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What Are the Effects of Acquisitions on Innovation?

Jing Chen
(Management, Marketing, and Information Systems, Business College/ Texas A&M Kingsville University, United States)

Abstract: Firms are expecting acquisition as an effective tactic to obtain innovation. However, prior literature documented that acquisition could, in contrast, hurt innovation. The inconclusive effect between acquisition and innovation is thoroughly studied from three theories: transaction cost theory, resource-based view, and financial agency theory. Specifically, the first two explain how internalization through acquisition helps save transaction costs, compensate market failures, and obtain general and specific resources to benefit innovation, while the last one (agency theory) provides theoretical evidence of why acquisition fails to meet the innovation expectation. Given the abundant theoretical background on acquisition, whereas, how different types of acquisition (e.g., vertical or horizontal acquisition) differently influence post-acquisition innovation is a quite unexplored field in strategy literature. This article aims to fill this gap by proposing that the impact of horizontal acquisition on innovation depends on the industry concentration level. While vertical acquisition, in general, brings innovation to the acquirer.

Keywords: acquisitions, vertical and horizontal, market concentration, innovation

I. INTRODUCTION

Faced with Faced with diversifying customer demand and intensively technology development, 2014 pwc report concluded that innovation had become an ever-important incentive for acquisition. Data show that, in the US 2014 alone, there are 39% CEOs planning for M&A; and 76% acquisitions that focused on innovations have achieved or exceeded their expectations. Usually, acquisitions add innovation through gaining access to valuable resources, compensating market failures of opportunism, uncertainty, and bounded rationality, enjoying the benefits of scale of economics, setting entry barriers to competitors, and enhancing production efficiency. However, success is not guaranteed. Every decision ranging from the pre-acquisition setup (e.g., capital and system development, personnel training and adjustment), potential targets evaluation (e.g., information collection and price negotiation) to post-acquisition resources deployment, absorption, and integration are costly and risky.

Therefore, to realize the full value of acquisition, it is critical to first understand the theories behind it. Based on acquisition, strategy, and finance literature, theoretical backgrounds of acquisition could be summarized into three classes: (1) transaction cost theory, (2) resource-based view, and (3) financial agency theory.

Transaction cost theory is used to explain a choice between company and market exchange. But in this article, I will extend it to explain why firms could add innovation through acquisition. The main reason to have firms is that the costs of using the market are too high, and that market fails (Coase, 1937). Let's first understand the situation from a cost perspective. In the market, there are both ex-ante and ex-post transaction costs. Ex ante ones are from identifying the partners, negotiating the prices, and determining the contracts. After the transactions, there are ex post costs derived from partner opportunisms and outcome uncertainties. Thus, when market costs are too high, it is better to internalize (a good internalization strategy is through acquisition) the economic activities. The second situation could be explained through market failures. There are several situations lead to market failures: opportunism, asset-specificity, uncertain and frequent transactions. High specific assets signify single production function or only specific staffs are competent to the job, thus lowering their transferability in the market. Based on these reasons, under either high cost or market failure conditions, rational entities will choose firms instead of the market for transactions. And then, the saved cost could afford firms to invest in innovation activities. Because innovation is not a"cheap" activity, it has high requirements for R&D inputs, research specialists, and even acute market insights. Not every firm is affordable to it.

Acquisition brings innovation could also be explained from a resource-based view. Acquisition could benefit innovation by acquiring both general resources and specific resources. Examples of them are general assets, capitals, staffs, research specialists, patents, and R&D labs. These two kinds of resources could add innovation to firms through two mechanisms: scales of economies and competitive advantages. Scales of economies is straightforward to understand. The acquired resources could facilitate firm share the given R&D fix cost, allowing more outputs per input or less investments per output. Moreover, the acquired specific

resources that are rare, inimitable, and non-substitutable are the most valuable resources for firms to gain competitive advantages and innovation(Barney, 1988).

On the other hand, financial agency theory is mostly used to explain why many times acquisitions do not bring innovation. Because, instead of focusing on shareholder benefits and innovation, financial agency theory claims that CEOs compensate firms and stakeholders in the pursuit of personal interests and personal reputation (Morck, Shleifer, & Vishny, 1990). Moreover, top-level management teams are ironically trapped in over-confident and self-myopic. Just as professor Bruno Cassiman posited, "CEOs are ego-driven, they blame the failures to 'bad luck' while advocating the success to "their own remarkable capabilities." These self-glorification personalities are risky to result in overestimating benefits while underestimating costs in acquisition decisions making.

II. LITERATURE REVIEW

2.1 Acquisition Hurts Innovation

Some scholars demonstrate that acquisition has a negative impact on both R&D inputs and outputs. CEOs show a low commitment to innovation. The pre-acquisition preparation of personnel adjustments, facilities development, managerial policy changes, and evaluating targets will significantly consume firm resources, causing managers have constrained resources allocated to post-acquisition innovation (Hitt, Hoskisson, Ireland, & Harrison, 1991).

Also, acquisitions are highly expected by the media and the public. Just as one executives said "we have spent billion dollars to acquire this company, the media, the public and the shareholders expect "dramatic" change will happen, this really places high pressure on management teams". Consequently, firms will slip into "financial short-term" rather than "strategic long-term" objectives. Different from other business activities (e.g., advertising, public relationship management), R&D and innovations have a much slower, though, radical influence on firm financial performance (e.g., sales). Faced by tremendous pressure and expectations, management teams may become myopic in allocating resources to other quick market response activities instead of innovations (Buono, 2003). There is also a high possibility that important research specialists from the target firm turnover when acquisition happens. In addition, there are large body of studies in agency theories explaining the poor post-acquisition innovation performance. Due to hubris, mangers are overestimating the benefits and underestimating the costs and risks of acquisition. Last but not least, post-acquisition is often followed by an expanded firm size, management literature has shown that increased firm size is followed by more conservative management strategies (Henderson R. , 1993). Large firms are more likely to stay in familiar than explore the unfamiliar field. They prefer to rest on extant knowledge for problem-solving (Ahuja & Lampert, 2001). This conservative mindset seriously hurt innovation incentives. In addition, big firms trigger path-dependence and bureaucracy, which also badly constrain a firm's bold adventure sprits (Henderson, 1990).

2.2 Acquisition Increases Innovation

Theoretically, however, there are more cogent reasons to believe that acquisition will add innovation. Evidences are shown as acquirers and targets that share similarities are more familiar with the production process and functions of resources, thus are more efficient in innovation resource deployment (Kaul & Wu, 2016). Large firms who are not good at innovating could acquire small firms that hold valuable patents to elevate its innovation outputs (Aghion & Tirole, 1994). Acquisitions that happened within similar firms could bring technological intelligence to accelerate product development (Harrison, Hitt, Hoskisson, & Ireland, 2001). Moreover, acquisitions could stimulate resource deployment to get new opportunities through exploiting existing resources and by exploring new resources that target firm bring (Karim & Mitchell, 2000). Acquisition could increase the economics scope of innovation to reduce duplicate R&D fix costs (Tatarynowicz, Sytch, & Gulati, 2016). These contradictory evidences enlighten scholars that there may exist some situational factors that determine post-acquisition performance. Only under some specific conditions acquisition could increase innovation (Harrison, Hitt, Hoskisson, & Ireland, 2001). Interestingly, the inconclusive findings on acquisition coincide with the growing market concentration level in the United States, evidencing as more than 75% of industries have witnessed a boost in market concentration (Gustavo, Yelena, & Michael 2017).

By clarifying different theoretical foundations under different types of acquisition activities, and by unraveling the mechanisms that drive market power and innovations, there are two researchable questions this article aims to answer. First, what are the effects of different types of acquisitions on the acquirer's post-acquisition innovation? This study mainly focuses on comparing vertical and horizontal acquisition. Second, are there any boundary conditions within acquisitions that drive different relationship directions between acquisition and its downstream innovation.

By answering these two questions, this study makes several theoretical contributions to acquisition literature and finance literature. First, to acquisition literature, this study highlights the differences between

different types of acquisitions. Strategy literatures on acquisition have extensively assessed the extent of resources (e.g., technological, production, knowledge) relatedness as the driver of innovation outcome. Unlike extant literature, this article instead highlights that different types of acquisition in terms of their objectives, incentives and industry reactions should impact innovation too. Second, this article includes a market concentration level as a moderator to explain how horizontal acquisition will impact firm's innovation performance. Third, this research also utilizes three different theories to expand our current understanding about post-acquisition effects.

III. THEORETICAL DEVELOPMENT

3.1 Differences between Vertical and Horizontal Acquisition

During the last two decades, over 70% acquisition occurred between related firms, yet, it is not clear if these acquisitions are pure horizontal or vertical integration. Thus, before predicting the effects of acquisition on innovation, it is important and necessary to compare the differences between horizontal and vertical acquisition. Foremost, we have to agree that vertical and horizontal acquisition share many similarities. Explained by resource interdependence theory, both vertical and horizontal acquisition are a response to get rid of interdependence on other partners, these entities are exampled as competitors in horizontal acquisition and supplier/buyer in vertical acquisition. Moreover, the failures in innovation of both types could be interpreted by financial agency theory, managers are self-interest driven to overestimate the benefits of innovation. In addition, the overall reasons—uncertainty, boundary rationality and opportunities that drive market failures could broadly applied to both horizontal and vertical acquisitions.

Apart from these shared similarities, vertical and horizontal acquisitions have more differences. One of the biggest differences is focusing on cost or revenue. In horizontal acquisitions, one primary incentive is to span market share to increase revenues. While vertical acquisition emphasizes more on cost reduction by eliminating procedural costs and by improving supplier-buyer efficiency. That is to say, vertical acquisition could be explained mostly by transaction cost theory, while horizontal acquisition could be interpreted by both transaction cost theory and resource-based view. Usually, horizontal acquisition is to buy the "competitors" from a similar product market or from the same production stage. That means horizontal acquisition could take place within the same industry or across different industries. Mostly, firms acquire their competitors to achieve economies of scale through decreasing fix costs per output and through eliminating input costs. Driven by this mechanism, another unique and most important feature the current study focused is that horizontal acquisition could increase market concentration level to trigger antitrust legislation.

Different from horizontal acquisitions, vertical ones often happen between downstream and upstream firms or firms from different production stages. "Vertical integration does not necessarily follow an expansion of market power" (Comanor, 1967, p. 257). If there are some tactic knowledge embedded in adjacent production stage, firms will prefer to internalize the suppliers that provide them better logistic, inventory and distribution service. Often, firms want to "vertically" buy companies in adjacent production stage that has a superior industry position. This imbalanced position will place pressure on acquirer to heavily invest in innovation. For instance, upstream firms have the core technology chips essential to innovation performance. After acquisition, downstream firms have to upgrade product design to absorb the chips in new laptop development.

3.2 Horizontal Acquisition's Impact on Innovation Depends on the Market Concentration level

One of the main contributions of this study is to explain the inconclusive relationship between horizontal acquisition on innovation from a market power perspective. This is also one main reason why this research distinguishes horizontal and vertical acquisition because it is claimed that only horizontal acquisition directly results in higher market power. The main proposition in this article is that some level of market power derived from horizontal acquisitions will stimulate innovation, however, when the market power reaches a threshold, acquisitions will hurt innovation. In this article, the threshold is defined as "market concentration level arouses antitrust concern."

There are at least three reasons to believe why some level of market power will encourage innovation. First, there is one direct evidence from "intellectual property right." In fact, patents essentially signify some extent of "market power," because it provides innovators to exclusively enjoy a temporary right and strikes back competitors to exploit this innovation. As a result, inventors could enjoy some behavioral freedoms protected by the patents (e.g., production, process components, or resell patents). This market power could be regarded as protecting innovators and stimulate innovation. Second, literatures show that firms from more concentrated industries face less imitation risk, they have more resources to support high fix cost of R&D and are capability to dilute risk through diversified innovation projects (Schumpeter, 1950). Third, in order to keep their "monopoly" power in a concentrated market, firms are more likely to pursue competitive advantages through R&D efforts (Gilbert & Newbery, 1982; Holmstrom & Tirole, 1989).

However, when market concentration level reaches to hurt industry competition. Post-acquiring firms may, in fact, have fewer incentives to invest further innovation for two main reasons. First, high market power signifies high entry barriers, which will eventually weaken incumbents' crisis awareness. Even they do not active in innovation activities, they could still enjoy the high profit share derived from market power. Second, from economics literature, more researchers demonstrate an "economic rent" view to claim that firms from high concentrated industries will be relaxed on innovation to enjoy the advantages derived from "economic rent" (Loury, 1979). Based on these arguments, this paper hypothesizes that:

H1a: horizontal acquisitions that have aroused antitrust concern will have a poorer innovation performance than if those firms choose not to acquire
H1b: horizontal acquisitions that have not aroused antitrust concern will have a better innovation performance than if those firms choose not to acquire

3.3 Vertical Acquisition's Impact on Innovation

Different from horizontal acquisition, vertical acquisition takes place between players at adjacent production stage (downstream or upstream). Compared to horizontal acquisitions, vertical ones have higher possibilities to bring innovative outcomes for multiple reasons. First and foremost, from a transaction cost perspective, a vertical acquisition could achieve cost reduction through eliminating procedure costs and through a more efficient supplier-buyer relationship. These saved costs could, in turn, invest into innovation activities. Second, firms from different production stages usually bring "complementary" rather than "similar" resources. "Complementary assets" (Teece, 1986, p. 285) bring innovations through firm's enhanced capabilities as well as elevated assets. These capabilities and assets could include and not exclude to manufacturing capability, R&D capability, and broad distribution channels.

Third, acquisition literature has documented that increasing "depth' rather than "breadth" of knowledge through acquisitions could bring innovation for two reasons: (1) depth knowledge has faster invention outcomes (Ahuja & Katila, 2001); (2) depth knowledge could faster supply production procedures (Higgins & Rodriguez, 2006). Yet, "depth" knowledge is more likely to realize through vertical acquisitions than through horizontal ones. Because integrating suppliers with logistics, inventory, and distribution management could deepen the acquirer's knowledge about how the products transformed from components to finished products.

Forth, compared to reduced industry competition resulting from the horizontal acquisition, vertical ones could, in fact, stimulate competition. Vertical integration enables firms to extend their market position to another stage. "Competition may be effectively increased when firms extend their facilities to enter production at the stages of their erstwhile suppliers or customer" (Comanor, 1967, p. 265). The increased competition will eventually stimulate firms to engage in innovation activities.

Fifth, from network literature, a vertical acquisition could also be regarded as searching for elevated social networks and secure access to structural holes from companies in adjacent production stage. Structural holes are in fact the relationship between non-redundant social ties, where novel knowledge embedded. While elevated social networks allow firms to obtain resources even under a highly uncertain environment, this secure access is one premise of innovation. Based on these five arguments, it is proposed that:

H2: In general, vertical acquisition has a positive effect on post-acquisition innovation performance.

IV. CONCLUSION

This article is one of the first trials to explain post-acquisition effects from three different theories. It enriches merge and acquisition literature and enlightens researchers to better understand post-acquisition effects. Also, it has differentiated acquisition to vertical and horizontal ones. The more nuanced views provided both theoretical and empirical foundations for researchers and practitioners to understand how the acquisition will affect innovation. Vertical acquisition will be a good strategic option for managers who are seeking to empower their innovation.

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