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Spin-off and Innovation in the Pharmaceutical Industry

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Abstract Parent companies usually undertake corporate spin-offs to cope with higher competitive environments or when, in high technology industries, the differences between R&D investments and intangible assets are larger. Consistent with the recent “positive view”, spin-offs can be considered as a “proactive strategic choice” to foster innovation, develop new activities, being different from past strategic initiatives and, more generally, not being strictly connected to the corporate strategy of the firm. In order to investigate the relation between divestiture decisions and innovation, we conduct an explorative case study in the pharmaceutical industry to show how spin-offs can help firms to explore new opportunities for innovation, search for new funding and push to create the basis for future development.

Keywords Spin-off, Divestiture, Pharmaceutical Industry

1. Introduction

In recent years, divestiture activities have grown substantially worldwide. The volume and value of divestiture transactions increased until the end of 2009, reaching a record of 12,000 transactions, experiencing a global increase of 15% compared to 2005 (Deloitte, 2010).

Corporate divestiture is a major mechanism used by firms to streamline and refocus their businesses. It represents a firm adjusting its portfolio structure [1], which occurs when a firm spins off, carves out or sells off a business [2,3].

Strategy scholars have portrayed divestiture as a multidimensional and complex event, which may critically affect a firm’s performance [4,5].

Moreover, the international literature suggests that large and established firms experience problems in conducting new and more efficient innovative processes, because they are subject to organizational inertia and perceive unexplored patterns as highly risky [6]. On the contrary, small organizations are less constrained by organizational structure. Through the acquisition, assimilation and exploitation of firm-specific knowledge [7], small and medium enterprises, in fact, are more prone to commit different resources to new and hazardous processes of innovation; their “boldness” is often productive, since they have been found to achieve greater levels of innovation than large companies [8].

Established firms can usually support poor innovation through a reconfiguration of their resources, by

acquiring, removing or retaining assets [9,10]. Additionally, the empirical research suggests that large firms can improve poor innovation through a reconfiguration of their resources, by acquiring, removing or retaining assets [9-12]. In this area of studies, there is some evidence that large companies take advantage of divestitures, by benefiting from the innovation carried out within small and more “entrepreneurial” divested units. This is consistent with the recent “positive view” of divestiture [13,14], according to which, divesting is not necessarily a corrective action, carried out to remedy past strategic mistakes, but it can also be a “proactive strategic choice”, aimed at pursuing precise productive objectives.

The paper is thus organized as follows. We firstly review the literature on the relation between divestiture and innovation, with a focus on the impact of spin-off decisions. Secondly, we develop a theoretical model that investigates how the innovation strategy of firms is affected by divestiture decisions. To do so, we conduct an exploratory case study to show how and when innovation drivers can influence a firm’s decision to divest. Finally, in the last section of the paper, we draw some conclusions and implications.

2. Literature review: divestiture and innovation

Innovation activities usually stem from a reconfiguration of the available resources. In fact, innovation comes from those active and creative processes which redesign the internal and external boundaries of the firm, through the acquisition, the disposal, and maintenance of its resources. In other words, the process of resource reconfiguration can be viewed as a way to identify new innovative opportunities through a process of building, borrowing, and buying [15].

Among all the practicable strategies to boost a reconfiguration process, divestures are becoming a fruitful perspective [13, 15, 16]. Recent evidence, indeed, has shown that firms often divest their businesses but they maintain a relation with them and eventually consider reacquiring them at a later point [13]. Divested firms are able to push forward with innovation activities as a response to new opportunities. In this perspective, the proactive view of divestiture [17] underlines the existence of a positive effect of divestiture on innovation. Indeed, the achievement of innovation outcomes depends on the availability of managerial resources to be invested in innovation processes. In sum: the greater the attention paid by a firm’s management, the higher the results obtained by the innovation activities will be. By contrast, “overloaded” managers may pay less attention to the innovative process. In fact, time is one of the most salient constraints on managerial behaviour. Managers have to concentrate on many tasks simultaneously, thus a

selection process can occur in managerial behaviour. In this framework, divestures, viewed as a way by which to increase managerial resources, can be seen as a way to foster innovation inside the firm [17].

To sum up, this perspective suggests that the level of innovation of a firm increases with a divestiture operation. Furthermore, when the divestiture is a part of a greater reconfiguration of a firm’s activities, it is reasonable to expect a direct and positive relation between the decision - taken on a business as a whole - and the R&D activities developed by that business. Thus, if divestitures are implemented to release some resources to be invested in new opportunities, the cumulative and path-dependent nature of the innovative capabilities will address these resources towards technology areas of expertise already developed by the firm.

2.1 Spin-off decisions and innovation

A firm undertakes a divestiture operation whenever it has to sell or spin-off a division, a business unit, a product line or a subsidiary in order to offer it on the market as a new and independent firm [4].

Traditionally, divestures have been seen as financing operations or instruments used to gain a higher organizational efficiency, even through the correction of previous strategic decisions that may have become irrelevant for the firm [18]. Nevertheless, over the last years, a new perspective has emerged looking at divestures as a proactive choice [19, 11, 16] useful for launching new entrepreneurial initiatives or supporting the growth, the creation of value in and, in some cases, the survival of the parent company [14].

These considerations are a suitable basis to start investigating the main features and characteristics of a corporate spin-off operation. This analysis will serve as a preliminary to the study of the relationship between divestures, executed through the spin-off mode, and the innovation process.

Parent companies usually undertake corporate spin-offs to cope with higher competitive environments or when, in high technology industries, the differences between R&D investments and intangible assets are larger. Moreover, divestiture operations seem to be a profitable tool to be used when the market underestimates the firm due to its organizational structure; for a review see [14]. Frequently, firms decide to divest a business unit through a spin-off operation when its resources and competencies are really valuable, but their management, under the parent company control, leads to a lower efficiency [19, 18]. This is consistent with previous studies [20] that suggest how spin-offed business units are generally represented by

profitable activities that, after the divestiture process, can grow more rapidly than others. In fact, through the spin-off operation, the business unit becomes an independent firm and its shares are distributed pro-quota to the shareholders of the parent company [4].

Therefore, the decision to spin-off a business unit is connected to the choice of maintaining a connection between the parent company and the spin-off unit [13]. In fact, by acting in this way, the latter can profit from the support of the parent company in terms of resources, activities and knowledge. At the same time, the parent company lays the foundation to one day profit from the future development of the spin-off unit. The final effect of this process is a reverse phenomenon by which the single unit starts to support the parent company [21].

The idea that spin-offs can be the best instrument to explore new contexts is supported by the consideration that this form of divestiture can help the firm in finding a good trade-off between the risks connected to the exploration of new opportunities and the exploitation of existing ones, in which the firm can continue to operate. This consideration can be analysed also from a cultural point of view. For example, the unit can be equipped with a new management with an entrepreneurial style of leadership useful to cope with new markets, while the parent company can maintain its managers and their style of management.

Furthermore, the international literature has shown how divestitures can be used as a means to research and explore new settings beyond the traditional competencies of the company [13]. In this way, firms can invest in high-tech and/or R&D projects. Divestiture operations, in fact, allow companies to reduce risks. Moreover, they allow the spin-off unit to compete as an independent firm in the new competitive environment. In sum, prominent companies can decide to employ spin-off operations to develop new activities, different from past strategic initiatives and, more generally, not strictly connected to the corporate strategy of the firm.

Additionally, the parent company can be interested in those resources that can provide it with precious synergies within the whole portfolio structure. In this perspective, spin-offs can be effective instruments to expand firm's competencies and capabilities to discover new synergies. This is the reason why parent companies usually continue to collaborate with the spin-off unit even after the divestiture. This collaboration can lead toward the allocation of resources from the parent company to the spin-off unit or the sharing of knowledge and networks between the two firms. In this way, the collaborative relationship will influence the development of innovation positively [16].

Moreover, the unit could be the ideal space for developing innovation activities. Indeed, innovation stems from informal and decentralized structures where the diffusion of knowledge is wide, the hierarchical levels are few and the bureaucracy is low. The decentralization process provides the single unit with more managerial autonomy and control of resources, letting managers commit to more innovative projects.

Small firms, characterized by simple structures, can adapt themselves promptly to changes in the environment, due to the fact that they are closer to the market and they obtain information about new opportunities quickly. Besides, business relationships are easier to exploit and manage in small firms through their different functions. Usually, the units divested through a spin-off have a simple and decentralized structure; they are not often diversified and they are always focalized on a particular business.

3. A case study

Recent works [20] have shown a clear linkage between innovation efforts and performance in high-tech companies in Italy. In particular, they found a strong and positive correlation between innovation-related variables (e.g., innovation efforts, innovation protection, risk propensity) and firm performance. Starting from this evidence, in our case study, we investigate how spin-off decisions can improve innovation efforts and, as a consequence, can increase a firm's performance. Specifically, in order to investigate the relation between divestiture decisions and innovation, we conducted an explorative case study on one of the main firms operating in the Italian pharmaceutical industry.

For reasons of privacy we call this firm Alpha Pharma. Alpha Pharma is structured into three main business units: i) manufacturing, ii) marketing and sales, and iii) international markets.

The manufacturing business unit acts both as a business captive, providing the marketing and sales unit with the finished products, and as a supplier for third parties.

The marketing and sales unit is focused on the placement and selling of pharmaceutical goods on the Italian market, and managing a customer portfolio, composed of wholesalers, pharmacies, and hospitals.

Finally, the third business unit is the outcome of the internationalization strategy developed by Alpha Pharma through a two-step process: firstly, the firm has been focusing on the exports opportunities achieved by licensing out agreements with international partners, whereby 20% of its total turnover is now abroad;

secondly, in the near future, some branches will be opened in target countries to sell products with property trademarks.

As far as innovation and development activities are concerned, Alpha Pharma's business model is based mainly on two specific activities:

- *The line extension* of the product portfolio, driven by innovation to develop new pharmaceutical solutions in line with the level of compliance required and expected by patients;
- *Licensing in* for specific medicines to complete the therapeutic fields in which Alpha Pharma acts through international networking activities. Companies with potentially successful medicines, which are in the development process and that are looking for retailers in Italy, are contacted in order to create different types of relations (licenses, sales concessions, etc.).

Actually, Alpha Pharma was born with a different business model, mainly focused on research activities as its corporate mission rather than commercial activities [22]. This mission was once conducted by the Research and Development Business Unit, at a research centre located in the north of Italy, and later it was the object of a spin-off operation.

3.1 The development process

As previously mentioned, Alpha Pharma's mission, implemented through its R&D Business Unit, was based on controlling the entire process of developing the medicine. To understand the complexity and the ambitiousness of the goal, we propose a brief description of the process's contents and of its critical aspects.

The development process of a medicine from the generation of its molecule, provided with pharmaceutical properties, until its allocation in the market is, nowadays, very long and complex. The long period required depends on the numerous activities that have to take place and on their variety. These activities, even if similar from a molecular point of view, present each time their own uniqueness linked to the specific substance and its therapeutic aims, and a high complexity due to the number of competences, specializations and professions that are involved. In fact, scientists from different cultures, such as biologists, chemicals, bioinformatics, pharmacologists, toxicologists, pathologists, clinicians, patent specialists, and specialists in industrial production have to interact, exploiting the synergies and the opportunities coming from collaboration with other experts acting inside and outside the boundaries of the firm. This means establishing and managing relationships with people from hospitals, clinics, university laboratories, and so on.

The entire process, from the molecule to its patent, can last up to 12 years. Even if we look at the time to market only, this period lasts no less than 10 years. Empirical evidence shows that, during recent decades, these lead times seem to increase due to the higher complexity connected to the pharmaceutical industry.

This consideration, combined with the short length of patents' legal protection (20 years) and the increasing cost of research, raises the risks associated with research activities.

In short, the entire process is characterized by a reduction in incoming cash flows, more and more uncertainty, and by an extension of outgoing cash flows. This makes it mandatory for sponsoring companies to constantly monitor all the steps of the development, especially those related to longer times and higher costs.

Taking into account the high investments required by the process of research and development, together with the uncertainty characterizing this kind of activities, it is important to set some systems of control and some managerial capabilities to manage human and professional resources acting inside the firm or working with it.

To achieve this, the entire process is structured in sequential phases, each of them with specific targets to be reached. Each phase leads to an output which is to be critically analysed in order to decide whether to proceed or not with the following steps. According to this method, it is possible to identify seven different phases.

The first one, the discovery, ends with the identification of a molecule with specific pharmaceutical characteristics. This molecule is usually named the leader. In the second step, called preclinical, the leader is tested with animals, from toxicological, pharmacokinetic and medicinally dynamic points of view, to check its efficacy and security and to define a hypothetic dose for humans. With the third step, phase I, the experimentation starts to evaluate the tolerability, bioavailability and other pharmacokinetic and medicine dynamic parameters of the medicine on healthy humans. The next phase is the clinical development, which involves testing the product on a limited number of patients affected by the disease for which the medicine has been studied. This step, called phase II, aims to identify the right, efficient dose.

The next phase – phase III – calls for some clinical studies in different centres of research to conduct an analysis on a number of patients large enough to prove the efficacy of the medicine. After this phase has passed the process of patenting and the launch on the market will start.

3.2 The crisis of the R&D-based business model

R&D activities conducted by Alpha Pharma are guided by the aim of studying medical needs not yet satisfied by other firms. Even if Alpha Pharma has always worked on the osteoarticular field of study, during recent years, the research centre has focused its attention towards innovative areas not aligned with the core competencies of the firm, such as oncology and the study of the central nervous system. To conduct effective research in these contexts, some agreements with prestigious international private and public centres of research have been signed, building a project portfolio of more than 20 initiatives.

In establishing these partnerships and developing these projects, Alpha Pharma invested more than 100 million Euros in the last 10 years. This led to the development of a sort of research atmosphere that, in turn, influenced the mission of the firm and its culture at every organizational level. Acting in this way, Alpha Pharma improved its positioning in the market, increasing its brand awareness and reputation as a research company.

The complexity of the management of the process of medicine development both on a purely scientific level and from the point of view of the financial implications have imposed a clear afterthought in the strategic mission: the substantial likelihood of the failure of the investments needed to carry forward the research pipeline, even in the final stages of development, has been considered a factor that is extremely risky, particularly for a company of medium size. To cope with this problem, since 2009, Alpha Pharma decided to streamline its research pipeline, focusing on oncology and turning to venture capitalists to fund the research and increase the attractiveness of its projects for potential industry partners.

Nevertheless, the participation of venture capital or private equity firms led to the entry of a new management component into the corporate structure.

Alpha Pharma, being a wealthy company from an economic point of view, had the option to decide to not allow a private equity investor to enter its capital, considering that it would have had a considerable influence in the decision making processes concerning the whole company, not only the development process.

This and other considerations led to the birth of Beta Research.

3.3 The spin-off: BETA Research

Beta Research was founded in July 2011, as a spin-off of the Research Division of Alpha Pharma. Beta, despite being an independent company, is still part of the

Holding Company, which also controls Alpha Pharma, which, in turns, owns the 100% of Beta Research.

The spin-off put together a research centre, with researchers who had previously worked at Alpha Pharma and intellectual property rights developed on research projects. It is equipped with a proper management team to achieve its economic objectives and it can profit from a very prestigious international scientific board to support the development of research projects.

The research activities of Beta Research are mainly focused on the development of a biotechnology platform in addition to the development of its research pipeline, for which it is seeking a financial and industrial partnership.

Moreover, Beta Research is still involved in the management of the Alpha Pharma pipeline support, which provides legal counselling and development in laboratories on approved projects.

In order to achieve growth and development goals, firms acting in the pharmaceutical industry need stability to make them less vulnerable to the risk of issues arising from the research field. At this stage, the revenue growth is entrusted to national and international brokers, however, Beta's research participation at major events is expected to spread the production capacity and the company's "know-how" in the area of oncology research.

Alpha Pharma had a very ambitious objective: to move from its traditional field of research (the osteoarticular field of study) towards new areas, such as oncology and the central nervous system. Osteoporosis and cardiovascular gills are satisfied markets where the physicians and the patients currently have a sufficient supply of drugs available. On the contrary, in oncology and central nervous system pathologies, there is still a lot to be investigated. Starting from this simple consideration, Alpha Pharma launched a research programme conducted by one of its business unit. Notwithstanding the huge amount of resources invested over the years, the research activities in these fields of study did not produce satisfying results. To cope with this situation and recover the lost efficiency, the management of the firm decided to spin-off the research activities, creating a new structure with: on the one side Alpha Pharma with two divisions - marketing & sales and manufacturing - focusing more on the traditional markets and activities in which Alpha Pharma was and still is strong from a commercial point of view; on the other side the division of R&D named Beta Research, focusing on the development of a technology platform in the field of cell therapy, mainly used for oncology research.

The Beta Research spin-off was also born to create a vehicle in which the needs of the finance company could be reconciled with those of the financial market.

Furthermore, the creation of Beta Research allowed Alpha Pharma to solve another problem connected to its positioning in the pharmaceutical industry. In fact, Alpha Pharma is known as a company specialized in the osteoarticular field. The presence of a bundle of activities in the area of cell therapy inside the boundaries of the firm could generate perplexity among stakeholders and scepticism and disorientation among other actors (especially partners and customers) acting in the same industry.

The creation of a spin-off has allowed the company to launch a new society specialized in the development of products in oncology. To strengthen the image of the new firm, a scientific board, made up of specialist scientists, was nominated to guide the research activities.

Finally, from a strategic planning point of view, the birth of Beta Research, even with all the uncertainties related to a start-up biotech company, seems to have put together the puzzle in terms of greater entrepreneurial and innovative logic. It is still too early to say whether Beta Research will have a history of success and if innovation obtained and proposed will develop a concrete business key, but it is certainly possible to say that Alpha Pharma, despite having invested heavily in R&D, was not very likely the most appropriate vehicle to ensure the success of their business activities in biotech research. However, the company has already registered some positive results: revenues and the EBITDA show a significant increase after the spin-off. Specifically, in the last three years, revenues moved from 68 to 101 million Euros, while the EBITDA presents in the same period a CAGR of 32.6% proving a strong recovery of efficiency inside the company.

4. Conclusion

The relationship between spin-offs and innovation is of particular interest and relevance. A review of the literature and an analysis of possible implications in terms of the innovative performance of the decision to spin-off reveals how spin-offs can actually encourage innovative performance. Specifically, we conduct an explorative case study to show how a spin-off can help firms to explore new opportunities for innovation, search new funding and push for the creation of the basis for future development and innovation.

The results of this study have two primary implications for theory and practice regarding the role of divestiture in innovation.

First, moving forward from the work of [13] and in line with recent studies emphasizing the importance of post-divestiture linkages between parent and divested units

[23], we have extended previous work by focusing on the innovation activities of divested units and analysing the design and outcome of a spin-off decision.

Second, our preliminary results are consistent with a positive view of divestiture [13]. Accordingly, divestiture is viewed not just as a result of a firm's failure but can also arise from a firm's superiority. The recent stream of literature on divestiture suggests that divestiture does not emerge just from responding to the internal threats faced by a firm, but is also a proactive strategic tool to respond to either external opportunities or internal threats [14].

Many opportunities remain for the generalization and extension of our findings to other contexts. Our empirical results are based on an exploratory case study of an Italian firm. In other parts of the world, the relation between divestiture and innovation might be different, and hence the magnitude of the effect could be affected by different institutional conditions.

Moreover, we focused our study on the pharmaceutical industry. Future research could start from these preliminary findings and investigate how industry-related characteristics can influence the role of divestiture in innovation strategy, testing our positive view in different industries. Finally, it would be interesting to test our insights on a panel dataset. Collecting data over time, it is possible to obtain multiple observations for each company. In such a case, a casual inference between divestiture and innovation could be made and more robust evidence could be obtained.

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