



Equity Investment as an Innovation Tool

Corporate venture capital can offer a strategic boost to firms that maintain pipelines of innovative products.

Pharmaceutical companies are engaged in an uphill struggle for growth. The challenge of the creation and maintenance of a promising drug pipeline is compounded by the pressure of expiring patents on existing products, where they lose their markets to cheaper generics. When the pipeline of successor drugs is not enough to maintain their past level of sales, this then results in what is known as a “patent cliff”.

Pharma companies take on big risks when developing new drugs. In a **paper** for INSEAD GEMBA, we found that 40 percent of the pharma industry’s R&D spending occurs in the activity through phase one of clinical development. The chance of an investigational drug – one that is under study but not legally available – making it as far as phase one has a less than one in 10 chance of ultimately becoming an approved medication. From phase two onwards, the odds improve but the attrition rates for internally developed compounds have not noticeably improved over time, despite investments in technology meant to weed out weak candidates. Nor have new drug approvals kept pace with increased R&D spending. The underperformance of the traditional R&D operational model that relies on developing proprietary resources within a firm is at least partially due to the explosion of knowledge and

technology in life science. The knowledge intensity and speed of biotechnology has shifted the locus of innovation to a network of learning rather than within any single firm.

This is causing pharmaceutical firms to look for new ways to tap into innovative sources of drug development outside their organisational boundaries and they are increasingly engaging in “open innovation”, i.e. external partnerships with other companies and research institutions to identify promising projects for development. Open innovation appears to increase R&D effectiveness. According to a study by Deloitte, the success of drug candidates sourced through open innovation is approximately three times higher than those sourced through in-house R&D.

Invest to innovate

Open innovation can come in different forms including outsourcing, asset specific licensing and more general research alliances. Increasingly, equity investment is a tool for enabling innovation. Corporate equity investment, which generally takes the form of direct minority equity investments in small, privately held biotech firms, represented more than a third of the cash invested in early-stage biotech firms in the U.S. in 2014, up from less than a

fifth in 2011/2012.

What do equity investments bring to the table and why should one consider an equity component as part of an open innovation project? Without equity, open innovation in pharma typically consists of the in-licensing of one or more investigational drugs, in which the partner firm commits to a research programme with the objective of proposing multiple investigational candidates and the pharma firm has the right to obtain a license to the fruits of the programme. There is usually an up-front signing payment in the contract with further payments contingent on compounds progressing through phase two and three. Royalties are also paid to the partner on sales. If the biotech firm delivers a promising compound, the pharma firm handles further development and marketing. This approach can allow the pharma firm to reduce the risk of failure by developing an approved product without paying for it if it does not succeed. The firm also avoids the challenge of redeploying resources and personnel in the case of failure.

The equity difference

When an equity stake is involved in a partnership, the relationship between the investing and invested firms can be impacted in a number of ways.

For investing pharma firms, equity can be a means to obtain information on the investee's finances and operations, as well as strengthen the quality of relationship through board participation and/or oversight. Another important factor, albeit not relevant to the ultimate success of the product candidate, is financial engineering. Under an in-licensing deal structure, contract payments are expenses that reduce net profit, whereas equity stakes are not. They are considered assets, which allow the pharma firm to show smaller R&D expenditures and potentially increase the pharma firm's share of a project's success. Additionally, equity stakes can also be a method of marking territory against competitors, giving virtual exclusivity to their partnership. Lastly, a willingness to make corporate equity investments in innovator-funded ventures can be a prerequisite for pharma to gain access to ideas and talent in a competitive research environment in which the key scientists frequently wish to retain equity in their innovations.

There are, however, some downsides. Investing in smaller, non-listed companies can make such stakes illiquid and can be difficult to monetise. There is also an increased downside risk if collaborating projects are terminated or abandoned, the investing firm will not only lose the sunk-cost as paid according to the contract agreement but also incur additional cost due to equity written down. This downside risk may make it harder for the pharma

firm to cut a struggling external project, recreating the inefficiencies of internal projects.

For invested firms, corporate equity investment is a means of ensuring the investing firm's alignment and commitment to their research alliance. With equity investment, the investing firm is more motivated to ensure the general success and value growth of the investees. Indeed, our conversations with several corporate executives indicated that investing firms often not only provide financial resources but also bring industrial knowhow, resources, and capability to the investees. Signalling credibility to third parties is another potential benefit of corporate equity investment to invested firms. From a financial perspective, compared to an equivalent contract payment, the equity investment provides unrestricted, untaxed general-purpose funds that the investee can apply to other research projects or general overhead. Differing from financing of independent venture capitals, corporate equity investment tends to have a much longer time horizon that insulates the operation of investee firms from the fluctuating and cyclic financial market.

In practice

To look at this model in practice, let us take the example of one of Europe's largest players, Sanofi. In Sanofi's pipeline of drugs and vaccines in phase one to three of clinical development at the end of 2015, 49 percent are the fruit of external innovation. Out of eight externally-innovated phase three candidates, half were sourced through equity research alliances. A number of phase one and phase two candidates are also the result of equity investments.

Sanofi also has minority investments in three companies that have contributed products in clinical development: Regeneron, Alnylam and MyoKardia. All three are multi-product R&D alliances where the investees are to propose a series of phase one candidates to Sanofi, which can choose to opt-in to a license for development and marketing.

Interestingly, Sanofi doesn't necessarily make equity investments in targets that have a single identifiable compelling product; it seems to invest equity when the target firm has a technological approach or platform with the capability of contributing multiple candidates for clinical development in future.

In addition to investing in "innovator" firms such as biotech, pharmaceutical companies have the opportunity to open their operations up to new developments and capitalise on them. While corporate equity investment is inherently exploratory, it also benefits from a longer time

horizon than traditional venture capital. Another way it differs from conventional venture funds is that its interest is not solely financial. Firms operating in corporate equity investment can better understand emerging technology without internalising the invested firms, gaining a toehold in interesting companies to ward off competitors that may be more focused on M&A.

The use of corporate equity investment is a growing phenomenon and still in its early stages, but anecdotal evidence suggests the model is an effective one for firms that need to maintain pipelines of innovative products.

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