

Essays on M&AS and Innovation

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VALORIZATION

In this addendum, I outline the valorization opportunities for the empirical studies presented in this dissertation, including the managerial and economic relevance of the research topics, the innovativeness of the research findings, and their value for firm innovation and practices in management.

As explained in the introductory chapter, the main purpose of this dissertation is to develop a better understanding of the inter-relation between M&As and innovation, paying a particular attention to the antecedents and consequences of M&As. On the one hand, innovation has increasingly become an important way for firms to obtain and maintain a competitive advantage and to achieve a higher performance in the long run (Cassiman and Colombo, 2006; Conner, 1991; Hitt et al., 1997; Teece et al., 1997). On the other hand, M&As have become a popular strategy to access new knowledge, capabilities and technology assets, and know-how held by the acquisition target (Arora, Fosfuri & Gambardella, 2001; Capron, Dussauge & Mitchell, 1998; Cassiman, Colombo, Garrone &

Veugelers, 2005; Granstrand & Sjolander, 1990; Graebner, 2004). Nevertheless, despite the potential benefits M&As provide access to, a set of mixed innovation and performance results have been found. M&As studies report both positive and negative effects, but with a large body of literature documenting a negative impact of M&As on corporate innovation (e.g. Cassiman et al., 2005; Prichett, 1985; Ravenscraft and Scherer, 1987; see Veugelers, 2006, for a survey of the literature). These fragmented findings suggest that M&As are still not very well understood and that scholars still know very little about what makes M&As succeed or fail (Bower, 2001; Hoskisson et al., 1991; Jemison and Sitkin, 1986; Schweizer, 2005). Trying to add to this discussion, three research questions have been explored in this dissertation.

The first empirical study in this dissertation explores a mechanism by which firms can counteract the post-M&A negative effects on innovation. This study makes use of the literature that illustrates the importance of the transferability of knowledge across and within firms through individual talents (Kim, 1997; Song et al., 2003; Zander and Kogut, 1995) to explore the potential role that key inventors play in knowledge transfer in periods of reorganization and that can mitigate negative innovation performance effects in post-M&A periods. Previous

literature has highlighted that changes in aftermath of M&As disrupt firms' routines in the post-M&A period creating uncertainty that generates demotivation and cognitive barriers to knowledge exploitation (Jensen & Szulanski, 2004; Minbaeva, Pedersen, Björkman, Fey & Park, 2003). These studies have indicated that inventors react with departure or decreasing innovation performance (Ernst & Vitt, 2000; Kapoor & Lim, 2007; Paruchuri et al., 2006).

The results from the empirical analysis confirm the hiring of key inventors as a measure to enhance firms' innovation performance after an M&A. On the one hand, newly hired key inventors provide the acquiring firm with new skills, competencies, and experience gathered at their former employer that increase innovation performance of the acquiring firm by increasing its knowledge base (Barney, 1991; Groysberg et al., 2008). On the other hand, these newly hired key inventors improve the productivity of their new co-workers. Hiring new key inventors sends a positive signal to incumbent inventors, reassuring that innovation is of importance to the firm, even in times of corporate restructuring. Moreover, as inventors have a strong preference to work with higher qualified colleagues (Barabasi et al., 2002; Wagner and Leydesdorff, 2005), newly hired key inventors can also increase the motivation and productivity of incumbent inventors

(Allison and Long, 1990). From a managerial perspective, these results indicate that an appropriate human capital strategy around the M&A event can help avoiding a temporary decrease in innovation performance in the post-M&A period. The findings have important practical implications for executives being involved in an M&A, suggesting a proactive human resource strategy, avoiding a brain drain and stimulating the hiring of external key inventors. More importantly, the paper indicates that managerial attention during the M&A period should focus rather on the inventors that stay with the firm than on the inventors that are departing. This can be seen as good news for managers because it is relatively easier to foster and support the innovation activities of inventors that stay than to design attractive contracts for those inventors that are planning to leave the firm.

The second study takes a policy perspective on the topic of M&As and innovation and explores the potential of M&As as channels for knowledge dissemination. As explored on the first study of this dissertation, a major obstacle to realize innovation gains after M&As is the departure of the inventive labor force (Ernst and Vitt, 2000; Paruchuri et al., 2006; Kapoor and Lim, 2007). Taking the findings from the first as departure point, the paper empirically examines the patterns of mobility of

inventors during the post-M&A period to determine whether and to which extent M&As represent a mechanism of knowledge diffusion through mobile inventors (Kogut and Zander, 1992; Schumpeter, 1934). While previous literature only acknowledges the negative effects of inventors' departure in the merging firms' innovation, this study goes beyond to explore the potential positive effects derived from the post-M&A departure of inventors on third (non-M&A) parties.

The analysis from this paper shows that M&As are not able to capture the complete technical knowledge of both merging parties. The paper finds that about a 4% of the inventive labor force leaves around the M&A event to firms with similar characteristics as the M&A firms. This study is relevant from the policy point of view as current regulations mainly consider the potential effects that M&A-induced changes in the innovation activities of the merged entities, overlooking possible diffusion effects that M&As may have on the innovation activities of third non-merging parties (Haucap and Stiebale, 2016).

Finally, the fourth chapter of this dissertation examines an innovation mechanism that motivates pharmaceutical firms' decision to engage in M&As. In particular, this paper studies the impact that the expiration of patents, as a technological source of competitive advantage,

has on firms' decision to engage in acquisition activities. Previous literature has pointed the need for an adequate empirical research on acquisitions that deepens on the motives, industry sector and firm characteristics to understand the performance outcomes of acquisitions and the high failure rates (Bower, 2001; Pablo and Javidan, 2004; Schweizer, 2005; Sirower, 1997).

The empirical analysis from this study suggests that patent expiration is a triggering factor in firms' acquisition decision. This indicates that pharmaceutical firms resort to acquisitions when they need to fill the pipeline gaps left by expiring patents and to maintain revenue streams. The empirical results also show that innovative capability negatively moderates this effect. In particular, for pharmaceutical firms that possess a large basic research base and that have higher levels of R&D efforts, the effect of patent expiration on the decision to engage in acquisitions is not as pronounced. From a managerial point of view, the paper stresses the importance of innovation indicators as anticipating factors of acquisition activity. Moreover, this last chapter suggests that managers should pay attention to and plan for long-term innovation strategies. A clever patent portfolio management and strategic timing of patent applications, as well as strong internal research capabilities, can

avoid depletion on firms' patent portfolio and the associated disruptions in the pharmaceutical pipelines.

Overall, the studies presented in this dissertation are particularly useful for managers and policy makers, especially those dealing with innovation intensive industries or firms. As mentioned above, in the recent decades, firms' competitiveness has increasingly become dependent on its ability to keep up with innovative products and processes, and R&D activities, which stimulate innovation and improve firms' absorptive capacity. R&D activities lead to the creation of new technologies that can be used to develop new products that satisfy consumers' needs and market demand, or to develop new processes that lower the production costs, increasing market share, sales and profits. However, while firms' main innovation input comes from internal R&D activities, the increasing complexity of research, as well as the fast pace of technological change, technological and non-technological firms, rely on knowledge external to the firm obtained, among others, through M&As. The increasing importance of M&As has been reflected in the number and value of M&As transactions in the last couple of years with over 13,000 transactions representing over \$1.700 trillion in 2016 (S&P Global Market Intelligence, 2017). Thus research on the relation of M&As and innovation represents

an important venue for managers and policy makers to understand the factors that affect performance outcomes of acquisitions and the high failure rates. I hope that the studies presented in this dissertation shed some light in this direction.