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In this edition...
As the year closes we wish subscribers the very best for the holiday season. We hope that readers enjoy a well-earned break and allow time for some of the many bruises gained from a tumultuous year in investing to heal.

We also wish to thank all those readers who provided valuable feedback and contributors for their thoughtful and provocative commentary on the business of biotech.

While Australia's biotech sector community has been sorely buffeted, we harbour the view that healthcare investment fundamentals will see a handful of biotechs (perhaps more!) generate strong interest in the second half of 2009.
The Editors

Companies Covered: 2009 Outlook, PGL, Contributor - Pete Smith

	Bioshares Portfolio
Year 1 (May '01 - May '02)	21.2%
Year 2 (May '02 - May '03)	-9.4%
Year 3 (May '03 - May '04)	70.0%
Year 4 (May '04 - May '05)	-16.3%
Year 5 (May '05 - May '06)	77.8%
Year 6 (May '06 - May '07)	17.3%
Year 7 (May '07 - May '08)	-36%
Year 8 (May '08 - current)	-37.6%
Cumulative Gain	**29%**
Av Annual Gain (7 yrs)	**17.8%**

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Bioshares

19 December 2008
Edition 294

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

A Tale of Two Cities for Australian Biotech

Well what a year it's been in 2008! The global financial crisis has devastated share prices across most sectors and in most countries, and looks set to continue for at least another 12 months. For the global biotech sector, the risk profile has increased considerably as the access to ongoing funding, which is an essential aspect of the biotech industry, has been significantly restricted to most companies. Although 2009 will be a difficult year, has the Australian biotech sector sneaked through to create a viable technology-based industry?

When the *Bioshares* team first started covering the Australian biotech sector in 1999, there were approximately 30 listed life science companies trading on the ASX. At the end of September 2008, there were 133 companies listed companies in the sector with an aggregate capitalisation of just under $36 billion.

The five years prior to 2008 has been a significant period for the Australian biotech sector with $3.2 billion raised for commercialisation purposes. As a result there are now nine companies with pivotal final stage clinical trials underway and an increasing number of life science companies turning profitable (21 at last count).

Moving into 2009 the sector could best be described as a tale of two cities that appear to be rapidly diverging, in what some could be forgiven for thinking a return to Dickensian times, for those with and those without access to sufficient cash to commercialise their products.

At the end of September, at least 35 companies had less than one year's cash and 55 of the companies in the sector were valued at less than $10 million by the market. **Alchemia** has been a first mover, slashing staff numbers by 60%, to rapidly reduce its burn rate until revenues from its generic fondaparinux drug begin, which is expected in late 2009. Other companies, such as **Optiscan Imaging**, have flagged the dire financial situation that confronts them.

2008 Disasters

Some companies missed the crucial financing window earlier in 2008 and may be set to pay the ultimate price. **Ventracor** is a case in point, where after exhausting a near final

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Publication Dates – Break over Holiday Period

Bioshares is published 48 times per year.
The next edition of Bioshares (295), will be mailed on January 2, 2009. Bioshares 296 will be mailed on January 26, 2009.

financing option through a failed SPP, has put itself up for sale (or is seeking a strategic investment). The blame for this parlous position must rest largely with the company's CEO, Peter Crosby, who could not garner support for the company's program when its direct competitor was able to raise $31 million in July.

This wasn't the only case of poor management or guidance in 2008. **Biota Holdings**' failed litigation action against **GlaxoSmithKline**, was a disaster. At the company's AGM it emerged that a settlement offer for $75 million, which was the third offer from GSK, was received but rejected by the Biota board. Biota eventually accepted the fourth GSK offer for $20 million, after realising escalating legal costs could have compromised the future of the company. The Biota board must accept responsibility for the poor judgment shown in this litigation. The company's chairman, John Grant, who has chaired the board for the last eight years, has announced his intention to resign within the 2009 fiscal year. That it will take such a lenghthy period to locate a replacement chair for the company is an unacceptable outome for shareholders. This week Barbara Gibson resigned from the Biota board, apparently having no difficulty in moving on, and in fact moving on slightly ahead of expectations.

Progen Pharmaceuticals has also shown poor judgment over the last 18 months. The company raised $99 million in 2007 to fund the development of its lead compound, PI-88. The company pulled the trial citing slow recruitment rates caused by the progress of a competing drug. The company's share price has plummeted and is now considering returning 43% of its $70 million cash and an acquisition strategy, although there are some shareholders very keen on a return of the full $1.10 a share in cash. Rumours have also emerged the company rejected more than one partnering deal for PI-88.

Avexa was also a high profile biotech that lost the support of its investor base when it announced that the $79 million it raised in 2007 would not be sufficient to complete the Phase III trials of its HIV drug. That the company will need to partner the asset prior to completing the Phase III studies places the company in a less comfortable position when negotiating with a major biotech or pharmaceutical firm.

Rationalisation Underway

Rationalisation of the Australian biotech sector is well underway and can be expected to accelerate short of a removal of the funding blockade that faces the sector.

As mentioned, Ventracor has put its business up for sale. **Apollo Life Sciences** has appointed administrators, biosensor group **Ambri** has changed businesses (to superannuation management), receivers and managers have been appointed to **Portland Orthopaedics**, **Brainz** has completed the sale of its instrumentation assets to **Natus Medical** in the US, and **Stem Cell Sciences** has indicated it may be in M&A discussions. If the credit crisis continues for the next 12 months, we expect to see *at least* 20 more biotechs cease operations or be acquired in this period.

Many of those companies that remain in the sector with less than two years cash will be forced to reduce expenditure by cutting programs, asset sales, forming strategic alliances, explore M&A opportunities or going into hibernation.

Not All Doom and Gloom

The biotech sector has been fortunate to have made sufficient progress over the last four years and garner sufficient cash assets and investor support to have the necessary assets to build what should become a sustainable and successful industry in Australia.

At least nine companies are currently in pivotal trials or approaching market. These are **Chemgenex Pharmaceuticals**, **Acrux**, **Pharmaxis**, **Avexa**, **QRxPharma**, **Peplin**, **Halcygen Pharmaceuticals**, **Clinuvel Pharmaceuticals** and **Alchemia**. Combined, these companies have an estimated $330 million in cash. If only five of these become successful businesses, it will be a defining achievement for the sector. New Zealand biotech and ASX-listed company, **Neuren Pharmaceuticals**, has completed its first Phase III trial in preventing cognitive decline in patients undergoing heart surgery and is expected to report shortly on the trial outcome.

The cohort of companies that are now generating revenue and are expected to move into profitability is steadily increasing. **Universal Biosensors** is forecasting profitability in CY2009 (from manufacture of its new glucose test strips), **CathRx** is forecast strong sales for FY2011 (from its cardiac catheters) and **Nanosonics** will be launching its products onto global markets in early 2009 (disinfection equipment for ultrasound probes). S**tarpharma Holdings** is expecting its partnered microbicide coated condoms to be on the market within two years.

Labtech Systems had its first product released onto the global market earlier this month with the first commercial sales recorded. It has developed the first fully automated microstreaking instrument for agar plates that is now being sold by **BioMerieux**. **Acrux** saw its first product (a spray-on hormone replacement therapy) released in the US in April this year by **KV Pharmaceutical** and has just filed the product for approval in Europe. Its second product, a testosterone lotion for men, is expected to be filed for approval in the second half of next year in the US.

Tyrian Diagnostics (formerly Proteome Systems) has been contracted by **Bayer CropScience** to product 10,000 of its WheatRite tests, which are used to test for rain damage in wheat. The company has also been contracted to make 500 of its digital reader instruments for the test, called ReadRite. Tyrian was also contracted this week by Bayer to produce a second diagnostic test. Tyrian receives an annual license fee from the tests and a royalty plus a payment for each diagnostic instrument reader.

Atcor Medical is driving strong sales from its central blood pressure measuring instruments. Its revenue is tracking at $10 million a year now, which has increased by around 40% from the same time last year, with strong growth in sales (45%) forecast in 2009 by the company. We anticipate profitability for the company within 18 months.

Cont'd over

Cogstate, which is selling a cognitive testing platform for the clinical trials setting, is expected to have a profitable first half in this financial year and we expect profitability to continue. Many of these companies selling into overseas markets are also benefiting considerably from the fall in the Australian dollar, and this will become more evident in early 2009.

Impedimed launched its L-Dex U400 for assisting in the diagnosis of lymphedema in the arm for women with breast cancer, following FDA clearance in October this year. The company is leading the way for highlighting the need for lymphedema awareness in breast cancer sufferers, with between 10% - 40% expected to develop lymphedema. In has coined the term L-Dex (lymphedema index). With the ability now to market directly to surgeons, oncologists and physiotherapists in the US with its own sales force, Impedimed is building a strong position in this market. We anticipate strong sales growth in 2009 (from sales of $2.2 million in FY2008).

Polartechnics is forecasting strong sales in this financial year ($6.8 million) for its suite of diagnostic tests, including cervical cancer and self sampling tests for HPV and sexually transmitted diseases

Arana Therapeutics and **Biota Holdings** are well funded businesses with $181 million in cash and $70 million (estimated) respectively in cash at the end of September this year. Both companies have mid stage clinical programs and both are enjoying healthy revenue streams from product royalties. They have built successful, traditional biotech businesses.

On the product development front, 2008 has produced largely positive results. These include positive Phase II clinical results from **Antisense Therapeutics** in multiple sclerosis (followed by a licensing deal with **Teva**), **Prana Biotechnology** in Alzheimer's disease (seeking to conduct a licensing deal) and **Biota Holdings** with its long acting second generation flu drug (LANI). Data emerging from most Phase III trials underway has also been positive.

Several companies are conducting or will move into Phase II trials in 2009. These include **Mesoblast**, **Cytopia** and **Arana Therapeutics** which have trials underway, and **Bionomics** set to enter Phase II studies in 2009. And **Patrys** and **Biodiem** are expected to see their lead programs move into the clinic in 2009.

Cellestis has built a profitable diagnostic business in a relatively short time frame with its latent tuberculosis tests. The company has the potential to become a highly profitable business and should be watched closely in 2009 as continued strong sales growth, the impact of a favourable currency and a high flow through of revenue to the bottom line converge.

A vacuum developing

Most of these companies with products on or close to market have been recipients of Federal Government grants. The biotech companies less advanced that are following these groups are now faced with the double whammy of a cessation of Federal grants and a near closure equity markets for funding. While the sector leaders look likely to have sneaked through to commercial success, there is likely to be a biotech development vacuum of the next Pharmaxis or Acrux if seed and expansion funding remains limited and difficult to access.

Summary

For 2009 and 2010 it will be a busy news flow period with Phase III trial results, regulatory approvals and market launches, and finally a time for more traditional P&L assessment for revenue generating companies. Companies such as Cellestis will highlight the appeal of the life sciences sector. An important point and one that relates to many companies in the sector was that made recently by the CEO of Atcor Medical, Duncan Ross. "Our solid revenue growth continues to demonstrate the resilient nature of the healthcare sector in a fluid and uncertain macro economic environment."

However, the flip side is that bringing these products to market is expensive and time consuming. Whilst there is a healthy group of companies that are well positioned for success, there are a high number of companies that may be caught out by the credit freeze brought about by the current global financial crisis.

For biotech companies, and a helpful perspective for investors, we will end the last edition of *Bioshares* for 2008 with some quotes from contributors to *Bioshares* 291, commenting on the impact of the current financial crisis.

"If you are a CEO of a company that is not making profits, it's time to get into essential survival mode and preserve enough cash to be able to unlock the value of your intellectual property assets when funding becomes possible again."
– Igor Gonda, CEO, **Aradigm Corporation**.

"The next few years in the biotech sector are likely to be very Darwinian in the sense that only the fittest will survive and those that were always destined to fail will likely fail faster. This is a time for management teams to be re-affirming their strategy (and) communicating clearly with all stakeholders..."
– Richard Treagus, CEO, **Acrux**

"Financial reserves need to be secured for at least 2-3 years; in the past most companies were comfortable with a 1-2 year financial outlook…Many of the stronger listed companies raised significant amounts of money before the downturn and are well placed to continue prudent operations in the medium term."
– Josh Funder, Investor, **GBS Venture Partners**

"There will be casualties amongst the smaller, or poorly capitalized companies, but there is also likely to be some positive change at the larger end of the biotech market where some clear market leaders will emerge…What this should do overall is deliver a stronger biotech sector which is more structurally sound and ultimately more attractive to private and public investors that will provide the long term development capital."
– Andrew Macdonald, CEO, **Cytopia**

Cont'd over

"We should remember that the Australian biotech sector has never been better placed with a growing number of companies with product in the market and/or close to the market".
– Deborah Rathjen, CEO, **Bionomics**

"Biotech companies will provide the future pipelines of Big Pharma, and they will buy biotech companies instead of licensing their products. Look for either early deals (R&D) or late ones (Phase III). In between, there will be less interest."
– John Holaday, CEO, **QRxPharma**

"Every few years, US biotech industry analysts will observe 'there is going to be a lot of consolidation this year'. It has never happened. This global financial crisis may be the catalyst that finally forces significant consolidation to occur."
– Tom Wiggans, CEO, **Peplin**

"Most life science companies should also be actively looking out for M&A opportunities and their boards should be prepared to give serious consideration to those that are genuine, even if the result would have a direct impact on members of the board and/or management."
– Leanna Read, CEO, **TGR Biosciences**

"Pharma has over $100 billion to invest and will emerge in the biotech area as a major source of funding."
– Greg Brown, CEO, **Impedimed**

Bioshares

Bioshares Model Portfolio (19 December 2008)

Company	Price (current)	Price added to portfolio	Date added
ASDM	$0.35	$0.30	December 2008
QRxPharma	$0.20	$0.25	December 2008
Hexima	$0.38	$0.60	October 2008
Atcor Medical	$0.14	$0.10	October 2008
CathRx	$0.60	$0.70	October 2008
Impedimed	$0.71	$0.70	August 2008
Mesoblast	$0.85	$1.25	August 2008
Cellestis	$1.75	$2.27	April 2008
IDT	$1.67	$1.90	March 2008
Circadian Technologies	$0.58	$1.03	February 2008
Patrys	$0.10	$0.50	December 2007
Bionomics	$0.22	$0.42	December 2007
Cogstate	$0.18	$0.13	November 2007
Sirtex Medical	$1.78	$3.90	October 2007
Clinuvel Pharmaceuticals	$0.20	$0.66	September 2007
Starpharma Holdings	$0.23	$0.37	August 2007
Pharmaxis	$1.30	$3.15	August 2007
Universal Biosensors	$0.55	$1.23	June 2007
Biota Holdings	$0.33	$1.55	March 2007
Probiotec	$1.40	$1.12	February 2007
Peplin Inc	$0.30	$0.83	January 2007
Arana Therapeutics	$0.82	$1.31	October 2006
Chemgenex Pharma.	$0.50	$0.38	June 2006
Cytopia	$0.20	$0.46	June 2005
Acrux	$0.48	$0.83	November 2004
Alchemia	$0.12	$0.67	May 2004

Portfolio Changes – 19 Dec 2008

IN:
No changes

OUT:
No changes

Progen Update

In last week's edition of Bioshares (293) we posed a number of questions to the board of Progen and the Progen Shareholders Group (PSG). We have since received a response from the PSG, and this group's answers are published below. For the benefit of readers, we firstly repeat the questions.

Questions for the Progen board

1. How many licensing proposals were rejected by the Progen board for PI-88 and what was the value and terms of those offers?
2. Why was recruitment in the Phase III trial so difficult to achieve, given that a global contract research company was employed and that liver cancer is a disease that has a high prevalence?
3. Was the Phase III trial protocol changed in such a way that recruitment was hampered?
4. Was negative side effect data from the Phase II prostate cancer trial, released in February, a major contributing reason for the cessation of the Phase III trial?
5. Were any senior executives of the firm found to responsible for the failure to progress the Phase III trial?

Questions for the PSG

1. What is the identity of the Taiwanese company that has expressed an interest in PI-88, who are its backers and shareholders and what are its financial resources?
2. If there is such strong interest in second generation compounds, including '524', which are supposedly less toxic, why persist with the development of PI-88?
3. Why is an unsecured $US3 million loan required from Progen by the un-named Taiwanese company to fund the Phase III clinical development of PI-88?
4. How much capital would the PSG aim to return to shareholders?
5. If the PSG did not wish to develop any second generation compounds (500 series compounds), what would be the focus of the company?

PSG Answers

Question 1

What is the identity of the Taiwanese company that has expressed interest in PI-88, who are its backers and shareholders and what are its financial resources?

Answer

The Taiwanese company is a privately held pharmaceutical company that has been in business for more than 30 years. It supplies a broad spectrum of pharmaceutical products to the Taiwan/China market, including both OTC and Rx products. Its sales revenues exceed $150 million/yr. The company proposes to fund and manage a CRO to conduct a pivotal Phase III trial of PI-88 and assist in preparation of a regulatory submission for approval to market PI-88 in Taiwan and other S.E Asian markets where there is a high incidence of liver cancer. Contrary to inferences that may be drawn from Progen's ASX announcements, the company is not Medigen and has no commercial relationship with Medigen. As the company is private, its shareholders and financial resources are not in the public record and accordingly its financial bona fides will only be provided privately to Progen as required during negotiation of a definitive licensing agreement. The name of the company has been made available to Progen, but it does not wish to be identified publicly until there is certainty with respect to the outcome of the forthcoming shareholders consideration of the composition of the Progen Board.

The PSG has provided the Taiwanese company with a discussion draft term sheet for the purpose of ascertaining the Taiwanese Company's level of interest and willingness to support development and commercialisation of PI-88. The term sheet is a confidential commercial document which outlines only very basic terms necessary to begin the negotiating process for licensing PI-88. It is not, and clearly could not be, a comprehensive fully developed term sheet because the PSG is not Progen, nor is it an authorised agent of Progen, so it would be illogical for this company, or any prospective licensee to commit to a comprehensive set of specific financial terms. The term sheet does, however, demonstrate that there are indeed third parties prepared to negotiate and complete a PI-88 license agreement to develop and commercialize PI-88 in the important Asian markets where there is by far the greatest incidence of liver cancer. The PSG understands that Progen has other expressions of interest in PI-88. The PSG is prepared to give these consideration as well, provided they act quickly to produced definitive and competitive alternatives.

The PSG is very disappointed that Progen elected to breach confidentiality by commenting in an ASX announcement on certain terms of the term sheet provided to it in confidence by the PSG. The PSG also believes that Progen unfairly and inaccurately characterised the term sheet by selectively critiquing aspects of certain terms, ignoring other terms altogether and commenting on the absence of terms which would be the subjects of a more comprehensive negotiation of a definitive license agreement. For example, Progen failed to acknowledge that the term sheet contemplated a very substantial annual license maintenance fee, that the loan would be up to $3 million subject of course to negotiation of its use and applicable, albeit modest, interest rate, that the loan would be repayable upon default or failure to meet performance hurdles, and that Progen would receive a commercially competitive royalty. For the past 3-4 years Progen been promising shareholders that it would complete a PI-88 licensing agreement, but it has repeatedly failed to deliver on that promise. The PSG believes it can deliver a PI-88 license; perhaps not a blockbuster deal, but at least a deal with some value and upside potential.

The PSG believes that Progen (or PSG if its representatives are elected to the board) must execute a license agreement for PI-88 within the next three months on the best terms it can obtain because Progen has completely lost credibility to continue to develop the product itself and this once valuable asset will rapidly become worthless. Further, if Progen does not quickly license PI-88, and instead returns 100% of its capital to shareholders as suggested at its AGM, then PI-88 effectively become a total write-off; a very sad end to the enormous expenditure Progen has made on its lead product.

The PSG has informed Dr Mal Eutick, Progen chairman, that it is not wedded to licensing PI-88 to the Taiwanese company if Progen can very quickly execute a more favourable deal with any other party, however given that Progen has promised this for many years,

the PSG is not optimistic that the current Progen Board and management will deliver.

Question 2
If there is such strong interest in second generation compounds including "524", which are supposedly less toxic, why persist with the development of PI-88?"

Answer
The PSG only claims that it has expressions of interest in "524", which is a pre-clinical compound and accordingly should not be regarded as a significant contributor to cash flow in the near future. In a sense, it should be regarded simply as disposition of a non-cash asset which will otherwise be written off if Progen proceeds to a 100% return of capital. The PSG has potential access to other highly sulphated polysaccharides developed by another Australian company that are 5x the potency of PI-88 (in animal studies) without the apparent toxicity.

Question 3
Why is an unsecured US$3 million loan required from Progen by the un-named Taiwanese company to fund the Phase III clinical development of PI-88?"

Answer
The loan offered would be up to US$3 million and would be subject to a number of conditions. Its basic purpose would be to encourage the Taiwanese company to quickly complete the license agreement and focus significant resources on development and commercialisation of PI-88. The loan needs to be viewed in the context of the total agreement which would have many offsetting features. The amount of money and other resources the Taiwanese company will require to complete pivotal clinical trials and regulatory submissions will substantially exceed the size of the loan. Progen would have spent far more than US$3 million to complete the PI-88 Phase III trial and the regulatory submissions had it not ellected to abort the trial earlier in the year.

The loan would be executed under a loan agreement that obligates the Taiwanese company to repay Progen, but it would be unsecured in the sense that there would be no requirement for the Taiwanese company to establish a reserve account or put up a specific asset as collateral. As noted above, it is contemplated that the loan would become immediately payable in full if the Taiwanese company materially breached a term of the license agreement, defaulted on any of its obligations or failed to achieve agreed performance objectives. The only cost to Progen for offering the loan is the "opportunity cost" of using these funds for other more financially productive purposes (which are not foreseen at present. The only risk is timing of repayment and exposure to loss if the Taiwanese company declares bankruptcy (which seems highly unlikely).

Question 4
How much capital would the PSG aim to return to shareholders?

Answer
The PSG estimates that it will require $20-$30 million to provide the working capital required to support the contemplated "re-birthed" company for three years without returning to the capital markets. The "re-birthed" company will essentially be a new company that has a tightly focussed business plan aimed at development (in collaboration with third parties) of highly active polysaccharides for the treatment of cancer. The remainder of Progen's current approx. $66 million cash remaining after redemption of shares for shareholders electing "Option A"* would be returned to shareholders after including positive adjustments arising from liquidation of all other non cash assets and negative adjustments required to settle any residual expenses such as employee termination expenses.

Question 5
If the PSG did not wish to develop any second generation compounds (500 series compounds), what would be the focus of the company?

Answer
As indicated in the answer to question 4, the PSG has active discussions with other biotechnology companies with relevant polysaccharide technologies, development skills and intellectual property. Some of these are believed to be more active and potentially more commercially promising than the 500 series. The PSG believes it could draw these advanced technologies together in a collaborative effort to develop highly effective cancer treatments. The PSG intends to seek early pre-clinical development funding as part of early stage commercial agreements with major companies involved in commercialisation of cancer therapeutics. The PSG intends the rebirthed company to operate as a "semi-virtual" company insofaras it expects to conduct a majority of the actual technology development via tightly managed contracts and commercial agreements with the third parties that already have the appropriate development infrastructure and expertise. This will be supported by a core of highly skilled experts in polysaccharides and clinical development.

*Editors Note:
The PSG proposes to offer Progen shareholders three options:

A. Payout of $1.10/share cash in return for cancellation of their shares,
B. Retention of their shares in a "re-birthed" company (NewCo)
C. A combination of payout of a portion of their shareholding at $1.10/share and retention of the remainder as shares in the re-birthed company.

According to the PSG, shareholders who do not elect any of the three options or do not return their election forms will be deemed to retain their shares per option 2.

Addendum – The Global Financial Crisis and the Future of Australian Biotech

In *Bioshares* 291 we published a number of contributions from CEOs and other industry figures on how biotech companies need to be addressing challenges that have aoccurred courtesy of the global financial crisis. One contribution, from Peter Smith, did not make it in time, due the writer being in transit at the cut-off time.

Look out for US healthcare reform

Pete Smith
CEO Alchemia

> *" The Aussie biotech industry will not emerge stronger from this downturn as it did the last, but there will be companies that are well managed with sound business models that will survive and do well."*

1. What do businesses need to do survive the sea change that is occurring in global finance (ie what to do for the next 6-12 months)?

This one is simple; quoted companies must cut costs to survive. Any business plan that relies on raising money on the back of future clinical data is going to struggle. There will be exceptions of course, but for the majority of companies it is going to be very tough. The market is punishing even the threat of share issues, and rights issues are treated with disdain in Australia at the best of times.

Privatisation is an excellent option but, from personal experience, is extremely difficult to execute. We may see hybrid financing options emerge, such as attracting private equity into individual projects by selling part of future revenue streams. The royalty companies do this all the time but venture/private equity is also prepared to look at such models.

For companies with multiple projects, spinning out technology and getting private equity into the new entities may also be a good way of laying off costs whilst maintaining the pace of development of that technology, and at least retaining a share of the future upside.

2. What will be the effects of a prolonged finance drought and what new sources of capital and approaches to funding do you think will emerge or dominate (ie thinking beyond 12 months)?

The one area of finance that tends to hold up in turbulent periods is venture capital. Poor funding environments represent a fantastic opportunity for such funds which, depending on their maturity, often have some cash available for cut-price opportunities. In Australia, GBS and Starfish have recently closed funds and there is plenty of cash in the US.

The public markets are likely to be a disaster area for at least the next 12 months as we experience the washup from the credit crunch. We may have reached the bottom in share price terms but it is unlikely that money is going to be flowing any time soon.

3. Is biotech dead?

No, biotech is certainly not dead. The end market for biotech products is the pharmaceutical industry which is highly counter-cyclical. People do not stop getting ill because of financial crises and, whilst the value of assets may decline, individuals' desire for health and wellbeing will continue.

That said, the pharmaceutical industry is under pressure due to patent expiries and a paucity of new products and, whilst these facts are often cited as a driver for pharma-biotech deals, the reality is that when big pharma suffers, so does biotech. Personally I am more concerned by the election of a Democrat in the US as a negative for the sector (I otherwise applaud it).

The biggest funding drought in biotech history started in 1993 after the election of Bill Clinton and the political push by his administration for healthcare reform (it was blamed at the time on the failure of **Synergen**'s Antril and **Centocor**'s Centoxin).

It is abundantly clear that the massive price differential between the US and all other markets for pharmaceuticals is unsustainable and the juxtaposition of the election of Sen. Obama and the financial crisis may increase the focus on drug costs in the near future.

4. What opportunities exist for small life science companies in the current biotech downturn?

Generics, supergenerics and product repositioning is the place to be – especially when the developing world is likely to be the engine for future growth. I wouldn't invest in blue-sky for the time being, this is no time for dreaming.

For investors it is an interesting time. There were some great performances after the last funding drought from companies that had straightforward technology and clear commercial plans. The Aussie biotech industry will not emerge stronger from this downturn as it did the last, but there will be companies that are well managed with sound business models that will survive and do well. Unfortunately there will be a number of potentially good products that are lost along with the rubbish; but that's business. There has been a lot of crap in the Australian biotech sector for too long and a good purge may not be such a bad thing.

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.

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

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