



feature

Biotech acquisitions by big pharma: why and what is next

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Leading pharmaceutical companies are increasingly making biotech acquisitions to help them refill their pipelines, but what makes a good acquisition target and what will be the impact of the present financial crisis on deals.

Introduction

The world's leading pharmaceutical companies, often referred to as big pharma, have characteristically focused on discovering chemical-based drugs, which are simple in composition and small in size, and hence called 'small molecule' drugs. Big pharma firms are well-established businesses with large cash reserves and their prevailing business model has been to produce medicines for chronic illnesses, which have a high prevalence. They have been heavily criticized in recent years for not pursuing innovative drug discovery and for focusing instead on developing 'me-too' drugs (products fourth or fifth in a given therapeutic class). Biotech companies, by contrast, can generally be defined as emerging firms with limited cash reserves which develop novel, often first-in-class, protein-based or chemical-based drugs. Protein-based drugs, also called biologics or biotech medicines, are large, complex molecules, which are produced within living microorganisms or mammalian cells.

The biotech market is growing at a much higher rate than the pharmaceutical market. In 2007, global biotech sales increased by 12.5%, whereas global pharmaceutical sales rose by only 6.4% [1]. This makes the biotech industry appealing. The acquisition of biotech firms by

leading pharmaceutical companies is hence gathering pace. Pharma-biotech merger and acquisition deals amounted to approximately US\$ 8 billion in 2005 [2]. This figure soared to around US\$ 23 billion in 2007 [2]. In fact, six out of the leading 10 biotech firms in 2005 have now been acquired by pharmaceutical companies (Table 1) [3–10]. The latest pharma-biotech megadeal was in March 2009, when Roche finally succeeded in acquiring Genentech after an eight-month long effort [4,11].

The amount that big pharma is prepared to pay for biotech companies is also on the rise. For instance, in 2008, Lilly bought ImClone for US\$ 6.5 billion [10]. It paid a premium of 51% over ImClone's share price to obtain full control of the company [10]. Paying a large premium is fast becoming the industry standard [7,9], again reflecting the high demand for biotech companies.

This article uses recent high-profile deals to illustrate the key factors driving the acquisition of biotech firms by major pharmaceutical players. The potential impact of the present financial crisis on biotech acquisitions is also analyzed. Please note that figures from 2007 have only been quoted in this article when information from 2008 was not available.

Biotech acquisitions by big pharma: the driving factors

The challenges currently facing big pharma are unprecedented. Each leading pharmaceutical company depends on a small number of blockbuster drugs for the lion's share of its revenues. A drug is called 'blockbuster' if it generates more than US\$ 1 billion annually. In the near future, a large proportion of the industry's blockbuster drugs are due to lose patent protection [12]. Once off patent, sales from a blockbuster product will sharply drop because of competition from cheaper generics [12].

To make matters worse, most pharmaceutical companies have weak pipelines. This is apparent when considering that the number of new medicines to be approved in recent years is nowhere near the highs observed in the mid-1990s [12]. It is difficult to see how pharmaceutical companies will make up for the expected loss of revenue when the patents protecting blockbuster drugs expire.

Innovative drug discovery has become particularly problematic as reflected by the small numbers of first-in-class products to reach the market [13]. This is because most of the 'low-hanging fruit' has already been picked off and because big pharma has focused heavily on

TABLE 1

The fate of the leading 10 biotech firms by sales in 2005 [3–10]

	Top 10 biotech firms by sales in 2005	Situation at this point in time (June 2009)
1	Amgen	Not acquired
2	Genentech	Acquired by Roche in March 2009 for US\$ 46.8 billion
3	Serono	Acquired by Merck KGaA in September 2006 for US\$ 13.3 billion
4	Biogen Idec	Not acquired. Unable to find acquirer in 2007
5	Gilead Sciences	Not acquired
6	Genzyme	Not acquired
7	MedImmune	Acquired by AstraZeneca in April 2007 for US\$ 15.6 billion
8	Chiron	Acquired by Novartis in October 2005 for US\$ 5.1 billion
9	Millennium Pharmaceuticals	Acquired by Takeda in April 2008 for US\$ 8.8 billion
10	ImClone	Acquired by Lilly in October 2008 for US\$ 6.5 billion

pursuing ‘me-too’ drugs. Bringing novel medicines to the market is appealing because they can command a price premium, which me-too drugs cannot.

Leading pharmaceutical companies have recently begun to focus on filling their pipelines with innovative drugs. Biologics are amongst the most pioneering and successful drugs this decade. They now account for 20% of all blockbuster drugs [1]. Because of their substantial cash reserves, which usually exceed many billions of dollars [14], big pharma companies have begun to buy biotech firms. Pharmaceutical companies have been late in entering the biotech space. This is because protein-based drugs were originally thought to be particularly risky to develop and because up-until-now big pharma could generate high profits from small molecule drugs alone, so had no real need to venture into new areas. Acquiring biotech companies allows major pharmaceutical companies to quickly become serious players in the biotech arena, rather than building up their own expertise in biotechnology from scratch.

Five reasons for biotech acquisitions

Biotech acquisitions can help strengthen the pipelines of pharmaceutical companies in five key ways. First, purchasing the right biotech company can allow a pharmaceutical company to enter a desirable therapeutic area, in which it has no presence. An example of this was Novartis’ acquisition of Chiron in 2005 to access the lucrative vaccines arena [8]. In another example, biologics accounted for only 7% of AstraZeneca’s pipeline before it acquired MedImmune. This figure rose to 27% post acquisition [7].

Second, biotech acquisitions can enhance a drugmaker’s existing franchise in a particular therapeutic class, allowing it to become a global

leader. For instance, before acquiring ImClone in 2008, Lilly had two marketed and 13 pipeline oncology drugs. Post acquisition, Lilly obtained Erbitux, a blockbuster cancer biologic, and numerous pipeline oncology products, three of which are expected to be in Phase III development in 2009 [10].

Third, drugmakers might purchase biotech companies to acquire their proprietary drug discovery technology platforms. For instance, Merck brought Sirna Therapeutics in 2006 to obtain its pioneering RNA interference (RNAi) technology, which is based on Noble Prize winning research [15]. RNAi therapeutics aim to silence specific disease-causing genes.

Fourth, pharmaceutical companies can harness the innovative culture at biotech firms to help them replenish their pipeline. For instance, Takeda acquired Millennium Pharmaceuticals in 2008 [9]. Post acquisition, Millennium operates as a distinct business entity with its former CEO heading operations (<http://www.millennium.com/index.asp>). By doing this, Takeda has been careful not to destroy Millennium’s innovative ethos.

Fifth, non-U.S. companies might choose to acquire U.S.-based biotech firms to gain rapid entry into the American market. Two clear examples of this were when Takeda, Japan’s premier drugmaker, acquired U.S.-based Millennium Pharmaceuticals [9] and when German drugmaker Merck KGaA purchased U.S.-based Serono in 2006 [5].

The acquisition of a biotech firm by a pharmaceutical manufacturer often follows on from an earlier alliance between the two parties. Sanofi-Aventis’ purchase of vaccine company Acambis [16], AstraZeneca’s acquisition of UK-based Cambridge Antibody Technology [17] and Roche’s acquisition of Genentech [4] are prime examples of this approach. A partnership per-

mits drugmakers to test the waters to establish whether companies are a good strategic fit. Alliances can, however, drive away other potential acquirers. For example, in October 2007, Biogen Idec put itself up for sale, but no buyer could be found [6]. It has to be assumed that the principal reason for this lies in Biogen Idec’s complicated partnerships for its top selling drugs. It has an alliance with Genentech for cancer biologic Rituxan and with Elan for multiple sclerosis product Tysabri [18].

Cost cutting is a major feature of recent big pharma mega-mergers. It however plays a much smaller role in pharma-biotech acquisitions, where filling ‘anaemic’ pipelines is the principal consideration.

What are the benefits for biotech companies of being acquired by big pharma? For big biotech corporations, which can develop and commercialize medicines themselves, creation of shareholder value is the key reason. The acquirer has to pay a premium over a company’s share price to purchase the business. For smaller biotech firms, which do not have the resources to bring their drugs to the market, big pharma’s funds and expertise are additional drivers.

Biotech acquisitions by big pharma: the impact of the financial crisis

The current financial crisis in the U.S. is regarded as being the worst since the Great Depression of the 1930s [19]. Big biotech companies, such as Amgen and Genzyme, can be expected to ride out the economic problems. Why? Although people cut back on spending during times of financial hardship, drugs continue to be a necessity, so biotech firms with high-earning medicines on the market will remain profitable. In addition, big biotech companies have large cash reserves and relatively little debt [20]. This means that the burden of meeting principal and

interest payments on debts is small. Big biotech companies in essence have similar strengths to big pharma companies.

The fiscal crisis might cause leading pharmaceutical companies to focus more on acquiring small rather than large biotech firms, because the former have now become particularly appealing (discussed below). The crisis has also caused banks to slash borrowing, making it more difficult for pharmaceutical companies to obtain large loans to buy costly big biotech firms (pharmaceutical companies' cash reserves are generally by themselves insufficient to buy big biotech businesses).

Three pharmaceutical megadeals have occurred this year: Pfizer's acquisition of Wyeth [21], driven largely by Wyeth's capabilities in biological drugs and vaccines, Roche's acquisition of Genentech [4] and Merck's acquisition of Schering-Plough [22]. It is worth considering whether they will spark off further mega-mergers. This has historically been the case as competitors attempt to remain competitive by also merging or acquiring companies.

The impact of the economic turbulence on small- and medium-sized public biotech companies could be dire. In general, such companies are not profitable and hence require periodic infusions of cash to continue funding their drug discovery programmes. Traditional financing options – such as secondary public offerings, borrowing and private investor funding – are largely unavailable right now. As a consequence, the amount of capital raised by the biotech industry has plummeted – down 56% in 2008 versus 2007 [23]. Moreover, 45% of biotech firms presently have less than one year's cash [24]. Therefore, biotech companies might be forced to offer themselves for sales to avoid bankruptcy.

In addition, share prices of biotech firms have fallen steeply because of anxiety about the financial markets. The Burrill Small Cap Biotech Index and the Burrill Mid Cap Biotech Index, key indicators of the stock performance of small- and medium-sized biotech companies, have fallen 67% and 27%, respectively, since the beginning of the year (as of 10 June 2009) [25]. In comparison, the Dow Jones Industrial Average, a key yardstick of U.S. stock performance, has had an overall shift of 0% [20]. Therefore, small- and medium-sized companies are now cheap, appealing acquisition targets for cash-rich big pharma companies.

Finally, small private biotech firms have also been badly affected by the economic crisis. Early stage companies, which are normally funded by

private investors and venture capitalists, traditionally embark on an initial public offering (IPO) to raise finances to grow. In the present fiscal climate, this route of financing is no longer a realistic option, which is demonstrated by the fact that in 2007, 28 biotech companies completed IPOs compared to only one firm in 2008 [26]. Therefore, once their cash is depleted, firms might be forced into trade sales with pharmaceutical companies, which, because of their position of strength, will dictate the terms of the deal.

Concluding remarks

The ongoing financial crisis presents an immensely challenging environment for small- and mid-cap biotech companies because they are characteristically unprofitable and securing money to continue to fund their drug discovery programmes has become incredibly difficult. Large numbers of biotech companies consequently face the prospect of going bankrupt. The impact of this possibility is already being felt as smaller biotech firms attempt to reduce their expenditures. For instance, since September, 2008, 34 biotech companies have laid off at least 10% of their workforce [24]. Furthermore, biotech companies are aggressively scaling back on R&D programmes [27].

Leading pharmaceutical companies, which possess considerable cash reserves, have weak pipelines. The current financial crisis provides them with an excellent opportunity to strengthen their pipelines through the acquisitions of biotech firms, which have heavily depressed share prices and which are open to the idea of selling themselves to avoid bankruptcy. Nonetheless, biotech acquisitions need to be backed by clear strategic rationales otherwise pharmaceutical companies risk ending up with assets that add little value.

Unfortunately, one danger of the economic crisis is that many first-rate biotech companies might simply go out of business, which will, in the end, be detrimental to the biotech industry, to big pharma and ultimately to patients.

Conflict of interest

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