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**In this edition...**
Pharmaxis has announced cost-cutting and restructuring plans that will hopefully give the business a cash runway for three years. Staff numbers and costs are to cut by about 30%. Whether Pharmaxis can grow sales of Bronchitol is the biggest challenge confronting the company.
We have brought out the DCF ruler on Nanosonics to illustrate the impact two variables in particular, interest rates and exchanges rates can have, on not just one, but many valuations. *Ceteris paribus*, we value Nanosonics at $0.67 per share at an AUD/USD exchange rate of $1.03, but at $0.81 at an AUD/USD exchange rate of $0.90. One privately held biotech worth learning more about is Hatchtech, which is readying its headlice treatment DeOvo for Phase III trials this year.
**Companies Covered: PXS, NAN, Hatchtech**

| | Bioshares Portfolio |
|---|---|
| Year 1 (May '01 - May '02) | 21.2% |
| Year 2 (May '02 - May '03) | -9.4% |
| Year 3 (May '03 - May '04) | 70.6% |
| Year 4 (May '04 - May '05) | -16.3% |
| Year 5 (May '05 - May '06) | 77.8% |
| Year 6 (May '06 - May '07) | 17.4% |
| Year 7 (May '07 - May '08) | -36% |
| Year 8 (May '08 - May '09) | -7.4% |
| Year 9 (May '09 - May '10) | 50.2% |
| Year 10 (May '10 - May'11) | 45.4% |
| Year 11 (May '11 - May '12) | -18.0% |
| Year 12 (May '12 - current) | 3.1% |
| **Cumulative Gain** | **256%** |
| **Av. annual gain (11 yrs)** | **17.8%** |

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# Bioshares

**31 May 2013**
**Edition 505**

*Delivering independent investment research to investors on Australian biotech, pharma and healthcare companies.*

## Pharmaxis Restructures for Survival

The risks of building a global, fully integrated pharmaceutical company (FIPCO) are being witnessed in Pharmaxis (PXS: $0.155), which this week announced a restructure to its business. Driven by a slow take-up in Bronchitol sales, a knock back by the FDA and late clinical trial disappointments, Pharmaxis is now in survival mode, giving itself three years to get its house in order.

Building a FIPCO is a long, expensive and ambitious process. Late stage failures can be enough to destroy the business, or at least force a major change in the business plan. Pharmaxis had a spend rate of $40 million a year with almost 160 employees. Whilst the company had $70 million at the end of March, with access to a further $20 million from NovaQuest based on achievement of milestones, at current spend rates this only gives the company two years to get back on track.

### Restructure

Pharmaxis will now reduce its staff by 48 to 110 people. It will reduce its overall cash costs by 29%, with 30% of that reduction coming from sales and marketing, 30% coming from manufacturing, and 20% of the savings coming from clinical development.

The company will also initiate partnering discussions for Bronchitol for the treatment of cystic fibrosis and for the treatment of bronchiectasis in the US, leaving Pharmaxis to focus on selling Bronchitol for CF in the regions where it is approved, predominantly Europe and Australia.

As reported previously, Pharmaxis will also seek to partner most of its other programs in development, or access external funding from grants or venture capital investments through spin outs. It will internally fund only one indication for LOXL2, which is currently in preclinical development and will invest in some proof-of-concept programs.

The company expects to start a clinical study in the second half of this year in Europe in children with CF.

*Cont'd over*

## Out-licensing/Partnering Income

As indicated above the company will partner Bronchitol in the US, which has the potential to generate some upfront and milestone payments in 2014. Next year it will also seek to license access to its Orbital drug delivery device, which is in development as a next generation delivery system for Bronchitol. It will also seek to partner the ASM8 asthma oligonucleotide program (from the Topigen acquisition) which is at the Phase II stage of development.

Pharmaxis also has access to a further US$20 million in funding from NovaQuest, which can be accessed once the additional Phase III trial in the US starts. It's important to note that Pharmaxis can access these funds even if it has licensed the US CF program to a partner.

## Discussion

### *Cutbacks*

Pharmaxis expects to reduce its annual costs by $12 million, which will be effected by the end of this year. Cash costs (which excludes accounting items such as depreciation) will be reduced to around $29 million a year. This will be further reduced to an estimated $20.3 million after taking into account revenue, including interest. Based on the $70.5 million in funds at the end of April and current revenue levels, this gives the company three years of spend. This can also be extended if the company accesses the additional US$20 million in funding from NovaQuest.

### *Partnering US CF rights*

Following a recent meeting with the FDA, the regulator indicated that the company would need to conduct an additional trial in the US in adult only patients with CF. This trial is expected to cost around $15 million.

Partnering the US rights is a sensible strategy for the company. NovaQuest receives a percentage of net revenue from Europe and US sales (a reach through arrangement regardless of who is selling the product) for a fixed term. This ranges from low single digit royalties which are dependent on sales levels, to a low double digit royalty, presumably if the second draw down of $20 million is taken. If Pharmaxis partners the program for the US, then if might be able to negotiate a royalty stream of 15%-20%, however we estimate at least half of that (estimated 10%-13%) will go to NovaQuest if Pharmaxis draws down the second tranche.

CEO Gary Phillips indicated that the company has three options for the US. One is to partner US rights for CF, the second is to have the program part funded by a partner, and the third option is to complete the trial independently and license the rights after US approval.

### *Germany crucial to Pharmaxis*

Pharmaxis recently installed a distributor for Bronchitol (for CF) in Poland. It has appointed a distributor in Brazil where it is filing for regulatory approval in Q3 this year. This year it also expects to appoint a distributor in Israel and Russia.

If there's one market the company needs to get right then it's Germany. There are 7500 people in Germany living with CF. It has the least hurdles in Europe for reimbursement and it's one of the largest markets. Current sales in Europe are tracking at $1.4 million on an annualised rate. For Pharmaxis to be successful, German sales need to reach around $11 million, which corresponds to a 30% market penetration of the market for adults. Quarterly German sales are the key figure investors need to monitor.

## Summary

Pharmaxis has spelt out a clear strategy for investors. It has given itself at least three years to start generating meaningful sales (in excess of $20 million a year), it is putting in place an appropriate restructuring, and it has formulated a strategy for commercialising Bronchitol in the US.

Germany will be a key market to monitor and investors now will want to see tangible signs of the restructuring process, which will include licensing and partnering deals and technology spinouts over the next 12 months, as well as traction in sales taking place.

However, while sales in Germany remain at low levels, and in the absence of sales and growth in sales in other territories, our recommendation to investors is to avoid the stock.

Pharmaxis is capitalised at $47 million.

*Bioshares* recommendation: **Sell**

**Bioshares**

# *Nanosonics Valuation and Impact of Falling Interest and Exchange Rates*

Current valuation: **74 cents per share**

One of the most important factors in valuing a company is the future revenue a company is expected to generate. From that, profit margins are estimated taking into account product and operating costs and capital expenditure items, deducting tax payable after absorbing previous operating losses, to arrive at discounted cash flow (DCF) valuation.

However, there are other factors that impact company valuations that are outside of a company's control. Two of these major factors are interest rates and foreign exchange rates. In recent weeks, both have been moving in favour of many biotech stocks. To assess the impact of these two variables, we have conducted a DCF valuation on Nanosonics (NAN: $0.53), looking at how favourable and unfavourable movements impact on the valuation of this company.

Using a DCF analysis, we have arrived at a valuation for Nanosonics of $0.74 a share. The assumptions used to calculate this valuation are listed on the next page. Most crucial are sales of the Trophon unit in the US, which we forecast at 1800 next financial year and 500 for Europe and Asia (excluding Australia). In Australia and New Zealand the company has achieved more than 30% market penetration with an estimated 700 installed units.

### Impact of Exchange Rates

Nanosonics derives 83% of its revenue from North America at the moment. A drop in the Australian dollar against the US dollar should have a significant impact on revenue, profitability and its valuation. At an exchange rate of $0.961 for the Australian dollar, our valuation is 74 cents a share. This falls to 67 cents a share at an Australian dollar value of $1.03 against the US dollar, and increases to 81 cents a share if the Australian dollar continues to fall to $0.90.

***Valuation matrix - FX rate variation***

At AUD/USD =1.03 ……Valuation $0.67
At AUD/USD=0.961……Valuation $0.74
At AUD/USD=0.90……..Valuation $0.81

### Impact of Interest Rates

As an example of the impact that interest rates have on biotech company valuations, using our DCF model, the fair value calculated for Nanosonics would be 20% lower at 60 cents a share if the 10 year bond rate was at 2008 levels of 6.5%, compared to the current valuation of 74 cents a share.

*Cont'd over*

### Impact of Interest Rates on Stocks

Interest rates have fallen around 3% in the last five years, and over 2% in the last two years. In mid 2008 the 10 year government bond yield was 6.5% and this is currently at 3.39%. When using a discounted cash flow valuation model to calculate a net present value (NPV), future revenue is discounted back to today by dividing by the discount rate, which is the rate of annual return expected from such an investment. For instance, on a 10% annual return, $0.909 today is worth $1.00 in 12 months time.

The formula for calculating the NPV is shown below. What can be seen in this formula is that the impact of the discount factor (expected annual return for such an investment) is compounded each subsequent year out.

NPV= Sum of [Revenue/(1+discount rate)$^{n}$ ]

NPV=net present value
n=number of years away that revenue is expected to be generated

So revenue of $1.00 to be received in two years time is worth $0.826 today (0.826=1/(1.1)2). The higher the discount rate, which is higher for riskier investments like biotech stocks and lowest for government bonds, the less future revenue is worth today. The point behind all of this is that valuations have been increasing in recent years because the discount factor has been falling due to falling interest rates.

This impact is magnified for biotech stocks, which generally will not achieve peak sales for 6-10 years, and have longer revenue growth characteristics compared to standard industrial companies.

In the US, 10 year Treasury bond yields have fallen from around 4% in 2010 to around 2%. This fall in US interest rates has arguably been a significant contributor to gains made in US stock markets in the last two years, with a historically low discount rate. And with investors poorly rewarded for investing in fixed interest products, this has also been a driver to invest in growth stocks such as the more mature biotechs that dominate the Nasdaq Biotech Index (NBI). The NBI is currently at an all-time high. This year, the index has increased by 34% and the index has increased by 118% from its low less than two years ago (August 2011).

**Nanosonics Financial Forecasts**

| | 2012 | 2013e | 2014e | 2015e | 2016e | 2017e |
|---|---|---|---|---|---|---|
| **Revenue (A$M)** | $12.3 | $13.8 | $23.1 | $31.1 | $38.3 | $50.3 |
| **PBT (A$M)** | -$4.7 | -$4.6 | $0.4 | $6.4 | $11.9 | $23.5 |
| **NPAT (A$M)** | -$4.7 | -$4.6 | $0.4 | $6.4 | $11.9 | $23.5 |

*Note: Nanosonics has accumulated losses of $50 million with a net tax benefit $15 million at a corporate tax rate of 30%*

**Nanosonics Model Assumptions**

| | |
|---|---|
| Risk free rate (10 year bond yields) | 3.39% |
| Market risk | 5.50% |
| Overall discount rate | 8.89% |
| Price of Trophon unit to distributors | US$5000 |
| Annual consumables revenue per instrument to Nanosonics | US$2000 |
| AUD/USD | 96.1 cents |
| Gross margin on consumables | 90% |
| Gross margin on Trophon unit | 60% |
| Gross margin on service work | 40% |
| Peak market penetration in USA (in 2018) | 30% (12000 units) |
| Peak installed base in rest of world (in 2026) | 12000 units |
| Trophon units sold into the US in FY2014, FY2015, 2016 and FY2017 | 1800, 2000, 2000 and 2400 |
| Trophon units sold into Europe and Asia in FY2014, FY2015, 2016 and FY2017 | 500, 500, 500 and 800 |

**Other assumptions**

| |
|---|
| Consumables revenue falls by 70% in 2026 after first patents expire |
| Price of Trophon unit falls by 25% in 2026 after first patents expire |
| 80% of Trophon units replaced every six years |
| Nanosonics maintains distributor-based sales approach in Europe and USA |
| Excludes any revenue upside for other product developments |

***Valuation matrix - Interest Rate Variation***

At 10 year bond rate = 3.39%.....Valuation $0.74
At 10 year bond rate = 6.5%.....Valuation $0.60

## Impact of interest rates with FX changes

Below we have provided a valuation matrix for Nanosonics looking at the impact of different exchange rates and interest rates. In the least favourable scenario for Nanosonics with an Australian dollar worth $1.03 against the US dollar, and with 10 year bond rates of 6.5%, it corresponds to a DCF valuation for Nanosonics of 54 cents. At current rates of 3.39% and if the exchange rate was to fall to $0.90, then it would deliver a DCF valuation of 81 cents a share for Nanosonics using our assumptions.

***Valuation matrix -Interest rates and FX rates variation***

At 10 year bond rate 3.39% and AUD/USD $0.90……Valuation $0.81
At 10 year bond rate 3.39% and AUD/USD $0.961……Valuation $0.74
At 10 year bond rate 6.39% and AUD/USD $1.03……Valuation $0.54

## Summary

The falling Australian dollar is a welcome relief for those biotech companies with significant US earnings. Also favourable are falling interest rates. For Nanosonics the lower Australian dollar will move the company closer to profitability, with our expectation for this to be achieved in FY2014. If the Australian dollar continues to fall against the US dollar, then it should see improvements in sales, profitability and will contribute to increased stock prices for many companies in this sector.

Other companies in this sector with significant US sales include: CSL, Cochlear, Resmed, Alchemia, Cogstate, Atcor Medical, Universal Biosensors, Somnomed, Acrux, Genetic Technologies and Sirtex Medical.

Nanosonics is capitalised at $139 million. The company had $24.9 million in cash at the end of March.

*Bioshares* recommendation: **Speculative Buy Class A**

**Bioshares**

## Private Company Review

# *Hatchtech Banking on Success of Sanofi's Sklice to Win US Sales for DeOvo in Headlice Treatment Market*

Hatchtech is a privately held biotech company which is developing DeOvo, a treatment for headlice (a parasite). Hatchtech was incorporated in 2001. The technology originates from the University of Melbourne's School of Veterinary Science, where the inventor, current CSO Vern Bowles, was seeking methods to control blowflies in sheep.

The hypothesis established at that time was that the targeting of certain proteins necessary for the growth and development of parasites could be an effective way to kill them. Initial work focused on screening compounds that could inhibit (or chelate) metal dependent proteins (metal proteases or metaloproteinases).

The compound discovered through the screening program, 5,5' dimethyl-2-2' dipyridyl (originally termed Ha44 but recently given the INN name abametapir), is an agent which chelates iron, copper and zinc. Ha44 was identified in 2005.

The fact that DeOvo chelates all three metals involved in many biological processes decreases the likelihood of resistance developing in the therapeutic setting. This a key commercial benefit.

The second feature of DeOvo with commercial benefit is that it kills both lice and eggs, treating all life cycle stages of the organism in a single application. The direct benefit is that a single treatment product can, and has been developed which should then have the potential to compete strongly against treatments that must be applied twice in the typical 14 day treatment period.

### Patents

Hatchtech has a granted US patent (8,212,038) covering the use of 5,5' dimethyl-2-2' dipyridyl to inhibit or chelate metal proteins in many families of (ecto) parasites to control infestation. The patent expires in 2026. However, the company has filed formulation patents that could extend commercial product protection until 2036.

### Investment to Date

We estimate $23 million has been invested to date in Hatchtech. Some funding in the past was directed to agricultural and veterinary applications of DeOvo, but for the most part, funds have supported the development of DeOvo as a treatment for head lice.

Hatchtech is currently seeking $12 million to complete Phase III studies and to progress DeOvo through the FDA registration process. A New Drug Application is targeted for 2014 H2. Funds raised would support the company until the end of 2015.

### Phase II and Other Test Results

Hatchtech successfully completed Phase II studies in December 2011, yielding a statistically significant result. The Phase II study evaluated two different dose strengths of DeOvo, 0.74% w/v and 0.37% w/v against placebo, in 140 subjects aged 2 years and older.

For the 0.74% w/v group, 85.7% of subjects achieved treatment success of headlice clearance at day 14, following an initial single 10 minute treatment at day 1 ($p<0.001$). The 0.37% group achieved a clearance rate of 67.4% and the placebo, 23.4%. No serious adverse events were reported in any of the treatment arms.

Associated toxicology studies have seen DeOvo tested at levels much, much higher than those used in the Phase II trial. These tests have given the company comfort that the safety profile of the product at its current dose intended for Phase III trial is acceptable.

Hatchtech has also been studying the purely ovicidal potential of DeOvo and has shown that it can (in a special model system) kill 100% of eggs. However, the reality in everyday treatment is that while a 100% eradication of eggs from an individual child's hair and scalp could occur, infestation re-occurs because of child-to-child contact.

Nevertheless, demonstration of a 100% success rate in killing eggs confers a key product differentiator in the form of the product's design as a single treatment product, in a market where most prescription products have two treatment steps.

### Phase III Program

The company has concluded an end of Phase II process with the FDA, with all issues resolved by correspondence such that a face to face meeting was not required. A Phase III program will comprise of two studies that will be of a similar design to the Phase II study. The endpoint will be the percentage of subjects who are lice free at day 14.

Each Phase III study will enrol 300 subjects across 10 sites in the US, aged between six months of age and 17 years. Subjects will be referred to a trial by a school nurse or a pediatrician.

One aspect of the study of interest to the FDA will be the impact of DeOvo on regions in which lice have developed resistance to current treatments. This will mean that the trial must have an appropriate geographic spread.

Hatchtech is in the process of appointing a CRO to manage the trial. It is also studying in detail a range of factors (e.g. the timing of the trial in the school year) which could have an impact on the efficacy of DeOvo as observed in the trials.

Hatchtech is envisaging that the Phase III trial will begin recruitment in December 2013 with completion by February 2014, with results to become available by May/June 2014. The nature of the product as a topical treatment being tested over 14 days greatly simplifies the clinical trial process and shortens the trial duration and follow-up, compared to many other pharmaceutical products.

### Product Attributes and Customer Research

Hatchtech continues to undertake consumer research for DeOvo. This research includes ensuring that the application procedure

*Cont'd over*

*– Hatchtech cont'd*

for the product is understood by parents (usually the mother) and that the procedure is consistent across all parents, regardless of socio-economic status.

Other research is focused on product features such as smell, viscosity and container design, look and feel, and on how the formulation is removed from the container. Some of the understandings gained from research on product engagement are likely to be included in the Phase III trial.

Another key piece of market research completed by Hatchtech was a US survey in 2012 of 100 doctors (prescribers) and 200 parents on their preferences towards a product which exhibited the features and potential benefits of a product with the same profile as DeOvo. It must be noted that DeOvo was not named in the survey.

The survey showed that parents are very dissatisfied with the products that are currently available for the treatment of headlice. Survey results showed that 77% of parents rated the DeOvo profile as superior or highly superior to other products and that 90% or more of doctors rated the single application, efficacy and no resistance as attributes (of a DeOvo-like product) that would increase their willingness to prescribe.

Furthermore, 71% of doctors said if a DeOvo like product proved in clinical trials to be ovicidal it would have a significant impact on their willingness to prescribe that product.

This market research provides evidence that DeOvo has a strong chance of becoming a major competitor to existing products. The very high acceptance by prescribers is worth noting, especially because they recognize that the ability of the active drug to deal with drug resistance is an important benefit.

## Competitive Landscape

The market for lice treatments is based on an estimated 6 -12 million infestations occurring each year in the US in children aged three to 12 years. The market for headlice products in the US comprises of four main segments which include home remedies, nit picking services and OTC products such as the pyrethrum products Rid, A-200, Pronto, R&C, Triple X and the permethrin product Nix.

The prescription product market includes the products Ovide, Sklice, Natroba and Lindane, which are neurotoxic to the louse and Ulesfia, a benzyl alcohol formulation which suffocates the louse. Lindane, an organochloride, is banned in California and is not recommended as a first-line treatment by the FDA. A limitation with Ulesfia is that it cannot be used to treat very young children.

The most recently approved (in 2012) of these products is Sklice. The active drug ingredient of Sklice is ivermectin, a compound that has been used for the oral treatment of heartworm in cats and dogs for many years.

*Cont'd over*

**Products for the Treatment of Headlice (USA)**

**OTC Products**

| Brand Names | Active Ingredient | Formulations | Nº of Treatments |
|---|---|---|---|
| A-200, Pronto, R&C, Rid, Triple X | pyrethrin & piperonyl butoxide | Piperonyl butoxide (4%) Pyrethrum Extract (equivalent to 0.33% pyrethrins) | 2 |
| Nix | permethrin (synthetic pyrethroid ) | Lotion (1%) | 2 |

**Prescription Products**

| Brand Name | Drug Name | Company | Method of Action | Formulations | Nº of Treatments | Ovicidal | FDA Approval |
|---|---|---|---|---|---|---|---|
| Ovide | malathion (an organophosphate) | Medicis Pharmaceutical Corp. | Neurotoxin | Lotion (0.5%) | 2 | Partially | 30/04/1999 |
| Sklice | ivamectin | Sanofi | Neurotoxin | Lotion (0.5%) | 1 | No | 1/02/2012 |
| Natroba | spinosad | Parapro | Neurotoxin | Topical Suspension (0.9%) | 2 | Yes | 19/01/2011 |
| Ulesfia | benzyl alcohol | Shionog | Suffocant | Lotion (5%) | 2 | No | 9/04/2009 |
| Lindane | lindane (an organochloride) | Morton Grove Pharmaceuticals | Neurotoxin | Shampoo (1%) | | No | 1947 [Black Box 2003] |

**In Development**

| Brand Name | Drug Name | Company | Method of Action | Formulations | Nº of Treatments | Ovicidal | Phase |
|---|---|---|---|---|---|---|---|
| De Ovo | Ha44 (also 5,5' dimethyl-2-2' dipyridyl) | Hatchtech | Metaloproteinase inhibitor | 0.74% w/v (85.7% treatment success; 0.37% w/v 67.4% treatment success [Phase II] | 1 | Yes | Phase III pending |

*Source: CDC, Drug Labels, Company Reports*

**Bioshares Model Portfolio (31 May 2013)**

| Company | Price (current) | Price added to portfolio | Date added |
|---|---|---|---|
| Atcor Medical | $0.071 | $0.082 | May 2013 |
| Circadian Technologies | $0.300 | $0.270 | March 2013 |
| Tissue Therapies | $0.130 | $0.255 | March 2013 |
| Allied Healthcare | $0.040 | $0.026 | February 2013 |
| Psivida | $3.50 | $1.550 | November 2012 |
| Benitec | $0.016 | $0.016 | November 2012 |
| Nanosonics | $0.530 | $0.495 | June 2012 |
| QRxPharma | $1.20 | $1.66 | October 2011 |
| Somnomed | $0.93 | $0.94 | January 2011 |
| Cogstate | $0.360 | $0.13 | November 2007 |
| Clinuvel Pharmaceuticals | $2.00 | $6.60 | September 2007 |
| Universal Biosensors | $0.66 | $1.23 | June 2007 |

### *Portfolio Changes – 31 May 2013*

**IN:**
No changes

**OUT:**
No changes

*– Hatchtech cont'd*

In one Phase III study of Sklice, after a single treatment 76.1% of subjects were lice free at day 14 compared to 16.2% for the control group. In a second Phase III study, after a single treatment, 71.4% of subjects were lice free at day 14 compared to 18.9 % for the control group

Sklice was developed by Topaz Pharmaceuticals. This company was acquired by Sanofi Pasteur in the months prior (October 2011) to it receiving FDA approval in a deal valued at US$207 million with an estimated upfront of $35 million and $91 million on drug approval.

The benefit the product supplies to a pediatric vaccine manufacturer such as Sanofi Pasteur is that the product gives its sales force an additional reason to call on pediatricians, the key physician group servicing children in the US. This same rationale fits Hatchtech's strategy for either licensing or a business sale after the completion of Phase III studies.

In addition to deal value metrics, Sklice is important to Hatchtech for another reason. In a market which features competition from home remedies and OTC products, the ability of prescription products to generate switching is difficult unless there is a powerful performance based incentive to do so.

If Sklice does cause prescribers and parents to switch then it will be a positive development for DeOvo. A key risk for DeOvo is that prescribers and parents do not switch to a more expensive but superior prescription product.

## Summary

Hatchtech is seeking to access a market with many competing products but with many dissatisfied parent customers, both in terms of efficacy and safety. Where Hatchtech may have a competitive advantage in the prescription product sub-market is where it can establish claims as an ovicidal and where it demonstrates superiority to other one-treatment products such as Sklice, as suggested by DeOvo's Phase II clearance rate of 86% compared to Sklice's 76% best Phase III clearance rate.

As an investment proposition for eligible investors (e.g. sophisticated, professional and institutional) an investment horizon of 12 months, roughly to the release of Phase III data in mid 2014, is an attractive proposition.

**Bioshares**

## How Bioshares Rates Stocks

For the purpose of valuation, Bioshares divides biotech stocks into two categories. The first group are stocks with existing positive cash flows or close to producing positive cash flows. The second group are stocks without near term positive cash flows, history of losses, or at early stages of commercialisation. In this second group, which are essentially speculative propositions, Bioshares grades them according to relative risk within that group, to better reflect the very large spread of risk within those stocks. For both groups, the rating "Take Profits" means that investors may re-weight their holding by selling between 25%-75% of a stock.

### Group A

Stocks with existing positive cash flows or close to producing positive cash flows.

| | |
|---|---|
| **Buy** | CMP is 20% < Fair Value |
| **Accumulate** | CMP is 10% < Fair Value |
| **Hold** | Value = CMP |
| **Lighten** | CMP is 10% > Fair Value |
| **Sell** | CMP is 20% > Fair Value |

(CMP–Current Market Price)

### Group B

Stocks without near term positive cash flows, history of losses, or at early stages commercialisation.

***Speculative Buy – Class A***
These stocks will have more than one technology, product or investment in development, with perhaps those same technologies offering multiple opportunities. These features, coupled to the presence of alliances, partnerships and scientific advisory boards, indicate the stock is relative less risky than other biotech stocks.

***Speculative Buy – Class B***
These stocks may have more than one product or opportunity, and may even be close to market. However, they are likely to be lacking in several key areas. For example, their cash position is weak, or management or board may need strengthening.

***Speculative Buy – Class C***
These stocks generally have one product in development and lack many external validation features.

***Speculative Hold – Class A or B or C***

***Sell***

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Signature _____ Expiry date _____

### Subscriber details

Name _____

Organisation _____

Ph ( ) _____

Emails _____

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