlog

Our order backlog was approximately $7.4 million as of December 31, 2008 and $5.5 million as of December 31, 2007. We include in backlog only those orders for which we have received valid purchase orders. Purchase orders may be cancelled at any time prior to shipment. Our backlog as of any particular date may not be representative of actual sales for any succeeding period. We typically ship our backlog at any given time within 90 days.

Research and Development

Our principal research and development mission is to develop products which address growth opportunities within the life science research process, particularly for application in the areas of ADMET testing and molecular biology.

Our research and development expenditures were approximately $4.0 million, $3.7 million and $3.2 million in 2008, 2007 and 2006, respectively. We anticipate that we will continue to make investments in research and development activities as we deem appropriate given the circumstances at such time. We plan to continue to pursue a balanced development portfolio strategy of originating new products from internal research and collaborations, and acquiring products through business and technology acquisitions.

We maintain development staff in most of our manufacturing facilities to design and develop new products and to re-engineer existing products to bring them to the next generation level. In-house development is focused on our current technologies. For major new technologies, our strategy has been to partner with universities, government labs or pharmaceutical companies to develop technology into commercially viable products.

Manufacturing

We manufacture and test the majority of our products in our principal manufacturing facilities located in the United States, the United Kingdom, Spain and Germany. We have considerable manufacturing flexibility at our various facilities, and each facility can manufacture multiple products at the same time. We maintain in-house key manufacturing expertise, technologies and resources. We seek to maintain multiple suppliers for key components that are not manufactured in-house, and while some of our products are dependent on sole-source suppliers, we do not believe our dependence upon these suppliers creates any significant risks.

Our manufacturing operations are primarily to assemble and test. Our manufacturing of syringe pumps, ventilators, cell injectors, miniaturized sample preparation products and electroporation products takes place in Holliston, Massachusetts. The manufacture of our cell biology and electrophysiology products takes place in both our Holliston, Massachusetts facility and our Hamden, Connecticut facility. Our manufacturing of spectrophotometers and amino acid analysis systems takes place in our Cambridge, England facility. Our low-volume, high-throughput liquid dispensers and our plate readers are manufactured in our facility in Cambridge, England. Our manufacturing of surgery and anesthesia related products and physiology-teaching products takes place in Edenbridge, England. Our manufacturing of complete organ testing systems takes place in March-Hugstetten, Germany. Our electrophoresis products are manufactured at our Warwickshire, England facility and our San Francisco, California facility. Our manufacturing of our behavioral science products primarily takes place in our Barcelona, Spain facility.

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Competition

The markets into which we sell our products are highly competitive, and we expect the intensity of competition to continue or increase. We compete with many companies engaged in developing and selling tools for life science research. Many of our competitors have greater financial, operational, sales and marketing resources, and more experience in research and development and commercialization than we have. Moreover, our competitors may have greater name recognition than we do, and many offer discounts as a competitive tactic. These competitors and other companies may have developed or could in the future develop new technologies that compete with our products, which could render our products obsolete. We cannot assure you that we will be able to make the enhancements to our technologies necessary to compete successfully with newly emerging technologies. We are not aware of any significant products sold by us, which are currently obsolete.

We believe that we offer one of the broadest selections of products to companies engaged in life science research. We are not aware of any competitor that offers a product line of comparable breadth across our target markets. We have numerous competitors on a product line basis. We believe that we compete favorably with our competitors on the basis of product performance, including quality, reliability and speed, technical support, price and delivery time.

We compete with several companies that provide instruments for ADMET testing and molecular biology. In the ADMET testing area, we compete with, among others, Amaxa GmbH, Becton, Dickinson and Company, Eppendorf AG, Kent Scientific Corporation, Razel Scientific Instruments, Inc. and Ugo Basile. In the molecular biology products area, we compete with, among others, Beckman Coulter, Inc., Bio-Rad Laboratories, Inc., Eppendorf AG, Invitrogen Corporation, MDS Analytical Technologies, PerkinElmer, Inc. and Thermo Fisher Scientific Corporation.

Seasonality

Our business is generally not seasonal, however, sales and earnings in our third quarter are usually flat to down sequentially primarily because there are a large number of holidays and vacations during the quarter, especially in Europe. Our fourth quarter sales and earnings are often the highest in the fiscal year compared to the other three quarters, primarily because many of our customers tend to spend budgeted money before their own fiscal years end.

Intellectual Property

To establish and protect our proprietary technologies and products, we rely on a combination of patent, copyright, trademark and trade-secret laws, as well as confidentiality provisions in our contracts. Patents or patent applications cover many of our new technologies. Most of our more mature product lines are protected by trade names and trade secrets only.

We have implemented a patent strategy designed to provide us with freedom to operate and facilitate commercialization of our current and future products. In our continuing operations, we have 13 issued U.S. patents and 7 pending applications. Generally, U.S. patents have a term of 17 years from the date of issue for patents issued from applications filed with the U.S. Patent Office prior to June 8, 1995, and 20 years from the application filing date or earlier claimed priority date in the case of patents issued from applications filed on or after June 8, 1995. Our issued US patents will expire between 2011 and 2020. Our success depends to a significant degree upon our ability to develop proprietary products and technologies. We intend to continue to file patent applications as we develop new products and technologies.

Patents provide some degree of protection for our intellectual property. However, the assertion of patent protection involves complex legal and factual determinations and is therefore uncertain. The scope of any of our issued patents may not be sufficiently broad to offer meaningful protection. In addition, our issued patents or patents licensed to us may be successfully challenged, invalidated, circumvented or unenforceable so that our patent rights would not create an effective competitive barrier. Moreover, the laws of some foreign countries may protect our proprietary rights to a greater or lesser extent, as do the laws of the United States. In addition, the

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laws governing patentability and the scope of patent coverage continue to evolve, particularly in areas of interest to us. As a result, there can be no assurance that patents will be issued from any of our patent applications or from applications licensed to us. In view of these factors, our intellectual property positions bear some degree of uncertainty.

We also rely in part on trade-secret protection of our intellectual property. We attempt to protect our trade secrets by entering into confidentiality agreements with third parties, employees and consultants. Our employees and consultants also sign agreements requiring that they assign to us their interests in patents and copyrights arising from their work for us. Although many of our U.S. employees have signed agreements not to compete unfairly with us during their employment and after termination of their employment, through the misuse of confidential information, soliciting employees, soliciting customers and the like, the enforceability of these provisions varies from jurisdiction to jurisdiction and, in some circumstances, they may not be enforceable. In addition, it is possible that these agreements may be breached or invalidated and if so, there may not be an adequate corrective remedy available. Despite the measures we have taken to protect our intellectual property, we cannot assure you that third parties will not independently discover or invent competing technologies, or reverse engineer our trade secrets or other technologies. Therefore, the measures we are taking to protect our proprietary rights may not be adequate.

We do not believe that our products infringe on the intellectual property rights of any third party. We cannot assure you, however, that third parties will not claim such infringement by us or our licensors with respect to current or future products. We expect that product developers in our market will increasingly be subject to such claims as the number of products and competitors in our market segment grows and the product functionality in different market segments overlaps. In addition, patents on production and business methods are becoming more common and we expect that more patents will be issued in our technical field. Any such claims, with or without merit, could be time-consuming, result in costly litigation and diversion of management s attention and resources, cause product shipment delays or require us to enter into royalty or licensing agreements. Moreover, such royalty or licensing agreements, if required, may not be on terms acceptable to us, or at all, which could seriously harm our business or financial condition.

Harvard is a registered trademark of Harvard University. The marks Harvard Apparatus and Harvard Bioscience are being used pursuant to a license agreement entered into in December 2002 between Harvard University and Harvard Bioscience, Inc.

Government Regulation

We are not subject to direct governmental regulation other than the laws and regulations generally applicable to businesses in the domestic and foreign jurisdictions in which we operate. In particular, our products are not subject to pre-market approval by the United States Food and Drug Administration for use on human clinical patients. In addition, we believe we are in compliance with all relevant environmental laws.

Employees

As of December 31, 2008, we employed 315 employees, of which 300 are full-time and 15 are part-time. Geographical residence information for these employees is summarized in the table below:

United States	131
United Kingdom	119
Spain	43
Germany	14
Canada	5
France	3
Total	315

We believe that our relationship with our employees is good. None of our employees is subject to any collective bargaining agreement.

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Discontinued Operations

In July 2005, we announced plans to divest our Capital Equipment Business segment. The decision to divest this business was based on the fact that market conditions for the Capital Equipment Business segment had been such that this business did not meet our expectations and the decision to focus our resources on our Apparatus and Instrumentation Business segment. As a result, we began reporting our Capital Equipment Business segment as a discontinued operation in the third quarter of 2005.

In November 2007, we completed the sale of the assets of our Genomic Solutions Division and the stock of our Belgian subsidiary, MAIA Scientific, both of which were part of our Capital Equipment Business Segment, to Digilab, Inc. The purchase price paid by Digilab under the terms of the Asset Purchase Agreement consisted of $1,000,000 in cash plus additional consideration in the form of an earn-out based on 20% of the revenue generated by the acquired business as it is conducted by Digilab over a three-year period post-transaction. Any earn-out amounts will be evidenced by interest bearing promissory notes due on November 30, 2012. During the fourth quarter of 2007, we recorded a loss on this sale of $3.1 million. There was no value ascribed to the contingent consideration from the earn-out agreement, as realization is uncertain.

In September 2008, we completed the sale of assets of our Union Biometrica Division including our German subsidiary, Union Biometrica GmbH, representing at that time the remaining portion of our Capital Equipment Business Segment, to UBIO Acquisition Company. The purchase price paid by UBIO Acquisition Company under the terms of the Asset Purchase Agreement consisted of $1 in cash, the assumption of certain liabilities, plus additional consideration in the form of an earn-out based on the revenue generated by the acquired business as it is conducted by UBIO Acquisition Company over a five-year post-transaction period in an amount equal to (i) 5% of the revenue generated up to and including $6,000,000 and (ii) 8% of the revenue generated above $6,000,000 each year. Any earn-out amounts will be evidenced by interest-bearing promissory notes due on September 30, 2013 or at an earlier date based on certain triggering events. During 2008, we recorded a loss on sale of the Union Biometrica business of $3.3 million. There was no value ascribed to the contingent consideration from the earn-out agreement, as realization is uncertain.

Geographic Area

Financial information regarding geographic areas in which we operate is provided in Note 17 of the Notes to Consolidated Financial Statements, which are included elsewhere in this report.

Available Information and Website

Our website is www.harvardbioscience.com. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and exhibits and amendments to those reports filed or furnished with the Securities and Exchange Commission pursuant to Section 13(a) of the Exchange Act are available for review on our website. Any such materials that we file with, or furnish to, the Securities and Exchange Commission in the future will be available on our website as soon as reasonably practicable after they are electronically filed with, or furnished to, the Securities and Exchange Commission. The information on our website is not incorporated by reference into this Annual Report on Form 10-K.

Item 1A. ***Risk Factors.***

As previously discussed, our actual results could differ materially from our forward-looking statements. Factors that might cause or contribute to such differences include, but are not limited to, those discussed below. These and many other factors described in this report could adversely affect our business operations, performance and financial condition.

The current credit and financial market conditions may exacerbate certain risks affecting our business.

Increased concerns about credit markets, consumer confidence, economic conditions, volatile corporate profits and reduced capital spending could negatively impact demand for our products. We may experience in the future, reduced demand for our products because of the uncertainty in the general economic environment in

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which our customers and we operate. The current tightening of credit in financial markets may adversely affect the ability of our customers and suppliers to obtain financing, which could result in a decrease in, or deferrals or cancellations of, the sale of our products. If global economic and market conditions, or economic conditions in the United States, remain uncertain or persist, spread, or deteriorate further, we may experience a material adverse effect on our business, operating results and financial condition. Unstable economic, political and social conditions make it difficult for our customers, our suppliers and us to accurately forecast and plan future business activities. If such conditions persist, our business, financial condition and results of operations could suffer. We cannot project the extent of the impact of the economic environment specific to our industry.

Our quarterly revenues will likely be affected by various factors, including the timing of purchases by customers and the seasonal nature of purchasing in Europe.

Our quarterly revenues will likely be affected by various factors, including the seasonal nature of purchasing in Europe. Our revenues may vary from quarter to quarter due to a number of factors, including the timing of catalog mailings and new product introductions, the release of grant and budget funding, future acquisitions and our substantial sales to European customers, who in summer months often defer purchases. In particular, delays or reduction in purchase orders from the pharmaceutical and biotechnology industries could have a material adverse effect on us and could adversely affect our stock price.

The failure of any banking institution in which we deposit our funds or the failure of such banking institution to provide services in the current economic environment could have a material adverse effect on our results of operations, financial condition or access to borrowings.

The capital and credit markets have been experiencing extreme volatility and disruption. In recent months, the volatility and disruption have reached unprecedented levels. In some cases, the markets have exerted downward pressure on stock prices and credit capacity for certain issuers, as well as pressured the solvency of some financial institutions. Some of these financial institutions, including banks, have had difficulty performing regular services and in some cases have failed or otherwise been largely taken over by governments. We deposit our cash and cash equivalents with a number of financial institutions around the world. Should some or all of these financial institutions fail or otherwise be unable to timely perform requested services, we would likely have a limited ability to quickly access our cash deposited with such institutions. If we are unable to quickly access such funds, we may need to increase our use of our existing credit lines or access more expensive credit, if available. If we are unable to access some or all of our cash on deposit, either temporarily or permanently, or if we access existing or additional credit or are unable to access additional credit, it could have a negative impact on our operations, including our reported net income, or our financial position, or both.

If we engage in any acquisition, we will incur a variety of costs, and may never realize the anticipated benefits of the acquisition.

Our business strategy includes the future acquisition of businesses, technologies, services or products that we believe are a strategic fit with our business. If we undertake any acquisition, the process of integrating an acquired business, technology, service or product may result in unforeseen operating difficulties and expenditures and may absorb significant management attention that would otherwise be available for ongoing development of our business. Moreover, we may fail to realize the anticipated benefits of any acquisition as rapidly as expected or at all. Future acquisitions could reduce stockholders ownership, cause us to incur debt, expose us to future liabilities and result in amortization expenses related to intangible assets with definite lives. We may incur significant expenditures in anticipation of an acquisition that is never realized.

We may not realize the expected benefits from acquisitions due to difficulties integrating the businesses, operations and product lines.

Our ability to achieve the benefits of acquisitions depends in part on the integration and leveraging of technology, operations, sales and marketing channels and personnel. The integration process is a complex, time-consuming and expensive process and may disrupt our business if not completed in a timely and efficient manner.

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We may have difficulty successfully integrating the acquired businesses, the domestic and foreign operations or the product lines, and as a result, we may not realize any of the anticipated benefits of the acquisitions. Additionally, we cannot assure that our growth rate will equal the growth rates that have been experienced by us and the acquired companies, respectively, operating as separate companies in the past.

We have been actively engaged in acquiring and divesting companies. As a result, we may be the subject of lawsuits from either the acquiring company s stockholders, an acquired company s previous stockholders, the divested company s stockholders or our current stockholders.

We may be the subject of lawsuits from either the acquiring company s stockholders, an acquired company s previous stockholders, the divested company s stockholders or our current stockholders. These lawsuits could result from the actions of the acquisition or divestiture target prior to the date of the acquisition or divestiture, from the acquisition or divestiture transaction itself or from actions after the acquisition or divestiture. Defending potential lawsuits could cost us significant expense and detract management s attention from the operation of the business. Additionally, these lawsuits could result in the cancellation of or the inability to renew, certain insurance coverage that would be necessary to protect our assets.

Attractive acquisition opportunities may not be available to us in the future.

We will consider the acquisition of other businesses. However, we may not have the opportunity to make suitable acquisitions on favorable terms in the future, which could negatively impact the growth of our business. In order to pursue such opportunities, we may require significant additional financing, which may not be available to us on favorable terms, if at all. The availability of such financing is limited by the recent tightening of the global credit markets. We expect that our competitors, many of which have significantly greater resources than we do, will compete with us to acquire compatible businesses. This competition could increase prices for acquisitions that we would likely pursue.

If our goodwill or intangible assets become impaired, we may be required to record a significant charge to earnings.

Under accounting principles generally accepted in the United States, we review our intangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Goodwill is required to be tested for impairment at least annually. Factors that may be considered a change in circumstances indicating that the carrying value of our goodwill or other intangible assets may not be recoverable include declines in our stock price and market capitalization or future cash flows projections. We may be required to record a significant charge to earnings in our financial statements during the period in which any impairment of our goodwill or other intangible assets is determined.

Accounting for goodwill and other intangible assets may have a material adverse effect on us.

In accordance with the provisions of Statement of Financial Accounting Standards (SFAS) No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets,* we assess the recoverability of identifiable intangibles with finite lives and other long-lived assets, such as property, plant and equipment, for impairment whenever events or changes in circumstances indicate that the carrying value may not be recoverable. In accordance with SFAS No. 142, *Goodwill and Other Intangible Assets,* goodwill and intangible assets with indefinite lives from acquisitions are evaluated annually, or more frequently, if events or circumstances indicate there may be an impairment, to determine whether any portion of the remaining balance of goodwill and indefinite lived intangibles may not be recoverable. If it is determined in the future that a portion of our goodwill and other intangible assets is impaired, we will be required to write off that portion of the asset according to the methods defined by SFAS No. 144 and SFAS No. 142, which could have an adverse effect on net income for the period in which the write off occurs. At December 31, 2008, our continuing operations had goodwill and intangible assets of $33.8 million, or 42%, of our total assets.

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Future changes in financial accounting standards may adversely affect our reported results of operations.

A change in accounting standards can have a significant effect on our reported results. New accounting pronouncements and varying interpretations of accounting pronouncements have occurred and may occur in the future. These new accounting pronouncements may adversely affect our reported financial results.

If our accounting estimates are not correct, our financial results could be adversely affected.

Management judgment and estimates are necessarily required in the application of our Critical Accounting Policies. We discuss these estimates in the subsection entitled Critical Accounting Policies beginning on page 36. If our estimates are incorrect, our future financial operating results and financial condition could be adversely affected.

Our business is subject to economic, political and other risks associated with international revenues and operations.

Since we manufacture and sell our products worldwide, our business is subject to risks associated with doing business internationally. Our revenues from our non-U.S. operations represented approximately 61% of total revenues for 2008. We anticipate that revenue from international operations will continue to represent a substantial portion of our revenues in the foreseeable future. In addition, a number of our manufacturing facilities and suppliers are located outside the United States. A global economic slowdown could have a negative effect on various foreign markets in which we operate. Accordingly, our future results could be harmed by a variety of factors, including:

- the impact of recessions and other economic conditions in economies, including Europe in particular, outside the United States,
- disruptions of capital and trading markets,
- inability to collect accounts receivable,
- limitations on repatriations of funds,
- potentially negative consequences from changes in tax laws affecting the ability to expatriate profits,
- difficulty in staffing and managing widespread operations, unfavorable labor regulations applicable to European operations, such as severance and the unenforceability of non-competition agreements in the European Union, and
- other factors beyond our control, including terrorism, acts of war, natural disasters and diseases.

We are also subject to the risks of fluctuating foreign exchange rates, which could have a materially adverse effect on the sales price of our products in foreign markets, as well as the costs and expenses of our foreign subsidiaries. Currently, we do not use forward exchange contracts to hedge our foreign currency exposure.

Currency exchange rate fluctuations may have a negative impact on our reported earnings.

Approximately 56% of our business from continuing operations during 2008 was conducted in functional currencies other than the U.S. dollar, which is our reporting currency. As a result, currency fluctuations among the U.S. dollar and the currencies in which we do business have caused and will continue to cause foreign currency transaction gains and losses. Currently, we attempt to manage foreign currency risk through the matching of assets and liabilities. In the future, we may undertake to manage foreign currency risk through additional hedging methods. We recognize foreign currency gains or losses arising from our operations in the period incurred. We cannot guarantee that we will be successful in managing foreign currency risk or in predicting the effects of exchange rate fluctuations upon our future operating results because of the number

of currencies involved, the variability of currency exposure and the potential volatility of currency exchange rates.

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If we are not able to manage our growth, our operating profits or losses may be adversely impacted.

Our success will depend on the expansion of our operations through both organic growth and acquisitions. Effective growth management will place increased demands on management, operational and financial resources and expertise. To manage growth, we must expand our facilities, augment our operational, financial and management systems, and hire and train additional qualified personnel. Failure to manage this growth effectively could impair our ability to generate revenue or could cause our expenses to increase more rapidly than revenue, resulting in operating losses or reduced profitability.

We may incur additional restructuring costs or not realize the expected benefits of our initiatives to reduce operating expenses.

During the quarter ended March 31, 2008, we committed to an ongoing initiative to consolidate business functions to reduce operating expenses. Our actions in 2008 have been related to the separation of our electrophoresis product lines from our spectrophotometer and plate reader product lines. As part of these initiatives, we have made changes in management, completed the consolidation of the Hoefer electrophoresis administrative and marketing operations from San Francisco, California to the headquarters of the Harvard Apparatus subsidiary in Holliston, Massachusetts and consolidated the activities of our Asys Hitech subsidiary in Austria to our Biochrom subsidiary s facility located in Cambridge, UK.

We plan to consolidate parts of our electrophoresis operations during 2009. We expect that we will save approximately $0.005 per share on a full year basis and about half that amount during 2009. We anticipate that we will incur restructuring costs associated with this consolidation of approximately $0.5 million in the first half of 2009. We may incur additional restructuring costs and we may not be able to realize fully the expected benefits of these initiatives. See Note 9 to our consolidated financial statements Restructuring and Other Exit Costs.

If we fail to retain key personnel and hire, train and retain qualified employees, we may not be able to compete effectively, which could result in reduced revenue or increased costs.

Our success is highly dependent on the continued services of key management, technical and scientific personnel. Our management and other employees may voluntarily terminate their employment at any time upon short notice. The loss of the services of any member of the senior management team, including the Chief Executive Officer, Chane Graziano, the President, David Green, the Chief Operating Officer, Susan Luscinski, the Chief Financial Officer, Thomas McNaughton, or any of the managerial, technical or scientific staff may significantly delay or prevent the achievement of product development and other business objectives. Our future success will also depend on our ability to identify, recruit and retain additional qualified scientific, technical and managerial personnel. Competition for qualified personnel in the technology area is intense, and we operate in several geographic locations where labor markets are particularly competitive, including Boston, Massachusetts and London and Cambridge, England, and where demand for personnel with these skills is extremely high and is likely to remain high. As a result, competition for qualified personnel is intense, particularly in the areas of general management, finance, information technology, engineering and science, and the process of hiring suitably qualified personnel is often lengthy and expensive, and may become more expensive in the future. If we are unable to hire and retain a sufficient number of qualified employees, our ability to conduct and expand our business could be seriously reduced.

Our competitors and potential competitors may develop products and technologies that are more effective or commercially attractive than our products.

We expect to encounter increased competition from both established and development-stage companies that continually enter the market. We anticipate that these competitors will include:

companies developing and marketing life sciences research tools,

health care companies that manufacture laboratory-based tests and analyzers,

diagnostic and pharmaceutical companies,

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analytical instrument companies, and

companies developing life science or drug discovery technologies.

Currently, our principal competition comes from established companies that provide products that perform many of the same functions for which we market our products. Our competitors may develop or market products that are more effective or commercially attractive than our current or future products. Many of our competitors have substantially greater financial, operational, marketing and technical resources than we do. Moreover, these competitors may offer broader product lines and tactical discounts, and may have greater name recognition. In addition, we may face competition from new entrants into the field. We may not have the financial resources, technical expertise or marketing, distribution or support capabilities to compete successfully in the future.

Our products compete in markets that are subject to technological change, and therefore one or more of our products could be made obsolete by new technologies.

Because the market for life science tools is characterized by technological change and frequent new product introductions, our product lines may be made obsolete unless we are able to continually improve existing products and develop new products. To meet the evolving needs of its customers, we must continually enhance our current and planned products and develop and introduce new products. However, we may experience difficulties that may delay or prevent the successful development, introduction and marketing of new products or product enhancements. In addition, our product lines are based on complex technologies that are subject to change as new technologies are developed and introduced in the marketplace. We may have difficulty in keeping abreast of the changes affecting each of the different markets we serve or intend to serve. Our failure to develop and introduce products in a timely manner in response to changing technology, market demands or the requirements of our customers could cause our product sales to decline, and we could experience significant losses.

We offer and plan to offer a broad product line and have incurred and expect to continue to incur substantial expenses for development of new products and enhanced versions of our existing products. The speed of technological change in our market may prevent us from being able to successfully market some or all of our products for the length of time required to recover development costs. Failure to recover the development costs of one or more products or product lines could decrease our profitability or cause us to experience significant losses.

Our $20.0 million credit facility contains certain financial and negative covenants, the breach of which may adversely affect our financial condition.

We have a $20.0 million credit facility with Brown Brothers Harriman & Co. We had no borrowings under this facility as of December 31, 2008. The credit facility contains various financial and other covenants, including covenants relating to income, debt coverage and cash flow and minimum working capital requirements. If we are not in compliance with certain of these covenants, in addition to other actions the creditor may require, the amounts drawn on the $20.0 million facility may become immediately due and payable. This immediate payment may negatively impact our financial condition.

Our $20.0 million credit facility expires on December 1, 2009, and if we are unable to obtain a new credit facility, our ability to obtain financing for acquisitions could be materially impacted.

We are in the process of negotiating a new credit facility with our lenders. While we do not currently anticipate a problem obtaining a new facility, there can be no assurance, in light of the current credit market, that we will successfully obtain a new facility with terms favorable to us. In addition, although we do not expect our lenders under our existing credit facility or any future facility to be unable to provide us with financing under such facilities, there can be no assurance that our lenders will not be materially affected by current market conditions and have difficulty or not be able to provide such financing when we need to obtain it.

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Failure to raise additional capital or generate the significant capital necessary to implement our acquisition strategy, expand our operations and invest in new products could reduce our ability to compete and result in lower revenue.

We anticipate that our financial resources, which include available cash, cash generated from operations, and debt and equity capacity, will be sufficient to finance operations and capital expenditures for at least twelve months. However, this expectation is premised on the current operating plan, which may change as a result of many factors, including market acceptance of new products and future opportunities with collaborators. Consequently, we may need additional funding sooner than anticipated. Our inability to raise sufficient capital on favorable terms and on a timely basis (if at all) could seriously harm our business, product development and acquisition efforts.

If we raise additional funds through the sale of equity or convertible debt or equity-linked securities, existing percentages of ownership in our common stock will be reduced. In addition, these transactions may dilute the value of our outstanding common stock. We may issue securities that have rights, preferences and privileges senior to our common stock. If we raise additional funds through collaborations or licensing arrangements, we may relinquish rights to certain of our technologies or products, or grant licenses to third parties on terms that are unfavorable. In addition, our credit facility with Brown Brothers Harriman contains limitations on our ability to incur additional indebtedness and requires creditor approval for acquisitions funded with cash in excess of $6.0 million and acquisitions funded with equity in excess of $10.0 million. If future financing is not available or is not available on acceptable terms, we may have to alter our operations or change our business strategy. We cannot assure you that the capital required to fund operations or our acquisition strategy will be available in the future.

If GE Healthcare (formerly Amersham Biosciences) terminates its distribution agreements with us, fails to renew such agreements on favorable terms or fails to perform its obligations under the distribution agreements, it could impair the marketing and distribution efforts for some of our products and result in lost revenues.

During 2004, General Electric Company acquired Amersham plc, the parent of Amersham Biosciences. In connection with the acquisition, Amersham Biosciences was renamed GE Healthcare. While GE Healthcare has indicated its intention to continue Amersham s presence in the life science market, and we believe our relationship with GE Healthcare is good, we cannot guarantee that the distribution agreements will be renewed, that GE Healthcare will aggressively market our products in the future or that GE Healthcare will continue the partnership. If any of these events occurs, our marketing and distribution efforts for some of our products may be impaired and our revenues may be adversely impacted.

For 2008, approximately 15% of our revenues were generated through two distribution agreements with GE Healthcare.

In April 2008, our Biochrom subsidiary entered into a new distribution agreement with GE Healthcare. This distribution agreement between Biochrom and GE Healthcare, formerly Amersham Biosciences, is a continuation of a long standing relationship between the companies. Under the terms of the agreement, GE Healthcare will serve as the exclusive, worldwide (except Canada) distributor, marketer and seller of a significant portion of the spectrophotometer and DNA/RNA calculator product lines sold by Biochrom, including the recently launched microliter spectrophotometer to which GE Healthcare has exclusive access to on a worldwide basis including Canada. We are restricted from allowing another person or entity to distribute, market and sell into the life sciences market the products that Biochrom makes specifically for GE Healthcare. We have little or no control over GE Healthcare s marketing and sales activities or the use of its resources. GE Healthcare may fail to purchase sufficient quantities of products from us or perform appropriate marketing and sales activities. The failure by GE Healthcare to perform these activities could materially adversely affect our business and growth prospects. In addition, our inability to enter into a new agreement with GE Healthcare for product distribution could materially impede the growth of our business and our ability to generate sufficient revenue. The term of the agreement expires December 31, 2012, may be extended by GE Healthcare for additional one-year periods and

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may be terminated by either party upon one year advance written notice after March 27, 2009. Additionally, upon breach of certain terms of the agreement by either party, the agreement may be terminated with a 60-day notice period.

The second distribution agreement, between Hoefer, Inc., our subsidiary, and GE Healthcare was entered into in November 2003 in connection with our acquisition of certain assets of the Hoefer 1-D gel electrophoresis business, including the Hoefer name, from Amersham Bioscience. The agreement provides that Hoefer will be the exclusive supplier of 1-D gel electrophoresis products to GE Healthcare. Hoefer also has the right to develop, manufacture and market 2-D gel electrophoresis products, which would be offered to GE Healthcare for sale under the GE Healthcare s brand name. Hoefer has the right to sell any of its products, under the Hoefer brand name or any other non-GE Healthcare brand name, through other distribution channels, both direct and indirect. This contract has a five-year term with an automatic five-year renewal period, and may be terminated after five years with a one-year advance notice under certain circumstances. Additionally, upon breach of certain terms of the agreement, such as pricing, exclusivity and delivery, by either party, the agreement may be terminated with a 30-day notice period.

If we are unable to effectively protect our intellectual property, third parties may use our technology, which would impair our ability to compete in our markets.

Our continued success will depend in significant part on our ability to obtain and maintain meaningful patent protection for certain of our products throughout the world. Patent law relating to the scope of claims in the technology fields in which we operate is still evolving. The degree of future protection for our proprietary rights is uncertain. In our continuing operations, we have 13 issued U.S. patents and 7 pending applications. We also own numerous U.S. registered trademarks and trade names and have applications for the registration of trademarks and trade names pending. We rely on patents to protect a significant part of our intellectual property and to enhance our competitive position. However, our presently pending or future patent applications may not issue as patents, and any patent previously issued to us may be challenged, invalidated, held unenforceable or circumvented. Furthermore, the claims in patents which have been issued or which may be issued to us in the future may not be sufficiently broad to prevent third parties from producing competing products similar to our products. In addition, the laws of various foreign countries in which we compete may not protect our intellectual property to the same extent, as do the laws of the United States. If we fail to obtain adequate patent protection for our proprietary technology, our ability to be commercially competitive will be materially impaired.

In addition to patent protection, we also rely on protection of trade secrets, know-how and confidential and proprietary information. To maintain the confidentiality of trade-secrets and proprietary information, we generally seek to enter into confidentiality agreements with our employees, consultants and strategic partners upon the commencement of a relationship. However, we may not be able to obtain these agreements in all circumstances in part due to local regulations. In the event of unauthorized use or disclosure of this information, these agreements, even if obtained, may not provide meaningful protection for our trade-secrets or other confidential information. In addition, adequate remedies may not exist in the event of unauthorized use or disclosure of this information. The loss or exposure of our trade secrets and other proprietary information would impair our competitive advantages and could have a material adverse effect on our operating results, financial condition and future growth prospects.

We may be involved in lawsuits to protect or enforce our patents that would be expensive and time-consuming.

In order to protect or enforce our patent rights, we may initiate patent litigation against third parties. We may also become subject to interference proceedings conducted in the patent and trademark offices of various countries to determine the priority of inventions. Several of our products are based on patents that are closely surrounded by patents held by competitors or potential competitors. As a result, we believe there is a greater likelihood of a patent dispute than would be expected if our patents were not closely surrounded by other patents. The defense and prosecution, if necessary, of intellectual property suits, interference proceedings and related legal and administrative proceedings would be costly and divert our technical and management personnel from their normal responsibilities. We may not prevail in any of these suits. An adverse determination of any litigation or defense proceedings could put our patents at risk of being invalidated or interpreted narrowly and could put our patent applications at risk of not issuing.

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Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. For example, during the course of this kind of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments in the litigation. Securities analysts or investors may perceive these announcements to be negative, which could cause the market price of our stock to decline.

Our success will depend partly on our ability to operate without infringing on or misappropriating the intellectual property rights of others.

We may be sued for infringing on the intellectual property rights of others, including the patent rights, trademarks and trade names of third parties. Intellectual property litigation is costly and the outcome is uncertain. If we do not prevail in any intellectual property litigation, in addition to any damages we might have to pay, we could be required to stop the infringing activity, or obtain a license to or design around the intellectual property in question. If we are unable to obtain a required license on acceptable terms, or are unable to design around any third party patent, we may be unable to sell some of our products and services, which could result in reduced revenue.

Many of our current and potential customers are from the pharmaceutical and biotechnology industries and are subject to risks faced by those industries.

We derive a substantial portion of our revenues from pharmaceutical and biotechnology companies. We expect that pharmaceutical and biotechnology companies will continue to be one of our major sources of revenues for the foreseeable future. As a result, we are subject to risks and uncertainties that affect the pharmaceutical and biotechnology industries, such as pricing pressures as third-party payers continue challenging the pricing of medical products and services, government regulation, ongoing consolidation and uncertainty of technological change, and to reductions and delays in research and development expenditures by companies in these industries.

In particular, the biotechnology industry is largely dependent on raising capital to fund its operations. If biotechnology companies are unable to obtain the financing necessary to purchase our products, our business and results of operations could be materially adversely affected. As it relates to both the biotechnology and pharmaceutical industries, many companies have significant patents that have expired or are about to expire, which could result in reduced revenues for those companies. If pharmaceutical companies suffer reduced revenues as a result of these patent expirations, they may be unable to purchase our products, and our business and results of operations could be materially adversely affected.

In addition, we are dependent, both directly and indirectly, upon general health care spending patterns, particularly in the research and development budgets of the pharmaceutical and biotechnology industries, as well as upon the financial condition and purchasing patterns of various governments and government agencies. Many of our customers, including universities, government research laboratories, private foundations and other institutions, obtain funding for the purchase of products from grants by governments or government agencies. There exists the risk of a potential decrease in the level of governmental spending allocated to scientific and medical research, which could substantially reduce or even eliminate these grants. If government funding necessary to purchase our products were to decrease, our business and results of operations could be materially adversely affected.

Customer, vendor and employee uncertainty about the effects of any of our acquisitions could harm us.

We and the customers of any companies we acquire may, in response to the consummation of the acquisitions, delay or defer purchasing decisions. Any delay or deferral in purchasing decisions by customers could adversely affect our business. Similarly, employees of acquired companies may experience uncertainty about their future role until or after we execute our strategies with regard to employees of acquired companies. This may adversely affect our ability to attract and retain key management, sales, marketing and technical personnel following an acquisition.

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Ethical concerns surrounding the use of our products and misunderstanding of the nature of our business could adversely affect our ability to develop and sell our existing products and new products.

Some of our products may be used in areas of research involving cloning, stem cells, human tissue and organ transplants, animal research and other techniques presently being explored in the life science industry. These techniques have drawn much negative attention recently in the public forum. Government authorities may regulate or prohibit any of these activities. Additionally, the public may disfavor or reject these activities.

Our stock price has fluctuated in the past and could experience substantial declines in the future and, as a result, management s attention may be diverted from tasks that are more productive.

The market price of our common stock has experienced significant fluctuations and may become volatile and could decline in the future, perhaps substantially, in response to various factors including:

- the recent unprecedented volatility of the financial markets,
- uncertainty regarding the prospects of the domestic and foreign economies,
- technological innovations by competitors or in competing technologies,
- revenues and operating results fluctuating or failing to meet the expectations of management, securities analysts, or investors in any quarter,
- termination or suspension of equity research coverage by securities analysts,
- comments of securities analysts and mistakes by or misinterpretation of comments from analysts, downward revisions in securities analysts estimates or management guidance,
- investment banks and securities analysts may themselves be subject to lawsuits that may adversely affect the perception of the market,
- conditions or trends in the biotechnology and pharmaceutical industries,
- announcements of significant acquisitions or financings or changes in strategic partnerships,
- non-compliance with the internal control standards pursuant to the Sarbanes-Oxley Act of 2002, and
- a decrease in the demand for our common stock.

In addition, public stock markets have recently experienced extreme price and trading volatility. The stock market and the NASDAQ Global Market in general, and the biotechnology industry and small cap markets in particular, have experienced significant price and volume fluctuations that at times may have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry factors may further harm the market price of our common stock, regardless of our operating performance. In the past, securities class

action litigation has often been instituted following periods of volatility in the market price of a company s securities. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management s attention and resources.

Provisions of Delaware law, of our charter and bylaws and our Shareholder Rights Plan may make a takeover more difficult, which could cause our stock price to decline.

Provisions in our certificate of incorporation and bylaws and in the Delaware corporate law may make it difficult and expensive for a third party to pursue a tender offer, change in control or takeover attempt, which is opposed by management and the board of directors. Public stockholders who might desire to participate in such a transaction may not have an opportunity to do so. In February 2008, our Board of Directors adopted a Shareholder Rights Plan that could make it more difficult for a third party to acquire, or could discourage a third party from acquiring, the Company or a large block of our common stock. A third party that acquires 20% or more of our common stock (an acquiring person) could suffer substantial dilution of its ownership interest under the terms of the Shareholder Rights Plan through the issuance of common stock to all shareholders other than the acquiring person. We also have a staggered board of directors that makes it difficult for stockholders to

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change the composition of the board of directors in any one year. These anti-takeover provisions could substantially impede the ability of public stockholders to change our management and board of directors. Such provisions may also limit the price that investors might be willing to pay for shares of our common stock in the future.

An active trading market for our common stock may not be sustained.

Although our common stock is quoted on the NASDAQ Global Market, an active trading market for the shares may not be sustained.

Future issuance of preferred stock may dilute the rights of our common stockholders.

Our board of directors has the authority to issue up to 5,000,000 shares of preferred stock and to determine the price, privileges and other terms of these shares. The board of directors may exercise this authority without any further approval of stockholders. The rights of the holders of common stock may be adversely affected by the rights of future holders of preferred stock.

Cash dividends will not be paid on our common stock.

Currently, we intend to retain all of our earnings to finance the expansion and development of our business and do not anticipate paying any cash dividends to holders of our common stock in the near future. As a result, capital appreciation, if any, of our common stock will be a stockholder s sole source of gain for the near future.

As a public company, we have and will continue to incur significant legal, accounting and other expenses.

Item 1B. ***Unresolved Staff Comments*.**
None.

Item 2. ***Properties.***
The Company s eight principal facilities incorporate manufacturing, development, sales and marketing, and administration functions. Our facilities consist of:

- a leased 52,370 square foot facility in Holliston, Massachusetts, which is our corporate headquarters,
- a leased 28,000 square foot facility in Cambridge, England,
- a leased 25,070 square foot facility in Barcelona, Spain,
- a leased 22,600 square foot facility in San Francisco, California,
- a leased 18,000 square foot facility in Warwickshire, England,
- an owned 15,500 square foot facility in Edenbridge, England,

a leased 12,031 square foot facility in March-Hugstetten, Germany, and

a leased 7,500 square foot facility in Hamden, Connecticut.

We also lease additional facilities for sales and administrative support in Les Ulix, France, St. Augustin, Germany and Montreal, Canada and warehouse space in Madrid, Spain.

We sublease 15,000 square feet of space of our Holliston, Massachusetts facility.

Item 3. ***Legal Proceedings.***

From time to time, we may be involved in various claims and legal proceedings arising in the ordinary course of business. We are not currently a party to any such claims or proceedings.

Item 4. ***Submission of Matters to a Vote of Security Holders.***

None.

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Item 4.A. ***Executive Officers of the Registrant***

The following table shows information about our executive officers as of December 31, 2008.

Name	Age	Position
Chane Graziano	70	Chief Executive Officer and Chairman of the Board of Directors
David Green	44	President and Director
Thomas McNaughton	48	Chief Financial Officer and Treasurer
Susan Luscinski	52	Chief Operating Officer

Chane Graziano has served as the Company s Chief Executive Officer and Chairman of the Board of Directors of the Company since March 1996. Prior to joining the Company, Mr. Graziano served as the President of Analytical Technology Inc., an analytical electrochemistry instruments company, from 1993 to 1996 and as the President and Chief Executive Officer of its predecessor, Analytical Technology Inc.-Orion, an electrochemistry instruments and laboratory products company, from 1990 until 1993. Mr. Graziano served as the President of Waters Corporation, an analytical instrument manufacturer, from 1985 until 1989. Mr. Graziano has over 45 years experience in the laboratory products and analytical instruments industry. Mr. Graziano serves on the Board of Directors of Nova Holdings LLC and certain of its subsidiaries, including Nova Ventures Corporation, and Advion BioSciences, Inc.

David Green has served as the Company s President and a member of the Board of Directors of the Company since March 1996. Prior to joining the Company, Mr. Green was a strategy consultant with Monitor Company, a strategy consulting company, in Cambridge, Massachusetts and Johannesburg, South Africa from June 1991 until September 1995 and a brand manager for household products with Unilever PLC, a packaged consumer goods company, in London from September 1985 to February 1989. Mr. Green currently serves on the Board of Directors of the Harvard Business School Healthcare Industry Alumni Association, the Advisory Board of the Harvard Business School Student Healthcare Club and on the Executive Advisory Board of The University of Massachusetts Lowell Nanomanufacturing Center. Mr. Green graduated from Oxford University with a B.A. Honors degree in physics and holds a M.B.A. degree with distinction from Harvard Business School.

Thomas McNaughton has served as our Chief Financial Officer and Treasurer since November 14, 2008. Prior to joining Harvard Bioscience, Mr. McNaughton provided, from January 2008 to September 2008 financial consulting services, primarily to an angel-investing group and a silicon manufacturing start-up. From 2005 to 2007, Mr. McNaughton served as Vice President Finance and Chief Financial Officer for Tivoli Audio, LLC, a venture capital-backed global manufacturer of premium audio systems. Prior to joining Tivoli Audio, LLC, from 1990 to 2005, Mr. McNaughton served in various managerial positions in the areas of financial reporting, treasury, investor relations, and acquisitions within Cabot Corporation, a global manufacturer of fine particulate products, and served from 2002 to 2005 as Finance Director, Chief Financial Officer of Cabot Supermetals, a $350 million Cabot division that provides high purity tantalum and niobium products to the electronics and semiconductor industries. Mr. McNaughton practiced from 1982 to 1990 as a Certified Public Accountant in the audit services group of Deloitte & Touche, LLP. Mr. McNaughton holds a B.S. in accounting and finance from Babson College. Mr. McNaughton is a certified public accountant.

Susan Luscinski has served as our Chief Operating Officer since August 2004 and served as our Principal Accounting Officer from May 2008 through November 2008. Ms. Luscinski served as our Chief Financial Officer from August 2001 until August 2004 and Vice President of Finance and Administration from May 1999 until August 2001. Ms. Luscinski served as our Corporate Controller from May 1988 until May 1999 and has served in various other positions at our company and its predecessor since January 1985.

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PART II

Item 5. ***Market for Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.***

Price Range of Common Stock

Our common stock has been quoted on the NASDAQ Global Market since our initial public offering on December 7, 2000, and currently trades under the symbol HBIO. The following table sets forth the range of the high and low sales prices per share of our common stock as reported on the NASDAQ Global Market for the quarterly periods indicated.

Year Ended December 31, 2008	High	Low
First Quarter	$ 5.14	$ 3.85
Second Quarter	$ 5.19	$ 4.49
Third Quarter	$ 5.12	$ 4.01
Fourth Quarter	$ 4.58	$ 1.70

Year Ended December 31, 2007	High	Low
First Quarter	$ 5.50	$ 4.50
Second Quarter	$ 6.18	$ 4.78
Third Quarter	$ 5.63	$ 4.22
Fourth Quarter	$ 5.10	$ 3.62

On February 27, 2009, the closing sale price of our common stock on the NASDAQ Global Market was $2.57 per share. There were 203 holders of record of our common stock as of February 27, 2009. We believe that the number of beneficial owners of our common stock at that date was substantially greater.

Stock Repurchase Program

The following table provides the information as of December 31, 2008 with respect to the shares of common stock repurchased by the Company during the fourth quarter of 2008:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs
October 1, 2008 October 31, 2008	264,915	$ 3.51	264,915	$ 8,818,971
November 1, 2008 November 30, 2008	271,376	$ 2.47	271,376	$ 8,147,732
December 1, 2008 December 31, 2008	297,974	$ 2.50	297,974	$ 7,403,516
Total	834,265	$ 2.81	834,265	

On December 6, 2007, our Board of Directors authorized the repurchase by the Company of up to $10 million of its common stock in the open market or through privately negotiated transactions over the next 24 months. Under the program, shares may be repurchased from time to time and in such amounts as market conditions warrant, subject to regulatory considerations and any applicable contractual restrictions.

Dividend Policy

We have never declared or paid cash dividends on our common stock in the past and do not intend to pay cash dividends on our common stock in the foreseeable future. Any future determination to pay dividends will be at the discretion of our Board of Directors and will depend on our financial condition, results of operations, capital requirements and other factors our Board of Directors deems relevant.

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Stockholder Return Performance Graph

The following graph provides a comparison of the cumulative total stockholder return on the Company s Common Stock from December 31, 2003 to December 31, 2008 with the cumulative return of the Russell 2000 Index and the Nasdaq Biotechnology Index over the same period. The five-year cumulative return assumes an initial investment of $100 in the Company s Common Stock and in each index on December 31, 2003. The total return for the Company s Common Stock and the indices used assumes the reinvestment of all dividends.

	12/03	12/04	12/05	12/06	12/07	12/08
Harvard Bioscience, Inc.	$ 100.00	$ 52.02	$ 50.00	$ 57.64	$ 51.46	$ 29.78
Russell 2000	$ 100.00	$ 118.33	$ 123.72	$ 146.44	$ 144.15	$ 95.44
NASDAQ Biotechnology	$ 100.00	$ 112.17	$ 130.53	$ 130.05	$ 132.24	$ 122.10

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Item 6. ***Selected Financial Data.***

	For The Years Ended December 31,				
	2008	2007	2006	2005	2004
	(in thousands, except per share data)				
Statement of Operations Data:					
Revenues	$ 88,049	$ 83,407	$ 76,181	$ 67,431	$ 64,745
Cost of product revenues(1)	45,893	43,161	38,094	34,156	33,312
Gross profit	42,156	40,246	38,087	33,275	31,433
Operating expenses(1)	33,677	30,713	29,397	25,351	23,049
Operating income	8,479	9,533	8,690	7,924	8,384
Other income (expense), net	(829)	35	(294)	(784)	(751)
Income from continuing operations before income taxes	7,650	9,568	8,396	7,140	7,633
Income taxes	2,240	1,970	1,775	899	3,115
Income from continuing operations	5,410	7,598	6,621	6,241	4,518
Discontinued operations(1)(2)					
Loss from discontinued operations, net of tax	(457)	(5,864)	(8,962)	(38,118)	(2,189)
Loss on disposition of discontinued operations, net of tax	(3,280)	(3,088)			
Total loss from discontinued operations, net of tax	(3,737)	(8,952)	(8,962)	(38,118)	(2,189)
Net income (loss)	$ 1,673	$ (1,354)	$ (2,341)	$ (31,877)	$ 2,329
Income (loss) per share:					
Basic earnings per common share from continuing operations	$ 0.18	$ 0.25	$ 0.22	$ 0.20	$ 0.15
Discontinued operations	(0.12)	(0.29)	(0.29)	(1.25)	(0.07)
Basic earnings (loss) per common share	$ 0.05	$ (0.04)	$ (0.08)	$ (1.05)	$ 0.08
Diluted earnings per common share from continuing operations	$ 0.17	$ 0.24	$ 0.21	$ 0.20	$ 0.15
Discontinued operations	(0.12)	(0.29)	(0.29)	(1.24)	(0.08)
Diluted earnings (loss) per common share	$ 0.05	$ (0.04)	$ (0.08)	$ (1.04)	$ 0.07
Weighted average common shares:					
Basic	30,882	30,646	30,519	30,442	30,269
Diluted	31,354	31,405	31,148	30,781	31,103

	As of December 31,				
	2008	2007	2006	2005	2004
	(in thousands)				
Balance Sheet Data:					
Cash and cash equivalents	$ 13,698	$ 17,889	$ 9,357	$ 7,632	$ 13,867
Working capital	32,249	37,970	38,601	42,400	45,245
Total assets(3)	81,271	98,853	93,228	92,035	139,881
Long-term debt, net of current portion	59	5,578	3,000	8,500	16,520
Stockholders equity(3)	66,718	74,137	71,883	68,416	