
Consolidation

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Alan Williams

is the founder of Managing Resources, a consultancy focused on the bioscience industries. The company undertakes strategic assignments and, through its network of associates, also assists public and private sector clients with regulatory affairs, investor relations and human resources development. Prior to founding the company, he was an investment manager in a venture capital company; before that he held marketing and licensing positions in Fisons working with the agrochemical and pharmaceutical divisions. He holds an MA from the University of Oxford where he studied chemistry.

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Abstract The author has previously suggested that new strategies are required to reduce risk in the biotechnology sector. Consolidation, through mergers and acquisitions, is a strategy that will address the industry's needs. But there are many obstacles to consolidation. These are reviewed and suggestions made for overcoming them.

Introduction

For several years there has been a steady process of consolidation among the larger pharmaceutical companies. Despite this activity, the pharmaceutical sector remains fragmented with no company having much more than 5 per cent of the world market, although three are close to each other at this level. This is in stark contrast to the situation in the other research-intensive life science industry, agrochemicals, where the leading five companies (Novartis, Monsanto, Zeneca, Du Pont and AgrEvo) control 47 per cent of the world market,¹ with Novartis alone having 13 per cent. The agrochemical industry has been consolidating rapidly since the late 1970s and has progressed further than the pharmaceutical industry.

The pharmaceutical consolidation that has occurred so far has been driven by a number of factors. One stated motive has been achieving critical mass in some aspect of the business, usually in R&D, another has been cost savings through removing duplication in head office staff or sales forces, while a third reason has been bolstering a product range damaged by patent expiry and generic competition.

In the same period, many biotechnology companies have become substantial operations with sound financial positions. Amgen, Genentech and Chiron are the most obvious examples. Yet these are merely the tip of the pyramid of a sector which now contains some 2,500 companies world-wide.

The key question addressed in this paper is whether the biotechnology sector is now also ripe for consolidation.

Mergers and acquisitions among pharmaceutical companies

Examples of the consolidation that has been taking place in pharmaceuticals include Bristol-Myers with Squibb, Smith Kline French with Beecham, Roche with Syntex and later with Boehringer Mannheim, Glaxo with Wellcome, Hoechst with Marion Merrell Dow, American Home Products with Cyanamid, Ciba with Sandoz, Pharmacia with Upjohn and Rhone-Poulenc with Rorer. It has been noteworthy that most of these deals have been international with many bridging the Atlantic Ocean, but none has involved partners hailing from anywhere except North America and Western Europe; the Japanese have

Alan Williams
Managing Resources Ltd,
18 Topcliffe Way,
Cambridge,
CB1 4SH, UK
Tel: +44(0) 1223 566158
Fax: +44(0) 1223 566159
E-mail:
100072.3465
@compuserve.com

shunned these deals or have been shunned by their peers.

The consolidation of the pharmaceutical sector is not yet finished with SmithKline Beecham having declared an interest in joining with American Home Products or Glaxo/Wellcome. It would be a brave bet to predict that none of these companies will be involved in a deal before the end of 1998.

Pharmaceutical/biotechnology acquisitions

While pharmaceutical companies were consolidating, most were also acquiring biotechnology companies or controlling interests in them. Roche holds a majority of Genetech, Ciba (now Novartis) was a major investor in Chiron, Sandoz (also now Novartis) purchased Systemix and Imutran, Glaxo bought Affymax, Lilly bought Sphinx and HMR now controls Selectide.

Pharmaceutical/biotechnology relationships

Apart from the acquisitions and controlling interests mentioned above, every major pharmaceutical company has a raft of relationships, often involving a minor equity holding, in various biotechnology companies; the 20 most active pharmaceutical companies were involved in some 400 deals in the period 1993–97.² Doubtless some of these relationships will progress to a controlling interest, if not complete ownership, in due course.

From the point of view of the biotechnology sector these relationships are usually considered to be critical because they address many issues of survival and development. They introduce cash (directly and as a result of the implied validation encouraging investment from public markets), provide collateral assistance (especially in clinical trial management) and a route to market (usually in most of the world but sometimes excluding some territories).

Risk in biotechnology companies

Biotechnology companies face a wide range of risks. Non-performance or inadequate performance of the technology is a key issue as has been demonstrated by several companies attempting, but failing, to develop products for toxic shock syndrome. In addition, all biotechnology companies are subject to a high degree of financial risk. Inadequate funding can occur because of factors nominally under the control of management, for example the performance of the company's programmes, and because of factors beyond the range of the management's control. An acute external problem is adverse market sentiment arising from poor results from other players in the sector leading to an investment famine; there have been periods of a year or more when public markets were disinclined to buy any biotechnology stock.

To find alternative sources of funding, and to address other business development issues, biotechnology companies typically seek to establish relationships with much larger partners, and the preferred partners tend to be the global pharmaceutical giants. Lilly, Glaxo/Wellcome, Bristol-Myers Squibb, Pfizer, Novartis and SmithKline Beecham are usually on the visiting list of every healthcare-oriented biotechnology company which seeks a partnership. Companies outside the top 20 or 30 are much less likely to seem attractive because they are relatively less cash rich and have less market presence. But, even more, in the context of impressing financial markets, having one of the top ten pharmaceutical companies as a partner is believed to be a very strong point; this is rather like the *de rigueur* requirement of being audited by one of the big accountancy firms.

However, the prevailing partnering model may itself be inherently risky as was argued by the author in a previous paper.³ The fundamental argument is that the larger, and so more attractive, pharmaceutical firms are inundated with possible inward licence opportunities. An amount that is for them a small investment secures an option to a piece of technology

which may turn out to be of interest and, in any case, is kept from a competitor. But the purchase of the option does not oblige the pharmaceutical company to carry the product through to market and it will not do so if a more attractive opportunity becomes available (even these cash-rich companies have to make choices). On the other hand, non-exercise of the option, or a later withdrawal, may be disastrous for the biotechnology company. Johnson & Johnson's decision to discontinue work with Amylin's pramlintide, apparently in favour of a product from Ergo, reduced Amylin's share price by over 50 per cent in March.⁴ When SmithKline Beecham announced, in May, 1998, its intention to pull out of the frovatriptan development programme, despite describing it as 'particularly promising'⁵ only two months earlier, Vanguard Medica's shares fell by 27 per cent in one day. These are merely the most recent, at the time of writing, breakdowns of deals with damaging consequences for the smaller partners, but they follow a long line of such events.

Accordingly, it is proposed that biotechnology companies should consider alternative development strategies which allow greater reliance on self-help and lower dependence on large pharmaceutical companies.

Alternative strategies

The main alternative strategies available to biotechnology companies were postulated previously by the author.³ Those implying a relatively greater degree of independence than the partnering model were: bootstrapping, low-margin products (and services) and consolidation. These are not mutually exclusive. However, it is simpler to consider them one at a time.

Bootstrapping

Bootstrapping is the primary strategy if the aim of a biotechnology company is to retain control of its destiny, to the maximum extent possible. This strategy implies that it should seek to bring its products to the

point at which they are approved for marketing. Decisions made at that point will allow it to exercise the maximum degree of freedom in appointing marketing licensees, and possibly manufacturing licensees as well, and will probably enable the best commercial terms to be negotiated. Chiroscience pursued this strategy with its development of laevobupivacaine which it did not offer to license until very late in the approval process, when Zeneca became the favoured party. But reaching the stage of approval for marketing demands that the company should have been able to raise sufficient funds and also have been able to muster sufficient skills in clinical medicine. This is, of course, harder and more expensive with a totally novel molecule rather than with a modification of an established product, as was the case with the Chiroscience/Zeneca deal.

Low-margin products

Acquiring low-margin products, or providing contract or manufacturing services, has been a strategy adopted by a number of firms. The acquired products can be used to help to establish a presence in the market sector where the company expects to be selling its lead new product (this was the strategy adopted by Neurex in marketing Corlopam as a precursor to its novel product, SNX-111). Alternatively, manufacturing skills for the products are honed by providing services for others (Celltech and Hybridon followed this route). However, there is a view, frequently coming from investors, that managing operations of this type requires an undesirably large diversion of management effort. Many earlier proponents of this strategy have discontinued it; Celltech, for example, has sold its Biologics division to Lonza and it has been suggested that Chiroscience will sell its chiral manufacturing operation.

Neither bootstrapping nor low-margin products/services successfully addresses significant issues faced by biotechnology companies. Neither ensures a large enough product portfolio to cope with adversity,

regulatory or financial, nor a critical mass sufficient to sustain the skill set that is needed for clinical development. Something additional is required.

Consolidation

Consolidation is a strategic initiative which addresses many of the issues faced by biotechnology companies. If, over time, 10 or 12 biotechnology companies were brought together, they could have critical mass in the full range of development skills, financial resources to sustain programmes, the ability to drive products to regulatory approval and the opportunity to have a high degree of control of marketing and distribution.

A small number of biotechnology firms have decided to pursue acquisitions and assemble portfolios of products and skills. They are finding ways to create organisations capable of taking new products to approval, largely under their own control rather than as junior partners to major pharmaceutical companies. In the USA, Arris is a leader; its deals with Khepri and Sequana are clear indications of the path it is taking. Similarly, Elan has moved dramatically forward through purchasing Athena Neurosciences, Sano and, most recently, Neurex at a total cost, represented largely by paper, of some US\$1.7bn. Oxford Molecular has also been driving through a series of acquisitions, tightening its control in the bioinformatics field.

Given that consolidation, through an active acquisition strategy, builds critical mass, it may be considered peculiar that it has not been a more common strategy in the biotechnology sector. After all, the leading pharmaceutical companies seem to think it is an essential strategy for them, irrespective of a lack of compelling evidence that they have been successful with it (the Pharmacia and Upjohn deal is not widely considered to have been beneficial to anyone except the bankers and lawyers).

Can it be that just a few biotechnology companies, such as Arris and Elan, are the only ones to perceive the opportunity? While there has been activity by these, and

a few others, most biotechnology companies have stood aloof and retained their belief in partnering. It appears that widespread adoption of the acquisition and consolidation strategy has been prevented by several factors.

The factors presently limiting the development and implementation of consolidation strategies include: investor opposition, management issues, share options and culture.

The impact of investor opinion

Investors typically hold portfolios and have a desired degree of exposure to biotechnology stocks; within the biotechnology sector they have chosen to hold shares in certain companies in the light of their perceptions of the prospects for future gain.

Finance theory suggests that investors can, at very low cost, achieve diversification of their portfolios to achieve the desired mix of risk and reward. There is a view, strongly held by most investment managers, that risk and reward balancing is their business rather than allowing company managers to diversify by acquisition. Indeed, acquisitions are often held to be more in the interests of company managers than of shareholders. This is because managers are heavily committed to a single company and are very vulnerable to its failure in terms of continued and future employment; consequently, acquisition is generally perceived as reducing management risk.

However, managers of *biotechnology* companies that follow the acquisition route may help investors to reduce risk. There are two arguments in favour of this proposition. The first is that investment in each biotechnology company is inherently risky and carries a significant chance of failure. If two companies are kept separate both may fail because neither achieves critical mass and both are dependent on too few product possibilities. If they come together they may survive and prosper to the benefit of both managers and investors through reaching critical mass (this is not

an argument for gigantism *per se* but merely an observation that larger operations are less likely to be sub-critical than small ones). The second reason is that there will always be some duplication of management skills and a merger would release some individuals with a consequent saving in costs. This saving would reduce burn-rate and might itself reduce the risk of financial failure.

Holding to the precept that diversification is their function, investors seem not to be enthusiastic about mergers and acquisitions among biotechnology companies at present. Private communications to the author suggest that investors in Chiroscience did not universally welcome the deal done with Darwin in early 1997. Similarly, a leading shareholder in Arris publicly opposed the proposed link between Arris and Sequana; the President of the General Partner of Biotechnology Value Fund was reported⁶ as saying 'we feel the enormous dilution associated with this transaction is not in the best interests of Arris shareholders. Based on our conversations with several other large shareholders, we believe our view may be widely shared'.

Investors, of course, hold the ultimate power to stop mergers and acquisitions through failing to grant approval for stock issue whether the deal is done for paper or through cash, financed by an issue. By doing so, investors may keep companies too small and create a greater risk of failure, from which they themselves suffer but may have contributed to. Therefore, it is possible that acquisitions among biotechnology companies will be good for managers and investors, even though it is conventional wisdom, which applies in more established industries, that acquisition is rarely in the interests of the acquiring company's shareholders.

Management issues

The top management of biotechnology companies usually consists of individuals who are prepared to take risks; if they were

not they would have remained in academia or in large companies. By definition, they tend to be confident, self-starting individuals. Many would undoubtedly welcome the chance to manage operations of a greater size and would observe that mergers and acquisitions would achieve this and reduce the personal risks that they face. However, merging two, or more, biotechnology companies would mean that some of the top managers would be redundant.

The clash of egos between two sets of senior managers poses a powerful disincentive to mergers. Indeed, it was suggested that Glaxo/Wellcome and SmithKline Beecham failed to consummate their proposed merger precisely because of the difficulty of accommodating two sets of senior managers (the same problem can be observed in other industrial sectors; it has been reported in the daily press that Citibank and Travellers are having difficulty in distributing senior posts in their proposed new company in a way that is considered fair).

Clashes of management egos are likely to be much more of an issue in bringing together several (to achieve critical mass) biotechnology companies over a period.

Share options

Typically, biotechnology companies are perpetually short of cash and aggressive capital formation is necessary. As a result, salaries of top managers tend to be relatively low when compared with pharmaceutical companies. However, share ownership and share options are usually very important components of management remuneration. Certainly the salary/options ratio often leans heavily towards options in a biotechnology company. Consequently, risk-taking senior managers will be averse to any development that significantly reduces the chance of cashing options at a considerable value some years later. A merger, which would crystallise options at an earlier date, may significantly reduce the ultimate reward available to at least some of

the managers. This problem therefore interacts with management egos to create a considerable disincentive for consolidation to be pursued actively by many managers.

Culture

Biotechnology companies are small, or have been for most of their existence, with relatively few employing more than a hundred or so people. The 317 publicly quoted biotechnology companies in the USA have 94,492 employees, an average of 298 each, but this includes the four giants (Amgen, Chiron, Genentech and Genzyme) which have a total of some 18,600 employees.⁷ The contrast with leading pharmaceutical companies (Merck 49,000, Johnson & Johnson 89,000 and Pfizer 46,000) is clear.

Like their cousins, the small and innovative entities in software and information technology, biotechnology companies pride themselves not only on the quality of their technology but on their corporate cultures. A typical cultural image comprises themes such as creative, fast moving, flexible, informal and everyone knows everyone else. Of course these themes tend to be diluted as companies grow and skill sets are compartmentalised, yet they are potent constituents of the existing culture in most biotechnology companies. Mergers and acquisitions threaten this culture and will lead to opposition from internal sources. No merger can ever be a true merger of equals. There will always be a perception that things have changed for the bad – 'we never did it like that before' – or that the essential characteristics of the previous organisation have been lost in a larger and, apparently, increasingly bureaucratic set-up.

These may be more perceptions than an accurate representation of reality but every Human Resources Manager recognises how much perceptions can affect morale and performance. Consequently, cultural considerations militate against growth by acquisition in this type of company.

Fugitives from Big Corporations (FBC), and there once was a company called this, seldom welcome their new, small companies growing into bureaucracies.

The way forward

The declining number of pharmaceutical companies and the burgeoning number of biotechnology companies create an increasing asymmetry. This leads to risk for the latter. Consolidation is inevitable because stronger companies will result. But, for the moment, there are many obstacles, of which the main ones have been outlined above, and merger/acquisition has not become an accepted event within the industry. However, there are signs that merger activity is increasing. In the USA the number of biotechnology companies has remained steady, at around 1,300, for four years according to Ernst & Young,⁸ despite the fact that several new ones are being formed each month.

Consolidation will be driven by a small number of exceptional managers who see the opportunities, who understand how to persuade investors and who are able to lead staff through the complex, difficult and upsetting integration process. These managers will need to overcome all the inertial mechanisms. Key among this is persuading investors to accept that consolidation will lead to critical mass and avoid the risks inherent in large numbers of sub-critical companies. When investors are persuaded of this the next issue will be finding ways to address the problems of management egos and share options.

Releasing senior management from merged companies, preferably on the general principle that pain should be shared, can be accomplished if share options can be maintained or crystallised in a way that adequately recognises the future value foregone. This will free a corpus of experienced managers to move on to new companies, and this opportunity needs to be made clear to the 'redundant' managers by investors. Indeed, an enlarged supply of

experienced managers will address a key concern of many investors that there is presently a shortage of this commodity to take on new projects.

Investors may well gain considerably from senior biotechnology managers being recognised as falling into two camps, the consolidators and the creators. The consolidators will be those capable of organising and managing those relatively few companies that can reach critical mass. The creators will be those who are capable of building companies, perhaps several successively, into entities that become attractive to their larger brethren.

For the biotechnology sector to mature it needs powerful and visionary managers to lead the inevitable consolidation and investors to recognise that their best interests will be served by identifying and supporting these individuals while

'recycling' others to develop new opportunities.

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