# Valuation Techniques

## Review and Implementation

### Bio-Rad Laboratories Inc.
### and
### Bioniche Life Sciences Inc.

**MBA 824: bioTechnology Management**
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**June 11, 2004**


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# 1.0 Introduction

Traditional discounted cash flow investment analysis has proven to be effective for large firms where growth is stable and positive cash flows can be projected into the future to determine the present value of the firm. The relative valuation method also proves useful for the larger firm where competition is well established and ratios can be easily compared over several facets of the firm's financial inputs. Valuation techniques have traditionally been used to value firms for sale or transfer, but have evolved into a set of methods that can be used to incorporate recognition of value, to both the investor and the firm.

## *1.1 Discounted Cash Flow Valuation*

The DCF approach relates the value of the asset (i.e., the firm itself) to the present value of cash flows that can be expected from the asset in the future. This approach allows us to gain perspective on the useful life of an asset and to objectively evaluate the strategic direction a firm can and should pursue, in addition to confirming or dispelling the popular perception that markets are inefficient and that they make mistakes by either overvaluing or undervaluing a firm. Despite the many issues and problems in valuing biotechnology firms, the DCF approach offers creditors and investors alike the tools to appropriately assess the value of a firm, because after all, 'cash is king'.

The philosophical basis of the DCF valuation is that every asset has an intrinsic value that can be assessed based on its potential to generate cash flows, its growth rate and the risk associated with the asset. In order to properly assess the value of a firm, the life of an asset must be known or estimated. For most biotechnology firms, this life has been about five to ten years (Ref). In reality, as shown later in this analysis, there are firms that have had a life in excess of 40 years. Biotechnology firms that have long, independent (i.e., resisted mergers or acquisitions with larger firms) and successful lives, have essentially found the secret of product portfolio diversification. This combined with the capturing the mood of the market and exploiting technological advances in a timely manner together may have resulted in this long and useful life. In addition to the estimation of the life of an asset, the DCF model requires that cash flows be estimated

during the life of an asset and the present value determined using an appropriate discount rate.

There are many advantages to using DCF valuations in valuing biotechnology firms, because this approach is based on fundamentals. In addition, this approach estimating the free cash flows to debt and equity (valuing the asset rather than the stock) are better appreciated by those investors interested in acquiring or investing in firms rather than stocks (e.g., Berkshire Hathaway). However, there are also disadvantages to using DCF valuations, such as the level of information that is required to conduct valuations, the noisiness of the information that is available, and the level of discretion that is allowed for analysts and the like to over- or undervalue a firm or its stock. Despite the disadvantages of DCF valuation, it still offers a reliable estimate of the value of an asset or a firm.

## *1.2 Relative Valuation*

The DCF valuation is an attempt to search for an intrinsic value, relative valuation is much more reliant on the market. Valuators that utilize this method assume that the market is correct in the methodologies used to determine stock price as a whole, but occasionally makes errors on the pricing of individual stocks. In addition, relative valuation assumes that through multiple comparisons, these errors will be identified and corrected over time.

The concept of relative valuation is considered to be the easiest method to value a company because it is simple and easy to understand. That is, the value of a company is determined in relation to how similar companies are priced in the market. To perform a relative valuation, a list of comparable companies along with their market values is required. The market values are converted into comparable trading multiples. It is important that multiples be defined consistently across the firms being compared. The company's multiples are then compared with those of its peers to assess whether the firm is over or undervalued.

The advantages of relative valuation include:

- More likely to reflect market perceptions than DCF
- Requires less information than a DCF

- There is always a significant proportion of securities that either under or over valued

The disadvantages of relative valuation include:

- A firm may be under valued on a relative basis, but still may be considered over valued because other comparable firms are over valued as well
- Relative valuation is based on the assumption that the market is efficient and correct as a whole, but individual comparable firms can be under or over valued
- Difficulties associated in identifying an appropriate comparable firm – highly subjective and possibly biased

It is imperative that valuators do not overly get so caught up on multiples that they fail to identify the fundamental problems with the firms' balance sheet, historical valuations and the most critically the business plan. Valuators need to utilize all the tools deemed appropriate so as to come up with a reasonable assessment of the company value. Relative valuation needs to be used in conjunction with other valuation methodologies including DCF and contingent valuation in order to more accurately gauge the value of the firm.

### 1.2.1 Selection of Multiples

In our relative valuation analysis, prices were standardized according to:

1. Earnings multiples:
    a. Price/earnings ratio (PE): The P/E ratio is equal to a stock's market capitalization divided by its after-tax earnings over a 12-month period. All else being equal, if you buy stock at a P/E ratio of 10, say, then it will take 10 years for the company's earnings to add up to your original purchase price.
    b. P/E to Growth (PEG): High-tech stocks trade at high prices but also experience high growth rates. A method to account for a stock's P/E ratio is its relation to the company's growth rate.
2. Book value multiples:
    a. Price/Book Value of Equity: The latest closing price of the stock divided by the book value per share, which is the total shareholder's equity / outstanding number of shares.
3. Revenue multiples:
    a. Price/Sales per Share: The company's stock price divided by its annual sales per share.
4. Industry-specific ratio (biotechnology):
    a. R&D expenses to sales: The firms investment in research and development divided by annual sales.

All values utilized in the calculations of the aforementioned financial ratios were derived from the firms' 2003 annual report or 10-K filings. Growth rates (used in PEG ratio) were determined by average annual growth (or decline) in sales for a three year period. Stock prices are quotes from the closing of the market on June 8, 2004.

### 1.2.2 Company selection

The challenge in accurate relative valuation is in selecting comparable firms. It is not adequate to simply to companies in the same industry. Valuators need to also identify companies that have similar underlying fundamentals. All companies contain unique variables such as growth, risk and cash flow patterns that determine the multiple.

Selected comparable companies were first required to produce similar products within the biotechnology industry. For example, Bio-Rad and its comparables produce similar scientific equipment, diagnostic tests and reagent. The second criteria identified were that the firms generated similar revenues, which we assume is proportional to the size and stage of company maturity. All selected comparables have similar annual revenues. With respect to Bio-Rad, this criterion drastically limited the number of suitable comparables, as there are fewer large life science biotechnology firms. Bioniche, a much smaller biotechnology firm, has a much greater number of possible relevant comparables. As such, potential comparables were further subjected to ensure that the firms were publicly traded and generated revenues.

## *1.3 Contingent Valuation*

Contingent valuation is a third valuation technique used to assess the value of a firm in the market. The formal definition of contingent valuation is as follows:

> *A method of placing a monetary value ('shadow price') on a good or service that is not available in the market place by determining, contingent on it being available in the market place the maximum amount that people would be willing to pay for it (buying price) and/or the minimum amount that people would be willing to accept to part with it (selling price).*[1]

And following this definition, it becomes clear that there are two main approaches implemented in contingent valuation for determining the willingness-to-pay. The first is the option-pricing approach where the level of risk assumed against a firm on the market is used to benchmark current market prices to expected returns. The second approach is to apply a series of qualitative questions to the firms operations to arrive at an expectation of success at achieving growth expectations and revenue targets.

### 1.3.1 The Black-Scholes Option-Pricing Model Approach

A financial option gives its owner the right, but not the obligation, to buy or sell a security at a given price which becomes a function of a company that makes strategic investments to have the right, but not the obligation, to exploit opportunities in the future. These opportunities can be valued using real-options valuation techniques.

In order to perform a valuation of the firm, or a specific project within the firm, we will require the following inputs into the Black-Scholes Model calculations:

1. Current share price ($, per share).
2. Estimated value of existing businesses ($, per share).
3. Shares outstanding (in millions).
4. Life of option (in years).
5. Risk-free rate of return (%).
6. Project volatility (%).

[1] Gold M.R., Siegel J.E., Russel L.B., Weinstein M. (eds). Cost-effectiveness in health and medicine. New York: Oxford University Press, 1996.

7. Estimate of potential project value [S/X] (%).
    - ❖ The numerator of this metric (S) equals the present value of the project's expected free cash flow. The denominator of this metric (X) equals the onetime incremental investment required to exercise the option at the time of exercise. Various potential project values (S/X) equate to different scenarios for the profitability of the project created if and when a company exercises its real option to enter a new business:
    - ❖ S/X equals one. In this scenario, the net present value (NPV) of the project at the time of decision is zero.
    - ❖ S/X less than one. In this scenario, the NPV of the project at the time of decision is negative.
    - ❖ S/X greater than one. In this scenario, the NPV of the project at the time of decision is positive.

Once an estimate of the value of the firms existing businesses, as a portion of total share value, has been determined, it is then possible to then estimate the market's imputed real-options value. This is done by calculating the difference between the market's total valuation of a company and the value of a company's existing businesses resulting in the imputed per-share value of the firm's real options. It then becomes possible to identify risk by calculating the potential value of the project when the company exercises the real option (S), and the size of the investment expenditure necessary to exercise the real option (X).

The Black-Scholes Option-Pricing Model is an approach for calculating the value of a stock option by pricing the "fair market value" of an option. The current "appropriate" value of an option is calculated on the basis of historical data and the calculated probabilities of future stock prices.

The basic formula is:

*Call Premium = Expected Future Stock Price - Expected Cost of Exercising Option*

The Black-Scholes Model adds the following adjustments to this formula:

- ❖ for the possibility of a range of future stock prices;
- ❖ for the net present value of the exercising cost;

- for the possibility that the exercise price may become higher than the underlying stock price, etc.

The important implication is that the value of an option is completely independent of the expected growth of the underlying asset (and is therefore risk neutral). The Black-Scholes formula enables the price of a call option to be valued by subtracting the expected cost of exercising the option from the future stock price, determined as follows:

$$C = S\,N(d_1) - X\,e^{-rT}\,N(d_2)$$

$$d_1 = \frac{\ln\left(\frac{S}{X}\right) + \left(r + \frac{v^2}{2}\right)t}{v\sqrt{t}}$$

$$d_2 = d_1 - v\sqrt{t}$$

The variables are:
C = Theoretical call premium
S = current stock price
X = option strike price
t = time remaining until expiration, expressed as a percent of a year
r = current continuously compounded risk-free interest rate
v = annual volatility of stock price (the standard deviation of short-term returns over one year [**σ**])
ln = natural logarithm
N(x) = standard normal cumulative distribution function
e = the exponential function, the constant 2.7183…

And since a put option creates an expectation of anticipated lower stock price in the future, it can be valued by subtracting the future stock price from the cost of exercising the option. Therefore, the price of a put option can be stated as:

$$P = Xe^{-rT}\,N(-d_2) - S\,N(-d_1)$$

The Black-Scholes Model makes the following assumptions.

1. The stock pays no dividends during the option's life – can adjust by subtracting the discounted value of a future dividend from the stock price
2. European exercise terms are used - where the option cannot be exercised until the date of expiration. This is not the case in the U.S.
3. Markets are efficient - market operates continuously with share prices following a continuous process where the observation in time period t depends only on the preceding observation (Markov process)

4. No commissions are charged – floor-trader and investor fees
5. Interest rates remain constant and known – predictable risk-free rate
6. Returns are normally distributed

This model was applied to two firms utilizing inputs from the stock market and the firm's reported financial data.

### 1.3.2 The Binomial Option-Pricing Model Approach

The binomial approach, in contrast to the Black-Scholes Model approach, is an open-form or lattice model where subsequent values are determined by current assumptions. It creates a tree of possible future stock price movements and 'induces' the option's price. There are three basic calculations. First, plot the two possible future stock prices. Second, translate the stock prices into future option values: at the end of the year, this option will be worth either something or nothing. Third, we discount the future values into a single present value based on a risk-free rate and then weight each possible outcome by 50%. This process can be extrapolated to every successive element of the binomial chain where different suppositions of price are based on growth expectations of the stock, thereby allowing for a determination of the value of exercising the option. This process can be envisioned in the single-step process demonstrated in Figure 1 and the multiple-step process, or random walk process, demonstrated in Figure 2.

**Figure 1 – Binomial Approach: Single Step Process**

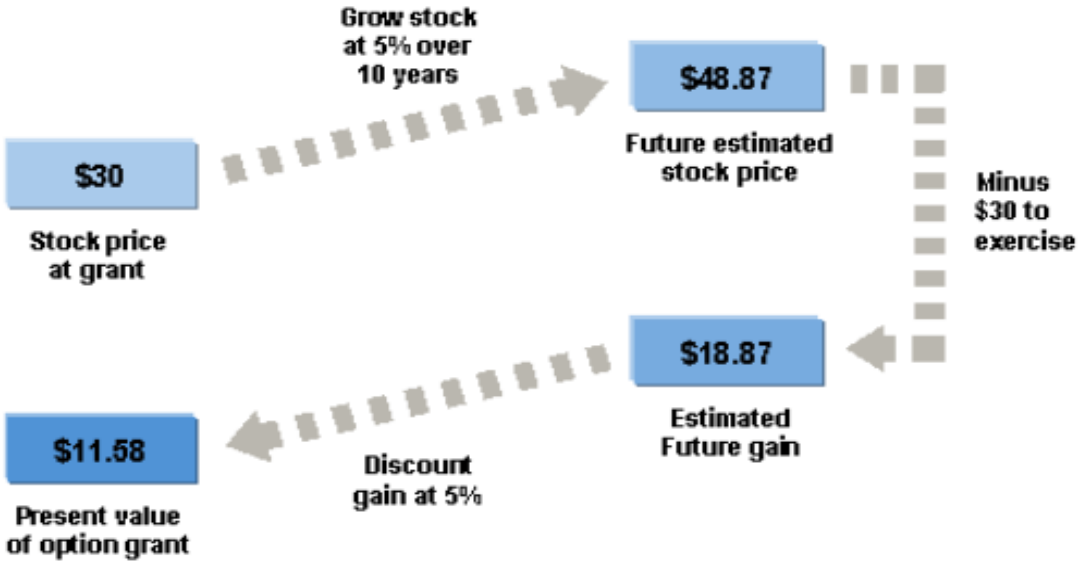
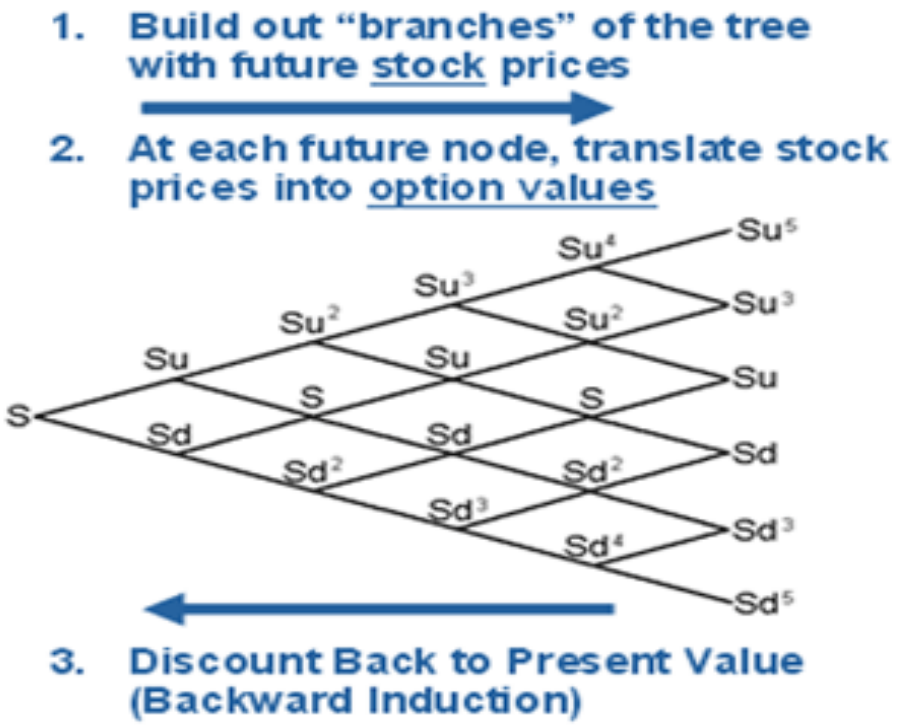


**Figure 2 – Binomial Approach: Multiple Step Process**




### 1.3.3 The Contingent Survey Approach

This approach attempts to arrive at values for expected growth and the level of risk associated with achieving that growth by applying a series of questions to the firms operations. This information often requires some investigative research and can be difficult to find for small private firms. However, much of the assessment is based upon the market's willingness-to-pay and how the market has established the price for the firm. Where expectations and risk can be more accurately determined, a value of price can also be more accurately determined.

The survey approach can follow a five-step action plan that utilizes information from consumers and the market to determine the willingness-to-pay. The first step is to define the valuation problem. This would include determining exactly what services are being valued, and who the relevant population is. The second step is decide on a most appropriate survey strategy, such as mail, interview, phone, online or focus group surveys. The next step is the tedious documentation of the survey design followed by survey implementation. The final step is to compile, statistically analyze and report the results.

# 2.0 Companies selected

We intended for the firms selected for assessing the feasibility of valuation approaches to reflect product-based view and resource –based view. In addition, the three valuation approaches were evaluated for Bio-Rad a well-established product and resource-based firm, and Bioniche, a high but unstable growth, resource-based firm which is yet to generate a positive net income since its IPO in 1992. The differences between these firms include, differences in tax rates (US versus Canadian), firm growth rate, risk (Beta), stock price, product strategy, segmentation and portfolio diversification, stability and maturity of products and the firm itself.

## *2.1 Bio-Rad Profile*

Bio-Rad Laboratories, Inc., founded in 1957, manufactures and supplies the life science research, healthcare, analytical chemistry and other markets with a broad range of products and systems used to separate complex chemical and biological materials and to identify, analyze and purify their components. The Company has distribution channels in over 30 countries outside the United States through subsidiaries whose primary focus is customer service and product distribution. Bio-Rad is a provider of Bovine Spongiform Encephalopathy or mad cow (BSE) tests throughout the world. Revenues from the sales of testing products for BSE within the Company's Life Science segment represented approximately 11% and 12% of consolidated net revenue in 2003 and 2002, respectively. Bio-Rad operates in two industry segments, Life Science and Clinical Diagnostics. Each operates in both the United States and international markets.

### 2.1.1 Life Science

Life science is the study of the characteristics, behaviour and structure of living organisms and their component systems. Life science researchers use products and systems such as reagents, instruments, software and apparatus to advance the study of life processes, drug discovery, biotechnology and food pathogen testing, primarily within a laboratory setting. Bio-Rad focuses on selected segments of the life science market: proteomics, genomics and cell biology. The primary technological applications that the Company supplies to these segments consist of electrophoresis, image analysis, molecular detection, chromatography, gene transfer, sample preparation and amplification. The primary end users in Bio-Rad's sectors of the market are universities

and medical schools, industrial research organizations, government agencies, pharmaceutical manufacturers, biotechnology researchers and food testing laboratories.

Competitors in this market include Fisher-Scientific, Invitrogen, Qiagen, Zeiss, Olympus, Leica, Nikon, Amersham Biosciences and Applied Biosystems.

### 2.1.2 Clinical Diagnostics

The clinical diagnostics industry encompasses technologies incorporated into a variety of tests used to detect, identify and quantify substances in blood or other bodily fluids and tissues. The test results are used as aids for medical diagnosis, detection, evaluation, monitoring and treatment of diseases and other medical conditions. The bulk of tests are performed in vitro (outside the body), while the remainder consist of in vivo (in the body) tests. The most common type of in vitro tests is routine chemistry tests that measure important health parameters, such as glucose, cholesterol or sodium, as part of routine blood checks. The primary end users in the areas of the clinical diagnostics industry the Company targets are hospital laboratories, reference laboratories, physician office laboratories, government agencies and other diagnostics manufacturers. In March 2004, the Company acquired the majority of assets of Hematronix Inc. of Plano, Texas, a private company that supplies control and assurance products and services to the clinical diagnostics industry. Bio-Rad acquired Hematronix's line of quality control products and services.

Competitors in the Clinical Diagnostics segment include PerkinElmer, Abbott Laboratories, bioMerieux, Inc., Roche Diagnostics, BioChem Pharma, Inova, diaSorin and Medical Analysis Systems.

## *2.2 Bioniche Life Sciences Inc. Profile*

Bioniche Life Sciences Inc. is a leading, fully-integrated Canadian biopharmaceutical company that discovers, develops, manufactures, and markets proprietary products for human and animal health markets worldwide. The corporate highlights are outlined in Figure 2.

**Figure 3 – Bioniche Corporate Highlights**

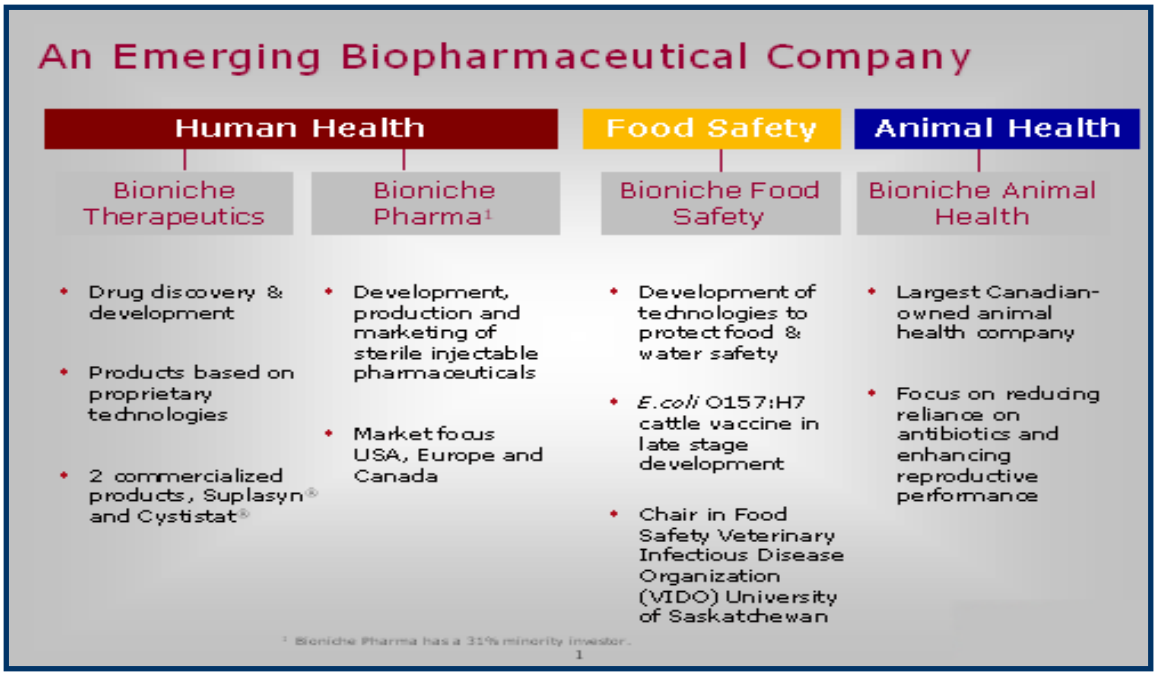



**Table 1 – Bioniche Corporate Highlights**

| | | | | |
|---|---|---|---|---|
| **Fiscal revenues:** | **1999** | **$19.3 Million** | **2000** | **$26.4 Million** |
| | **2001** | **$31.5 Million** | **2002** | **$40.5 Million** |
| | **2003** | **$51.6 Million** | | |

- ❖ Powerful proprietary technologies with diverse product development and partnering opportunities in animal and human health technologies
- ❖ Strong research and development pipeline, with a range of new products in development for both human and veterinary applications to be introduced over the next few years
- ❖ A combined research and development team with outstanding credentials, particularly in immunology, molecular biology and virology
- ❖ Established, state of the art biologics and pharmaceutical manufacturing facilities, with significant growth potential
- ❖ Marketing networks operating internationally
- ❖ A strong management team supported by an experienced, independent Board of Directors with expertise in various areas of the business
- ❖ Infrastructure for a fully integrated, global biopharmaceutical business, encompassing research and development, manufacturing, quality control, regulatory affairs, sales, marketing and administration
- ❖ Strong patent position on proprietary technologies

# 3.0 Valuation of Bio-Rad

We have performed three valuation techniques on Bio-Rad. Firstly, the DCF valuation where the positive cash flows were projected forward with growth assumptions then discounted to present value, followed by a relative valuation where selected comparables were analyzed across three prime competitors, and thirdly a contingent valuation where the Black-Scholes model is used to illustrate market valuation.

## *3.1 Bio-Rad DCF Valuation*

Valuation is the process of converting a forecast into an estimate of a firm's value. Market analysts use valuations prior to an IPO, and from a creditor's perspective, to assess the risk associated with lending. The discounted cash flow (DCF) valuation involves arriving at detailed multiple year forecasts of future cash flows. The forecasts are then discounted at the firm's cost of capital to produce an estimated value of the firm. The revenue streams of Bio-Rad has been positive and stable, and because Bio-Rad does not pay a dividend to shareholders, the type of DCF valuation used to value Bio-Rad for this analysis is the stable growth model.

The free cash flows (FCF) used in DCF valuations of Bio-Rad was calculated as follows:

**FCF to debt and equity** (Bio-Rad)

= Earnings before interest and taxes x (1-tax rate) + depreciation and deferred taxes – Capital expenditures -/+ increase/decrease in working capital

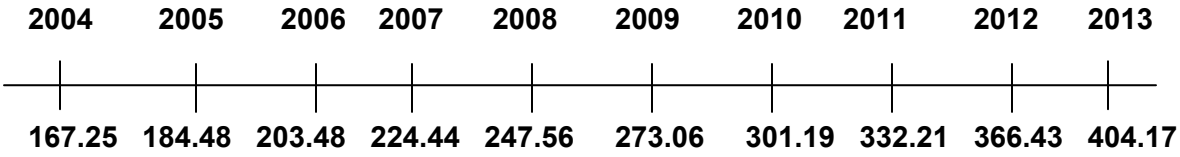
= US $565,392,000 x (1-0.35) + $32,000,000 –$ 69,003,000 – $178,868,000

= US$151,633,800

**Future Cash Flows**:

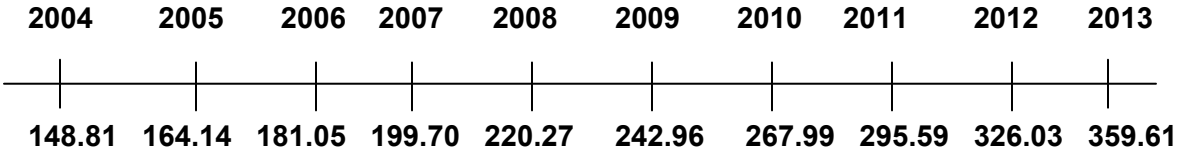
## Year

(in millions)




## *Present value*

(in millions)




Present value of all future cash flows projected to 2011 = US$ 1.720 billion

Terminal value of asset = 394.4 m

The value of Bio-Rad = **US$ 2.11 billion**

**Assumptions**:

- Future cash flows were projected using a 10.3% growth rate that has been observed in the previous 12 months.
- The Weighted average cost of capital was estimated to be 12.39062%
  Cost of equity = 14.04%

Total number of shares outstanding = 20709127
Price per share = $59.40
Total equity capital = $1,230,122,144
Cost of debt = 5.25%
Carrying amount = $226,000,000
Total capital = 1,456,122,144
Weight of equity in total capital = 0.8448
Weight of debt in total capital = 0.1552

WACC = 0.8448 x 14.04% + 0.1552 x 5.25% x (1-0.35) = 12.39062%

- The terminal value of asset is 40% of its value today =US$ 394.4 m.

Over the years, Bio-Rad has introduced a steady stream of products from its Life Sciences Division, which brought forth revenues in a steady stream. Owing to the uniqueness, versatility of its products, the relatively smaller number of firms involved in the production and marketing of its Life Sciences Division products, and the loyalty of its customers, Bio-Rad has been able to steadily build its revenues. These products

included high quality molecular biology reagents and apparatus that were only available from Bio-Rad. In addition to its Life Sciences division, Bio-Rad's second and most productive segment of Clinical Diagnostics Division that was started in ????, a segment that has had significant R&D investment over the years towards research and product development costs, has produced the most revenues for this firm. Some of the products that have entered the market include the HIV testing kit and the BSE testing kit. The HIV testing kit has been aimed towards institutions such as blood banks that have had years of systematic problems such as the use of HIV-tainted blood for blood transfusion purposes. The BSE testing kit has had major recognition in the US from the recent BSE crisis, and the various trade barriers imposed to US beef export. There are various other products that Bio-Rad has been involved in, such as marketing, sale and training of its spectroscopy division products. However, this division was divested in 2001, with a one-time revenue recognition in 2002. Because of its products' success and a steady stream of customer-driven product introduction into the biotechnology and Life Sciences products market, Bio-Rad has been able to grow steadily.

The value of Bio-Rad's stock price is somewhat undervalued compared to its major competitors such as Invitrogen and Fisher Scientific, sometimes by about 50%. It is unclear whether this is a reflection of the stable growth of Bio-Rad compared to its competitors or whether the breakthroughs introduced by firms such as Invitrogen have been able to enhance analysts' valuation of Bio-Rad's competitor firms.

The DCF valuation of Bio-Rad was possible because of its positive cash flows and because Bio-Rad is a product-based and resource-based firm which introduces products in a steady stream. In addition, the strategic management of its Life Sciences Products and Clinical Diagnostics division has enabled the firm to maintain stable growth. One of the reasons for the lack of provision for dividend payments by this company has been to reinvest into development. This strategy has paid off tremendously and the firm has been able to support its high R&D costs. The DCF valuation shows that the net present value of future cash flows projected to 2014 (a ten year period) at a moderate growth rate of 10.3% (compared to a 25% growth rate for the biotechnology industry) and a relatively high estimated risk factor (2.06) is US$2.41 billion, even though the Beta (firm) has remained at 0.4 for the previous 60 months. However, using the steps in traditional DCF valuation, cash flows (5-10 years) were projected to 2011 (a 8-year period). The

present value of future cash flows projected to 2011 was US$1.72 billion. A terminal value of a moderate 40% of the asset value in 2003 (US$ 394.4 m) has resulted in a value of US$2.11 billion. This discounted amount is the estimated value of free cash flows available to debt and equity holders. The inclusion of debt and equity holders into the DCF valuation was necessary in order to accommodate its leverage. In keeping with this value for Bio-Rad and its stable growth rate and low Beta, it can be safely assumed that the value of the firm will continue to grow. In addition, in the face of liquidation, owing to the modest debt, the shareholders stand to gain tremendously more than the analysts are willing to let investors believe i.e., stock price.

## *3.2 Bio-Rad Relative Valuation*

This valuation was implemented utilizing comparables from three firms operating with similar products in the same industry. These primary competitors form the basis of comparison of multiples across several identified reported variables, including earning per share, stock price, price to earnings ratio (P:E), growth rate, price-earnings-growth ratio (PEG), book value (BV), price to book value (equity), sales per share, price to sales per share, and research and development to sales.

### 3.2.1 Description of Bio-Rad's Primary Competitors

***Invitrogen, Inc.***

Invitrogen's quest is to better the human condition through innovations in science and technology. Invitrogen's products are principally life science research tolls in reagent and kit form, biochemicals, sera, media, software, and other products and services that support academic and government research institutions as well as pharmaceutical and biotechnology companies. Founded in 1987, Invitrogen is headquartered in Carlsbad, California, and conducts business in more than 70 countries. Globally, Invitrogen employ 3,000-plus professionals specializing in science, research, and customer service. The Invitrogen family of life technologies includes products and services designed by GIBCO, Molecular Probes, InforMax, PanVera, Genicon Sciences, and other leaders in the scientific community.

***Fisher Scientific, Inc.***

Founded in 1902, Fisher Scientific International Inc. is a leading provider of equipment, supplies, and services for the clinical laboratory and global scientific research markets. Fisher Scientific provides more than 600,000 products to over 350,000 customers in 145 countries. Fisher Scientific expertise is in delivering leading-edge technologies and products reliably, efficiently, and globally assists in enabling scientific research today for the discoveries of tomorrow. Fisher Scientific serves as a one-stop source of products, services and global solutions for a broad range of customers.

***PerkinElmer, Inc.***

PerkinElmer, Inc. is a global technology leader focused in the following businesses - Life and Analytical Sciences, Optoelectronics and Fluid Sciences. Combining operational excellence and technology expertise with an intimate understanding of their customers' needs, PerkinElmer provides products and services in health sciences and other advanced technology markets that require innovation, precision and reliability. The Company serves customers in more than 125 countries, and is a component of the S&P 500 Index.

## 3.2.2 Bio-Rad Relative Valuation and Analysis

Table 2 shows the results of the relative valuation performed on Bio-Rad.

**Table 2 – Bio-Rad Relative Valuation**

**Bio-Rad and competitors**
Year ending Dec 31, 2003 (US Dollars)

| | Bio-Rad | Fisher-Scientific | Invitrogen | Perkin-Elmer |
|---|---|---|---|---|
| Earning per Share | $2.98 | $1.38 | $1.19 | $0.42 |
| Stock price | $59.34 | $58.30 | $67.12 | $20.81 |
| **P/E ratio** | **19.91** | **42.25** | **56.40** | **49.55** |
| Growth Rate | 10.80 | 11.26 | 11.49 | -1.00 |
| PEG | 1.84 | 3.75 | 4.91 | -49.76 |
| Book Value | 102.56 | 9.13 | 33.09 | 10.60 |
| **Price/BV (equity)** | **0.58** | **6.39** | **2.03** | **1.96** |
| Sales per share | 207.56 | 56.62 | 14.25 | 12.10 |
| **Price/Sales per share** | **0.29** | **1.03** | **4.71** | **1.72** |
| **R&D to Sales** | **0.094** | **0.003** | **0.070** | **0.054** |

Upon further analysis, it was determined that Fisher-Scientific and Invitrogen appear to be better comparables to Bio-Rad. Perkin-Elmer has smaller EPS, stock price and a negative growth rate.

We believe that Bio-Rad is undervalued relative to Fisher-Scientific and Invitrogen because it P/E ratio, PEG, and price/sales per share are all significantly lower. In addition, Bio-Rad spends the highest amount on research and development as a percentage of sales relative to its competitors. The current market capitalization is $59.34 X 25,690,000 shares = $1,524,444,600. However, if we adjust the P/E to approximately 30 (which is a conservative value because the competitors have a P/E ratio of 40 or higher), Bio-Rad's stock price would increase to $89.40 (an increase of $30 over its current price). Market capitalization would be approximately $2,296,686,000. This represents an estimated undervaluation of over $750,000,000 relative to its current stock price.

## *3.3 Bio-Rad Contingent Valuation*

In order to apply the Black-Scholes model to a valuation of the assets and potential value the market perceives for the firm, we must first identify the key assumptions. These assumptions and the results from the Black-Scholes model are summarized in Table 3.

**Table 3 – Bio-Rad Contingent Valuation**

| | |
|---|---|
| Bio-Rad Lab. Inc.'s current share price ($, per share) | $ 59.64 |
| Estimated value of Bio-Rad Lab. Inc.'s existing businesses ($, per share) | $ 35.00 |
| Imputed per-share value of Bio-Rad Lab. Inc.'s real options | $ 24.64 |
| Bio-Rad Lab. Inc.'s shares outstanding (in millions) | 25.7 |
| Total imputed value of Bio-Rad Lab. Inc.'s real options ($, in millions) | $ 633.0 |
| Life of option [ T for Time ] (in years) | 2.00 |
| Risk-free rate [ r ] (%) | 5.00% |
| Project volatility [ s ] (%) | 100.0% |
| Estimate of potential project value [S/X] (%) | 75.0% |
| **Asset price [ S ] ($, in millions)** | **$1,332.8** |
| **Strike price [ X ] ($, in millions)** | **$1,777.0** |

Bio-Rad releases options to the public regularly, and as a result has an impact on the dilution of shares. When analyzed, it also shows that Bio-Rad carries a market value of just over $1.7B, which roughly coincides with other valuation results. In the Black-Scholes model, a volatility of 100% was assumed for the stock over the period of two

years, and the total estimate of project value was estimated to be 75%. This project value estimate is based on the assumption of success that Bio-Rad will continue to maintain its growth and earnings performance for the next two years. When compared to the market price of $26 for Bio-Rad options, the imputed share value proves defensible.

# 4.0 Valuation of Bioniche

We have performed three valuation techniques on Bioniche. Firstly, the DCF valuation where the negative cash flows required assumptions purely from EBITDA where growth assumptions utilized conservative industry averages then discounted to present value, followed by a relative valuation where selected comparables were analyzed across six prime competitors, and thirdly a contingent valuation where the Black-Scholes model is used to illustrate market valuation.

## *4.1 Bioniche DCF Valuation*

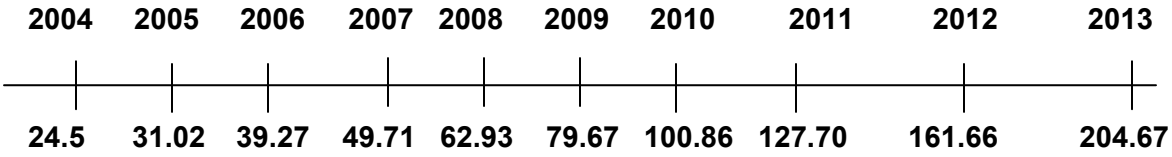
The revenue streams of Bioniche has been positive and steadily increasing, but has not recorded positive cash flows. The DCF valuation of Bioniche was conducted using the current (12 month) growth rate of 26.6%.

The free cash flows (FCF) used in DCF valuations of Bioniche was calculated as follows:
**FCF to debt and equity** (Bioniche)
= Earnings before interest and taxes x (1-tax rate) + depreciation and deferred taxes – Capital expenditures -/+ increase/decrease in working capital
= Can $31,956,201 x (1-0.29) + 0 –$ 1,841,298 + $3,654,556
= Can$ 24,502,160.71

**Future Cash Flows**:

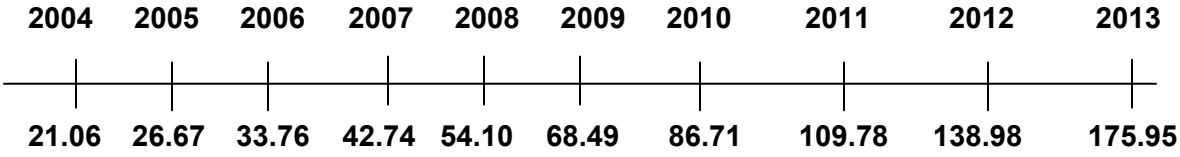
## Year

(in millions)




## *Present value*

(in millions)




Present value of all future cash flows projected to 2013 = Can$ 758.24 m

Terminal value of asset = Can$ 26.4 m

The value of Bioniche = **Can$ 784.64 m**

**Assumptions**:

- Future cash flows were projected using a 26.6% growth rate that has been observed in the previous 12 months.
- The Weighted average cost of capital was estimated to be 16.32%
  Cost of equity = 22.20%; Beta (levered) = 3.62

Total share capital = $47,739,701
Cost of debt = 4.75%
Total debt = $21,644,898
Total capital = Can$ 69,384,599
Weight of equity in total capital = 0.6880
Weight of debt in total capital = 0.3120
WACC = 0.6880 x 22.20% + 0.3120 x 4.75% x (1-0.29) = 16.32%

- The terminal value of asset is 40% of its value today =Can$ 26.4 m.

Since its public offering in 1992, Bioniche has grown steadily with about 60 products, which are either in the market or in the pipeline. Some of the products in clinical trials are anticipated to generate record revenues, products namely, an anti-bladder cancer drug, and an *E.coli* vaccine. The company has been able to record growth in revenues of 821% since its 1998 revenues. Recently, the firm was able to raise equity capital in excess of 10 million dollars.

Using the CAPM model, the estimated risk (Beta) was 3.62, and the cost of equity is 22.20%. Using a modest 26.6% growth rate, the free cash flows for the next period was estimated to be C$ 24.5 million. The growth rate used was for the DCF valuation was conservative and based on the previous 12-month period. The future cash flows projected to 2013 was estimated to be C$ 204.7 million. The net present value of all future free cash flows projected to 2013 is 758.2 million. The total value of the firm was estimated to be C$ 784.6 million. It appears to be an overestimation of the value of the firm, which has yet to generate net income in the positive territory. Yet, using the traditional DCF valuation approach, the value of the firm is Can$ 0.8 billion.

## *4.2 Bioniche Relative Valuation*

This valuation was implemented utilizing comparables from three firms operating with similar products in the same industry. These primary competitors form the basis of comparison of multiples across several identified reported variables, including earning per share, stock price, price to earnings ratio (P:E), growth rate, price-earnings-growth ratio (PEG), book value (BV), price to book value (equity), sales per share, price to sales per share, and research and development to sales.

### 4.2.1 Description of Bioniche Primary Competitors

***QLT***

QLT is a global bio-pharmaceutical company dedicated to the discovery, development and commercialization of innovative therapies to treat eye diseases, cancer and dermatological conditions. QLT was incorporated in 1981 under the laws of the Province of British Columbia. QLT is a pioneer in the field of photodynamic therapy (“PDT”), a field of medicine that uses photosensitizers (light-activated drugs) in the treatment of disease. Visudyne, QLT’s commercial product, is a photosensitizer used to treat choroidal neovascularization (“CNV”) in patients with the wet form of age-related macular degeneration (“AMD”), the leading cause of severe vision loss in people over the age of 50 in North America and Europe, as well as other ocular conditions. Visudyne has been approved in over 70 countries, including the United States, Canada, Japan, Australia, New Zealand and those of the European Union. QLT is actively exploring opportunities to expand its product pipeline by examining potential strategic acquisitions of products, product candidates, technologies or other businesses.

***Abgenix***

Abgenix is a biopharmaceutical company that is focused on the discovery, development and manufacture of human therapeutic antibodies for the treatment of a variety of disease conditions, including cancer, inflammation, metabolic disease, autoimmune diseases, cardiovascular disease and infectious diseases. Abgenix have proprietary technologies that facilitate rapid generation of highly specific, antibody therapeutic product candidates that contain fully human protein sequences and that bind to disease targets appropriate for antibody therapy. Abgenix also have developed XenoMouse technology, a technology using genetically modified mice, to generate fully human antibodies. We also own a technology that enables the rapid identification of antibodies with desired function and characteristics, referred to as SLAM_ technology. In our XenoMax_ technology, we use SLAM technology to select and isolate antibodies with particular function and characteristics from antibody producing cells generated by XenoMouse animals. We believe our antibody-generation technologies enhance our capabilities in product development. Abgenix intends to utilize their technologies to build a large and diversified product portfolio. Abgenix was incorporated on June 24, 1996.

***Æterna Laboratories Inc.***

Æterna and its subsidiaries are involved in three segments of operations: biopharmaceutical and cosmetics-nutrition. Æterna, along with its wholly-owned subsidiary Zentaris GmbH, represents the biopharmaceutical segment with an extensive product portfolio, including two already marketed and several other products in early and late-stage development in oncology, endocrinology and infectious diseases. Cetrorelix (Cetrotide) is sold in the U.S. and Europe to the in vitro fertilization market, and is in Phase II clinical trials for endometriosis, uterus myoma and enlarged prostate (BPH). Miltefosine (Impavido) is sold for black fever and has successfully completed a Phase III trial in parasitic skin disease. Neovastat is in a Phase III trial for non-small cell lung cancer. Perifosine is in Phase II trials for multiple cancers. The cosmetics and nutrition segment is dedicated to the development, manufacturing and marketing of cosmetics, active ingredients and nutritional products.

Æterna seeks to ensure continued growth of its activities by acquiring companies and/or products, as well as by fulfilling its existing pipeline from its drug discovery platform and continuing to sign agreements with strategic worldwide partners.

***Cangene***

Cangene is a developer and supplier of high-quality hyperimmune products—antibody products that may aid in the fight against challenging infectious diseases such as smallpox, Ebola, anthrax, West Nile and hepatitis. Using experience garnered from making its life-saving drug, WinRho SDF, Cangene specializes in manufacturing injectable products, and offers contract manufacturing services to biopharmaceutical companies. Cangene is also developing products it intends to market as biogenerics. The Company has two approved products, four that are in late-stage development (including two that have been submitted for regulatory review) and several more at various stages of research and development. Cangene has been listed on the Toronto Stock Exchange since 1991 under the symbol CNJ. The Company has operations in Manitoba, Ontario, Maryland, Florida and California. The majority of its approximately 600 employees work in Winnipeg and Baltimore.

***DRAXIS Health Inc.***

DRAXIS Health Inc. is a specialty pharmaceutical company focused on the development, production, marketing and distribution of radiopharmaceuticals, and the provision of contract pharmaceutical manufacturing services, specializing in liquid and freeze-dried injectables and other sterile products. Fiscal 2001 marked the emergence of a newly transformed DRAXIS, focusing on these two high-growth operations – specialized contract manufacturing and radiopharmaceuticals. Consolidated operations are integrated across research, development, manufacturing, sales and marketing, as well as the in-licensing and commercial development of pharmaceutical products. The common shares of DRAXIS are listed on the Toronto Stock Exchange (ticker symbol DAX) and on NASDAQ (ticker symbol DRAX).

***Stressgen Biotechnologies Corporation***

Stressgen Biotechnologies Corporation is a public biopharmaceutical company focused on discovering, developing and commercializing proprietary immunotherapeutics to treat virally-induced human diseases. Our on-going development programs use stress proteins, also known as heat shock proteins, (Hsp), in combination with viral antigens, to stimulate the body's immune system to combat specific diseases. Stressgen's lead product candidate, known as HspE7, is a fusion of a heat shock protein and an antigen from the human papillomavirus (HPV). HspE7 is being evaluated for the treatment of

conditions caused by HPV including genital warts, anal intraepithelial neoplasia (AIN), recurrent respiratory papillomatosis (RRP), cervical intraepithelial neoplasia (CIN) and cervical cancer.

### 4.2.2 Bioniche Relative Valuation and Analysis

Table 4 shows the results of the relative valuation performed on Bioniche.

**Table 4 – Bioniche Relative Valuation**

**Bioniche and competitors**
Year ending Dec 31, 2003 (Cdn Dollars)

| | **Bioniche** | **Cangene** | **Draxis*** | **AEterna** | **Stressgen** | **Abgenix** | **QLT*** |
|---|---|---|---|---|---|---|---|
| Earning per Share | -0.23 | 0.67 | 0.47 | -0.65 | -0.26 | -2.23 | 0.84 |
| Stock price | $1.75 | $10.35 | $5.37 | $9.15 | $0.92 | $12.71 | $31.55 |
| **P/E ratio** | **-7.61** | **15.45** | **11.43** | **-14.08** | **-3.54** | **-5.70** | **37.56** |
| Growth Rate | 27.19 | 50.00 | 20.64 | 60.59 | -4.44 | -28.00 | 32.67 |
| PEG | -0.28 | 0.31 | 0.55 | -0.23 | 0.80 | -0.20 | 1.15 |
| Book Value | 0.83 | 1.98 | 1.44 | 2.93 | 0.67 | 4.67 | 8.13 |
| **Price/BV (equity)** | **2.11** | **5.23** | **3.73** | **3.12** | **1.37** | **2.72** | **3.88** |
| Sales per share | 1.73 | 3.03 | 1.70 | 3.87 | 0.19 | 0.19 | 2.75 |
| **Price/Sales per share** | **1.01** | **3.42** | **3.16** | **2.36** | **4.84** | **66.89** | **11.47** |
| **R&D to Sales** | **0.29** | **0.099** | **0.032** | **0.272** | **1.555** | **5.91** | **0.306** |

*Originally reported in USD but converted to Dec.31/03 Value of Cdn $ = 1.2924

Relative valuation is particularly problematic to perform because it is difficult if not impossible to find an appropriate comparable for a small biotechnology company. This is because many small biotechnology companies may not have gone public, as well as many SMEs are at different stages in product development; and within the industry their competitive advantages through product differentiation are very different. It is also important to indicate that the risk associated with SME biotechnology firm is much greater compared to larger, stable and diversified biotechnology / pharmaceutical firms. Many SME biotechnology firms have not yet generated sales and because of the higher rate of research and development investment, these firms often generate losses. As such, the earnings per share will be negative, as well the P/E ratio and the PEG. With a negative P/E ratio, we are unable to relatively value appropriate comparables.

We therefore chose to examine the price to book value (PBV) and the price to sales/share (PS) in order to assign value to Bioniche. Again, we assume that the market is correct in its value of the comparable share price. We calculated the average of the PBV among the comparables to be 3.74. However, Bioniche PBV is smaller at 2.11. In order for Bioniche PBV to increase to the comparable firm average, the share price would need to increase to $3.10 from its current price of $1.75. Since there are 29,858,765 shares outstanding, the market capitalization at $3.10/share would indicate a value of $92,685,795. A difference of approximately $40 million relative to its current market capitalization at an offering of $1.75/share.

The PS average of comparable firms was calculated to be 5.05. However, an outlier was eliminated from the data set (Abgenix – 66.89). The PS for Bioniche was 1.01, therefore in order to increase the PS to the comparable average; the share price would need to increase to $8.74. The estimated value of the firm based on $8.74/share would be approximately $260,960,501, which represents an undervaluation of $208 million of the firms' current market capitalization.

The wide range in firm value associated with the different relative valuation calculations indicates how difficult it is to generate an accurate value for a SME firm in the biotechnology industry. One reason why relative valuation is inaccurate in assessing SME biotechnology firms' value may be due to the large number of firms on the market. As such, the market may be inefficient or flawed with respect to the value of most SME biotechnology firms. These errors associated with the comparable firms will ultimately transcend into the final valuation of the individual firm that you are attempting to value.

## *4.3 Bioniche Contingent Valuation*

In order to apply the Black-Scholes model to a valuation of the assets and potential value the market perceives for the firm, we must first identify the key assumptions. These assumptions and the results from the Black-Scholes model are summarized in Table 5.

**Table 5 – Bioniche Contingent Valuation**

| | |
|---|---|
| Bioniche's current share price ($, per share) | $1.63 |
| Estimated value of Bioniche's existing businesses ($, per share) | $0.75 |
| Imputed per-share value of Bioniche's s real options | $0.88 |
| Bioniche's shares outstanding (in millions) | 49.5 |
| Total imputed value of Bioniche's real options ($, in millions) | $43.6 |
| Life of option [ T for Time ] (in years) | 2.00 |
| Risk-free rate [ r ] (%) | 5.00% |
| Project volatility [ s ] (%) | 100.0% |
| Estimate of potential project value [S/X] (%) | 25.0% |
| **Asset price [ S ] ($, in millions)** | **$191.3** |
| **Strike price [ X ] ($, in millions)** | **$765.2** |

Bioniche was more difficult to assess utilizing the Black-Scholes model primarily due to a lack of available options to assess. However, the inputs from the firm could still be determined based on the price and number of outstanding shares in the market. This valuation shows the firm carries a market value of $765M and that growth potential is expected by the market. This also shows that the stock may be undervalued based on the historical data. 2003 proved to be the first in recent years to generate a positive EBITDA and this growth can carry over into profit if sales expectations meet the reported targets. Also, due to a lack of profit and substantial losses over recent years, the project expectation of potential value is deemed to be 25%, which shows a larger future potential for Bioniche. The market volatility was assumed to be 100% over the two year period.

# 5.0 Critical Analysis of Valuation Approaches

Valuation techniques utilize a wide array of procedures to arrive at a wide array of values. The valuation process is seemingly subjective and entirely based on the defensible presentation of assumptions regarding growth, market risk and volatility, and project expectations. This section explores how each valuation technique best relates to a small biotechnology start-up firm.

## *5.1 DCF Valuation in the Biotechnology Industry*

In the biotechnology industry, DCF valuation can be easily applied to firms that are product based and those that generate positive cash flows. In this analysis, therefore, it was relatively straightforward to value Bio-Rad than Bioniche. The valuation was aimed at valuing not only the equity portion of the firm but both debt and equity from which both firms were financing their operating activities. One important aspect that was noted from this exercise was that when the equity portion of the firm alone was evaluated, free cash flows to equity could only be calculated using net income. DCF valuation then using negative cash flows would not be possible for such firms that have not produced positive net incomes. This can potentially lead to an under-valuation of a firm. Despite the criticisms aimed at DCF valuation in the biotechnology industry, it still appears to be the most commonly used method to value a firm that is product-based, compared to a resource-based firm. The strength of this approach is that the steps to arriving at a firm's value are based on historic information and a modest level of assumptions which again are based on historical and defendable or justifiable information.

## *5.2 Relative Valuation in the Biotechnology Industry*

As previously indicated, multiples are simple and easy to work with. Relative valuation is particularly useful in industries where there are a large number of comparable firms being traded on the market. The previous is characteristic of large and mature biotechnology and pharmaceutical companies. However, the majority of SME biotechnology and pharmaceutical companies are difficult to compare because they may not be publicly traded, possess little or no revenues and have negative earnings. In addition, there may not be an appropriate comparable firm.

## *5.3 Contingent Valuation in the Biotechnology Industry*

The discounted cash flow (DCF) model provides a defensible estimate of the expectations of future cash earnings for most businesses, primarily based on positive current cash flows. For start-up firms and high research and development firms where investments carry high risk and large expenditures, the DCF model becomes difficult to apply due to a lack of positive cash flows to the firm. Further to this, the relative valuation technique also proves irrelevant to biotechnology start-up firms as there are few firms competing in the same market with the same product, a function of the unique nature of biotechnology product focus, making comparisons difficult. This leaves a valuator with a final solution that can be readily applied to the high risk start-up firm or a firm with potential but no positive cash flows, the contingent valuation. If the stock price is the sum of discounted cash flow value, which represents the existing businesses current value plus real options value, then it becomes possible to assume that real options capture the value of uncertain growth opportunities or the level of risk of return.

For start-up firms and firms with no positive cash flows, valuation appears to be difficult to apply. One way to measure value is to work out what the various assets of the business would be worth on the open market. So vehicles, premises, equipment and any other assets could be professionally valued. From that sum you would take away any outstanding liabilities to creditors, bank borrowings, tax authorities and any redundancy payments due but this information may not be easily available to investors.

The most common way of valuing a private company is to forecast operating profits based on risk and growth assumptions. The number of years will depend on factors including the anticipated growth rate and attractiveness of the business sector. So while a high technology company might command twenty years earnings a conventional engineering company may only rate eight years.

In order to get equity and development capital, the start-up and biotechnology firms should prepare:

- A three-year business plan explaining future strategy together with financial projections demonstrating good growth prospects must be defensible and based on clearly defined assumptions;

- A 'due diligence' investigation should be conducted which involves a thorough examination of both the business and its owners by an external third party auditor.

Contingent valuation allows a firm to use market expectations and consumer willingness-to-pay regarding price and value as a means of determining the value of the firm.

# 6.0 Conclusions

This exercise included an analysis of two biotechnology firms Bio-Rad and Bioniche with a diverse product portfolio with regard to their value. Three valuation approaches, discounted cash flow, relative and contingent valuation were used to value these firms. Our analysis resulted in a similar value using DCF and contingent valuation approaches, indicating that the assumptions used for contingent valuation were based on fundamentals and historical and realistic assumptions made on the firm's performance. However, it is also possible that the growth rates assumed for DCF valuation is left to the speculation of the analysts. Relative valuation was essentially dependent on the comparables and variables used for comparison.

# Bio-Rad Laboratories Inc.

## Key Statistics

**VALUATION MEASURES**
Market Cap (intraday): 1.52B
Enterprise Value (9-Jun-04)[3]: 1.62B
Trailing P/E (ttm, intraday): 21.82
Forward P/E (fye 31-Dec-05)[1]: 16.17
PEG Ratio (5 yr expected)[1]: 1.76
Price/Sales (ttm): 1.49
Price/Book (mrq): 2.94
Enterprise Value/Revenue (ttm)[3]: 1.58
Enterprise Value/EBITDA (ttm)[3]: 9.07

**TRADING INFORMATION**
**Stock Price History**
Beta: 0.444
52-Week Change: 0.07%
52-Week Change (relative to S&P500): -13.72%
52-Week High (24-Dec-03): 65.00
52-Week Low (29-Sep-03): 48.52
50-Day Moving Average: 57.78
200-Day Moving Average: 54.47
**Share Statistics**
Average Volume (3 month): 89,227
Average Volume (10 day): 96,000
Shares Outstanding: 25.69M
Float: 18.00M
% Held by Insiders: 29.94%
% Held by Institutions: 54.76%
Shares Short (as of 10-May-04): 318.00K
Daily Volume (as of 10-May-04): N/A
Short Ratio (as of 10-May-04): 4.184
Short % of Float (as of 10-May-04): 1.77%
Shares Short (prior month): 404.00K
**Dividends & Splits**
Annual Dividend: N/A
Dividend Yield: 0.00%
Dividend Date: 7-Mar-02
Ex-Dividend Date: 8-Mar-02
Last Split Factor (new per old)[2]: N/A
Last Split Date: N/A

**FINANCIAL HIGHLIGHTS**
Fiscal Year Ends: 31-Dec
Most Recent Quarter (mrq): 31-Mar-04
**Profitability**
Profit Margin (ttm): 7.01%
Operating Margin (ttm): 13.45%
**Management Effectiveness**
Return on Assets (ttm): 8.11%
Return on Equity (ttm): 15.36%
**Income Statement**
Revenue (ttm): 1.02B
Revenue Per Share (ttm): 38.78
Revenue Growth (lfy)[3]: 12.40%
Gross Profit (ttm)[2]: 565.39M
EBITDA (ttm): 178.36M
Net Income Avl to Common (ttm): 71.78M
Diluted EPS (ttm): 2.72
Earnings Growth (lfy)[3]: 12.20%
**Balance Sheet**
Total Cash (mrq): 141.55M
Total Cash Per Share (mrq): 5.51
Total Debt (mrq)[2]: 234.70M
Total Debt/Equity (mrq): 0.453
Current Ratio (mrq): 2.997
Book Value Per Share (mrq): 20.194
**Cash Flow Statement**
From Operations (ttm)[3]: 133.23M
Free Cashflow (ttm)[3]: 61.79M

ttm: trailing twelve months
mrq: most recent quarter
lfy: last fiscal year
intraday: activity during trading prior to closing

http://finance.yahoo.com/q/ks?s=BIO

# Bioniche Life Sciences Inc.

## Key Statistics

| Date of Balance Sheet: | 30/06/2003 | 30/06/2002 | 30/06/2001 | 3 Yr. Growth |
|---|---|---|---|---|
| Total Revenue ($000): | 52,666 | 40,538 | 31,523 | 25.46 |
| EBIT ($000): | -1,749 | -2,651 | -2,456 | -19.27 |
| Profit/Loss ($000): | -6,449 | -4,817 | -3,105 | 2.62 |
| Earnings per Share: | -0.23 | -0.17 | -0.13 | -4 |
| Total Assets ($000): | 66,210 | 60,134 | 51,550 | 15.46 |
| Dividends per Share: | 0 | 0 | 0 | |
| Return on Com. Equity: | -24.4 | -17.25 | -11.87 | |
| Employees: | 251 | 225 | 204 | |