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A Capabilities-Based Perspective on Target Selection in Acquisitions

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ACQUISITIONS**

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ABSTRACT

We develop a capabilities-based theory of acquirer target selection, arguing that acquirers will pursue both low capability targets in existing contexts to deploy existing capabilities, and high capability targets in new contexts to acquire new capabilities. These arguments are formalized in an analytical model that jointly considers the benefits and costs of acquisition as a function of target capability level and context. The predictions from this model are tested in the Chinese brewing industry (1998-2007), with results showing that acquirers strongly prefer inferior targets in existing geographic markets, but are relatively more likely to choose superior targets in new markets, especially if they have strong acquisition capabilities. Our study provides insight into the factors driving target selection, and contributes to a capabilities-based understanding of acquisitions.

INTRODUCTION

The study of mergers and acquisitions (M&A) is a topic of central interest to the corporate strategy literature. While early work on acquisitions focused on their role in enhancing scale economies (Singh and Montgomery, 1987), and increasing market power (Chatterjee, 1986; Kim and Singal, 1993), a growing body of strategy literature has emphasized a capabilities-based perspective on acquisitions, viewing acquisitions as a means for firms to access and deploy capabilities and resources¹, especially those whose services cannot be directly transacted through the factor market, and that therefore require the firm to take ownership of the asset in order to make use of it (Capron, Dussauge and Mitchell, 1998; Villalonga and McGahan, 2005; Capron and Mitchell, 2009). More specifically, the recent literature suggests two distinct sources of value from acquisitions: on the one hand, acquisitions may be a

¹ We distinguish conceptually between resources, which are defined as stocks of available factors, and capabilities, which are the firm's capacity to deploy these resources (Amit and Schoemaker, 1993; Capron and Mitchell, 2009). Our focus in this study is on acquisitions as a means of deploying or acquiring capabilities, though to the extent that this will often require the deployment or acquisition of the associated resources (Karim and Mitchell, 2000; Capron and Mitchell, 2009) we also build on prior work that has examined the acquisition and deployment of resources through acquisition.

means for firms to deploy their existing resources and capabilities (Capron et al, 1998; Capron, 1999; Kaul, 2012) creating value by improving the performance of the acquired firm (Jovanovic and Rousseau, 2002; Berchicci, Dowell and King, 2012). On the other hand, acquisitions may be a means for firms to acquire new resources and capabilities (Karim and Mitchell, 2000; Ahuja and Katila, 2001; Ranft and Lord, 2002; Graebner, 2004; Puranam, Singh and Chaudhuri, 2009), allowing them to bridge capability gaps (Capron and Mitchell, 2009) and enter new markets (Helfat and Lieberman, 2002; Lee and Lieberman, 2010).

The implications of these different sources of acquisition value on the acquirer's choice of target remain to be fully explored, however. Prior research has emphasized the importance of strategic fit between acquirer and target, arguing and showing that acquisition value comes from combining resources and capabilities that are distinct but related, and therefore complementary (Shelton, 1988; Larsson and Finkelstein, 1999; Kim and Finkelstein, 2009; Makri, Hitt and Lane, 2010). In contrast, studies examining acquirer target selection have generally found a preference for similar or less distant targets (Baum, Li and Usher, 2000; Schildt and Laamanen, 2006; Berchicci et al., 2012; Chakrabarti and Mitchell, 2013). The question of what acquirers look for when assessing targets thus remains open.

In this paper we study the antecedents of acquirer target selection from a capabilities-based perspective. We contend that when assessing target fit we need to distinguish between the level of target capabilities, and their context (Capron and Mitchell, 2009), while considering both these dimensions simultaneously. Drawing on this distinction, we argue that acquirers seeking to create value by deploying their existing capabilities will prefer targets with weak capabilities in existing contexts, while those seeking to benefit from the acquisition of new capabilities will prefer targets with strong capabilities in new (though related) contexts. Between the two, we expect capability deployment to be more strongly

preferred than capability acquisition because of the higher costs of acquisitions in new contexts, so that the firm's overall preference will be for targets in existing contexts and with weak capabilities, with the preference for weak targets being stronger in existing contexts than in new contexts. Moreover, we expect that firms with weak acquisition capabilities will limit themselves to acquiring inferior targets in existing markets, and only those with strong acquisition capabilities will pursue targets with superior capabilities and in new markets.

We formalize these arguments using a simple analytical model that allows us to consider the various benefits and costs associated with an acquisition as a function of the level and context of target capability in an integrated, coherent, and rigorous way. The model is used to develop a set of testable hypotheses regarding target choice for one specific type of capability in one specific type of context—the choice of targets with high or low manufacturing productivity in existing or new geographic markets. These hypotheses are then tested by examining horizontal acquisitions in the Chinese brewing industry from 1998 to 2007. Using detailed productivity data for the entire population of firms in this industry, we show that acquirers generally prefer targets with low levels of productivity in their existing market, consistent with our arguments for capability deployment. When acquirers do buy targets in new markets, however, they are relatively more willing to pursue superior targets, in line with capability acquisition. These preferences are moderated by the acquisition capabilities of the acquirer, with weak acquisition capability firms limiting themselves to inferior targets in existing markets, while geographically diversified or more experienced acquirers pursue a wider range of targets.

Our study thus contributes to a capabilities-based understanding of acquisitions, highlighting the theoretical distinction between capability deploying and capability acquiring benefits, and mapping these two distinct sources of value to the different types of targets

associated with them. In doing so, it not only extends our understanding of what constitutes strategic fit, it also addresses a long-standing debate about the benefits of similarity vs. difference in acquisition (Harrison et al., 1991; Kim and Finkelstein, 2009) by adopting a multidimensional perspective (Tanriverdi and Venkatraman, 2005). In addition, our study provides a substantially richer understanding of the antecedents of acquirer target choice, a topic that remains relatively unexplored (Schildt and Laamanen, 2006; Chakrabarti and Mitchell, 2013). We provide both a more rigorous formal account of this key decision, and a strong empirical test using detailed panel data on the entire population of potential targets.

THEORY AND HYPOTHESES

Capability level, capability context, and types of strategic fit

As mentioned above, a substantial body of prior work has compared the resources and capabilities of acquirers and targets in trying to explain either target selection or acquisition performance, with some studies arguing for the need for complementarity between acquirer and target (Shelton, 1988; Krishnan, Miller and Judge, 1997; Larsson and Finkelstein, 1999; King, Slotegraaf and Kesner, 2008; Kim and Finkelstein, 2009; Makri et al., 2010), while others highlight the importance of similarity (Datta, 1991; Ramaswamy 1997) and proximity (Baum et al., 2000; Schildt and Laamanen, 2006; Chakrabarti and Mitchell, 2013). One way to disentangle these seemingly contradictory arguments is to recognize that the capabilities of the target may be assessed along multiple dimensions. Specifically, a given functional capability of the target, compared with the same type of capability of the acquirer, could be high or low in terms of level, and similar or different in terms of context (Capron and Mitchell, 2009), where context could mean either product market, geographic market, or technology field. The level of the target's capability captures how much stronger or weaker

it is compared to the acquirer, while differences in capability context determine how relevant the capabilities of one firm are to the other (Lee, 2008; Capron and Mitchell, 2009). The two dimensions are independent of each other, moreover, so that a target could have strong or weak capabilities in the same or different context as the acquirer. In order to fully understand strategic fit, then, we need to adopt a multidimensional perspective (Tanriverdi and Venkatraman, 2005; Zaheer, Castaner and Souder, 2013), and consider both the level and context of a target's capabilities simultaneously.

In order to apply such a multidimensional perspective to the acquirer's choice of target, we consider the sources of value creation and capture from an acquisition. Prior literature suggests two potential sources of acquisition value from a capabilities-based perspective². On the one hand, acquirers can realize value by *deploying* their existing capabilities in order to improve target performance (Jovanovic and Rousseau, 2002; Berchicci et al., 2012). On the other hand, acquirers can benefit by *acquiring* new capabilities from the target (Capron et al., 1998; Ranft and Lord, 2002; Graebner, 2004; Rhodes-Kropf and Robinson, 2008; Kim and Finkelstein, 2009), combining these with their existing capabilities in order to plug capability gaps (Capron and Mitchell, 2009) and to deepen or extend their existing capabilities (Karim and Mitchell, 2000)³.

First, consider capability deployment. Since the value from capability deployment comes from raising the target's capability level, an acquirer would prefer a target with weak capabilities, since the weaker a target's capabilities, the greater the potential for

² Prior literature also suggests several sources of acquisition value such as market power (Chatterjee, 1986; Kim and Singal, 1993) and economies of scale (Singh and Montgomery, 1987) that are unrelated to capabilities. We limit ourselves to capabilities-based arguments in this study.

³ Conceptually, a third source of capabilities-based value from acquisitions could result from the complementarity between different types of functional capabilities; for instance, by combining the marketing capabilities of the acquirer with the technological capabilities of the target. While we do not deny the potential for such complementarities, our focus in this paper is limited to developing theory about differences in the level and context between capabilities of the same (functional) type.

improvement⁴. Acquirers seeking to deploy their existing capabilities will also prefer targets operating in the same or similar contexts. Deploying acquirer's capabilities to the target will only be valuable if the two capabilities operate in identical or overlapping contexts, since only in such a case will the acquirer's capabilities be relevant to the target (Kim and Miner, 2007; Lee, 2008). Attempts to deploy acquirer's capabilities to distant contexts are unlikely to be of value and may even be harmful (Levitt and March, 1988; Halebian and Finkelstein, 1999; Kim and Miner, 2007; Kim, Kim and Miner, 2009; Zollo, 2009; Zollo and Reuer, 2010). We thus expect that acquirers pursuing capability deployment will prefer targets with weak capabilities in existing contexts (Bruton, Oviatt and White, 1994; Berchicci et al., 2012).

Next, consider the acquisition of new capabilities. Clearly, acquirers looking to acquire new capabilities from the target will prefer targets with strong capabilities so as to maximize value creation (King et al., 2008). And since the purpose here is not to replace the weaker firm's capabilities with those of the stronger firm (as in capability deploying acquisitions), but to combine the capabilities of the two firms to create joint value, acquirers should be able to capture some part of the joint value created through acquiring and recombining target capabilities, so long as they possess strong and distinctive capabilities of their own (Capron and Pistre, 2002). This need for distinctive capabilities also means that acquirers seeking to acquire new capabilities will prefer targets in new and non-overlapping contexts, so as to acquire capabilities that they do not already possess (Karim and Mitchell, 2000; Ranft and Lord, 2002; Capron and Mitchell, 2009). Targets in highly overlapping contexts will have capabilities that are largely redundant for the target, and are therefore less likely to be valuable (Kim and Finkelstein, 2009; Makri et al., 2010). Of course, the two

⁴ While acquirers could create value by using target's capabilities to replace their own, they are unlikely to capture much of this value since it results from the target's superior capabilities and is thus likely to be captured by the target as a result of competitive bidding in the market (Barney, 1988; Capron and Pistre, 2002).

contexts will need to be related in some way (Singh and Montgomery, 1987; Uhlenbruck, Hitt and Semadeni, 2006; Kim and Finkelstein, 2009; Makri et al., 2010) to ensure that the target's capabilities are relevant to the acquirer (Kim and Miner, 2007; Lee, 2008). Firms seeking to acquire new capabilities will thus prefer targets in new, but related, contexts.

Differences in level and context also have implications for the costs of acquisition. Acquirers face problems of information asymmetry in identifying and evaluating targets (Reuer et al., 2004; Capron and Shen, 2007), and these problems are likely to be more severe as they pursue targets in new and less familiar contexts (Baum et al., 2000; Villalonga and McGahan, 2005; Schildt and Laamanen, 2006; Yang, Lin and Lin, 2010; Chakrabarti and Mitchell, 2013). Differences in context will also be associated with ex post integration challenges (Jemison and Sitkin, 1986; Haspeslagh and Jemison, 1991), given differences in culture (Ranft and Lord, 2002; Stahl and Voigt, 2008) and greater internal resistance (Larsson and Finkelstein, 1999), though these challenges may be offset by a lower need for integration (Mitchell and Shaver, 2003; Zaheer et al., 2013). Integration challenges are also likely to be higher when acquiring more capable targets given the need to protect and maintain their existing capabilities and resources from the disruptive effects of acquisition (Puranam, Singh and Zollo, 2006; Paruchuri, Nerkar and Hambrick, 2006; Puranam and Srikanth, 2007), though acquirers may also find it difficult to integrate extremely weak targets, which may lack the absorptive capacity to benefit from capability deployment.

Together, these arguments suggest that acquirers will pursue two distinct types of targets, each associated with a distinct source of value. On the one hand, they will target firms with low levels of capability in existing or close contexts, seeking to realize value by deploying their existing capabilities to these targets in order to improve their performance. On the other hand, they will target firms with high levels of capability in new (though

related) contexts, seeking to benefit from the acquisition of capabilities that they can recombine with their own. Of the two, capability deploying acquisitions will face both lower ex ante information costs and lower ex post integration costs than capability acquiring acquisitions, and thus are more likely to be pursued.

A simple model of capabilities-based target selection

In order to lay out these arguments more rigorously, we develop a simple formal model of capabilities-based target selection. The model is helpful because it allows us to consider the combined effect of the various benefits and costs associated with the acquisition in an integrated and coherent way, to clarify our conceptual argument in unambiguous terms, and to develop several fine-grained and non-intuitive predictions regarding capabilities-based target selection.

Consider two firms, A and B. The stand-alone value of each firm, i.e. the net present value of its expected future cash flows⁵, V , is determined by the combination of its focal capability θ , and a vector of other complementary capabilities and resources η , so that $V_A = \theta_A \eta_A$ and $V_B = \theta_B \eta_B$ where $\theta_A > 0, \eta_A > 0, \theta_B > 0, \eta_B > 0$. Since we are interested in the effect of the focal capability θ on target choice, we make the parsimonious assumption that $\eta_A = \eta_B = \eta$.

The two firms operate in distinct but overlapping contexts, with the extent of overlap between them captured by parameter r where higher values of r mean greater overlap between contexts, and $1 \geq r \geq 0$. A value of r equal to 1 means the two contexts are identical, while a value of 0 means they are entirely unrelated.

Next, consider, without loss of generality, the case where firm A acquires firm B. As

⁵ For simplicity, we assume that each firm is accurately valued by the market, i.e. that the market value of the firm reflects the best estimate of future cash flows, and there are thus no opportunities for purely speculative gains.

discussed above, a capabilities-based perspective suggests two sources of potential value from such an acquisition. First, to the extent that the capabilities of the two firms overlap (captured by r), the stronger firm can deploy its capabilities to the weaker firm, raising the weaker firm's capabilities to its own level, i.e. to $\max(\theta_A, \theta_B)$. Thus, the value created through capability deployment is equal to $\eta r(2 \max(\theta_A, \theta_B) - \theta_A - \theta_B)$.

Second, to the extent that the capabilities are non-overlapping (captured by $1-r$), each firm could benefit from acquiring the non-overlapping portion of the other's capabilities. The extent of this benefit will be limited by the extent to which the two capabilities are related, however. We assume that the extent to which each firm benefits from the other's non-overlapping capabilities is proportional to the extent of overlap (r) between them. Thus, firm A will acquire additional capabilities equal to $r(1-r)\theta_B$ and firm B will acquire additional capabilities equal to $r(1-r)\theta_A$ ⁶. The benefit from capability acquisition is thus strongest when the target and acquirer have moderately overlapping capabilities ($r = 0.5$), consistent with prior literature (Kim and Finkelstein, 2009; Makri et al., 2010)—firms have little to gain from acquiring capabilities that are either extremely similar (and therefore redundant) or completely unrelated (and therefore irrelevant).

In addition to these sources of potential value, the acquisition will also be associated with several costs. First, the acquiring firm will face an ex ante information cost associated with the difficulty of identifying and evaluating a potential target. As prior literature has shown, acquirers are liable to overpay for targets, due to factors such as poor due diligence, escalation of commitment, and managerial hubris (Haunschild, Davis-Blake, and Fichman, 1994; Hayward and Hambrick, 1997; Puranam, Powell, and Singh, 2006). Such overpayment

⁶ These additional capabilities may be thought of as either enhancing the firm's existing capabilities or being separately combined with the firm's complementary resources. The two are equivalent in terms of the model since $\eta(\theta_A + r(1-r)\theta_B) = \eta\theta_A + \eta r(1-r)\theta_B$.

represents a cost to the acquirer, and is likely to be higher, the more difficult it is for firms to accurately assess the value of potential synergies (Laamanen, 2007). Specifically, we assume that this cost will increase with the distance between the contexts of the two firms (Schildt and Laamanen, 2006; Chakrabarti and Mitchell, 2013), and reduce with the buyer's acquisition capabilities (Eisenhardt and Martin, 2000; Zollo and Singh, 2004), since more capable acquirers will be able to better identify and evaluate targets (Laamanen and Keil, 2008; Kim et al., 2011). We thus model the information cost incurred by the acquirer as equal to $(1 - r) \frac{I}{\alpha}$ where $\alpha > 0$ is a parameter reflecting firm A's acquisition capabilities, and $I \geq 0$ is a parameter reflecting information costs specific to the target. I may depend upon a number of factors, such as the nature of the target, the information context (Capron and Shen, 2007), and prior ties between acquirer and target (Vanhaverbeke, Duysters and Noorderhaven, 2002; Zaheer, Hernandez and Banerjee, 2010).

Second, the acquiring firm will face an ex post cost resulting from the challenges associated with integrating the operations of two distinct firms. We expect these costs to first increase and then decrease with the level of target capability. On the one hand, targets with very weak capabilities will lack the absorptive capacity (Cohen and Levinthal, 1990) necessary to benefit from the deployment of acquirer capabilities, and acquirers may thus face severe challenges in integrating significantly inferior targets. On the other hand, targets with capabilities substantially superior to those of the acquirer will need to be handled carefully in order to protect and maintain their capabilities, and thus also pose a significant integration challenge for acquirers (Puranam et al., 2006b; Paruchuri et al., 2006; Puranam and Srikanth, 2007). We therefore expect integration costs to first decrease and then increase with target capability, being lowest when target capabilities are at the same level as those of the acquirer. Integration will also become more difficult as the distance between contexts

increases. Even as distance increases the difficulty of integration, however, it will also reduce the need for integration (Mitchell and Shaver, 2003), so that integration costs will be high for moderately related targets but low for both closely related targets (that are relatively easy to integrate) and unrelated targets (that do not require integration).

In line with these arguments, we model the integration cost as $r[(1-r) + (|\theta_B - \theta_A|)\delta\eta] \frac{C}{\alpha}$, where C is a parameter reflecting integration costs ($C \geq 0$), and δ is a parameter reflecting the difficulty of integrating a stronger target relative to the difficulty of integrating a target in a different context ($\delta \geq 0$). As with information costs, we expect the cost of integration to be driven in part by the buyer's acquisition capabilities (α) and in part by other contextual variables, such as differences in organizational culture and ownership, or the prior relationship between the two firms, reflected here in the parameter C .

Given these assumptions, the value of the merged firm⁷ is given by:

$$\begin{aligned}
 V_{merged} &= \eta_A (r \max(\theta_A, \theta_B) + (1-r)(\theta_A + r\theta_B)) + \eta_B (r \max(\theta_A, \theta_B) + \\
 &\quad (1-r)(\theta_B + r\theta_A)) - \frac{C}{\alpha} [r((1-r) + (|\theta_B - \theta_A|)\delta\eta)] \\
 &= V_A + V_B + [r\eta(2\max(\theta_A, \theta_B) - (\theta_A + \theta_B))] + [\eta r(1-r)(\theta_B + \theta_A)] \\
 &\quad - \frac{C}{\alpha} [r((1-r) + (|\theta_B - \theta_A|)\delta\eta)] \quad \dots(1)
 \end{aligned}$$

setting $\eta_A = \eta_B = \eta$, and rearranging terms.

Expression (1) shows that the difference between the stand alone value of A and B and their merged value is driven by three factors: the value created through the deployment of the superior firm's capabilities to the inferior firm (the first term in square brackets), the value created through the combination of the two firms' (unrelated but relevant) capabilities

⁷ Note that the value of the merged firm is unaffected by the information cost, which is simply a transfer of value from the acquirer to the target.

(the second term in square brackets), and the integration costs of the acquisition (the third term in square brackets).

Since our focus is on A's decision to acquire B, however, we need to consider the share of this value that will be captured by A. To determine this, we make three assumptions. First, we assume that value created from capability deployment will be captured by the stronger firm (i.e. by the firm whose capabilities are being deployed to create this value)⁸. Second, we assume that the value created from the combination of non-overlapping capabilities is split equally between the two firms⁹. Third, we assume that the information and integration costs are borne exclusively by the acquirer. Given these assumptions, the price paid by acquirer A for target B (P_A^B) is:

$$P_A^B = V_B + \max(0, r\eta(\theta_B - \theta_A)) + \frac{r(1-r)\eta(\theta_A + \theta_B)}{2} + (1-r)\frac{I}{\alpha} \quad \dots(2)$$

That is, the acquirer pays the stand alone value of the target, plus the target's share of potential synergies, plus some excess amount resulting from information challenges¹⁰. Note that $V_B \leq P_A^B$, so that the target always benefits from the acquisition. Using (1) and (2), we can derive the value captured by the acquirer (π_A) as:

$$\begin{aligned} \pi_A = V_{merged} - V_A - P_A^B = r\eta \left[(\theta_A - \theta_B) + \frac{(1-r)(\theta_A + \theta_B)}{2} \right] - \frac{1}{\alpha} [(1-r)I - \\ r((1-r) + (\theta_A - \theta_B)\delta\eta)C] \text{ if } \theta_A \geq \theta_B; \\ \frac{r(1-r)\eta(\theta_A + \theta_B)}{2} - \frac{1}{\alpha} [(1-r)I - r((1-r) + (\theta_B - \theta_A)\delta\eta)C] \text{ if } \theta_A < \theta_B \end{aligned} \quad \dots(3)$$

⁸ Strictly speaking, our predictions require only that the weaker firm capture a substantially smaller share of the value from capability deployment than the stronger firm, and that this share not increase with the capabilities of the stronger firm. Thus, even if acquirers were to capture some small benefit from buying superior targets and using their capabilities to substitute for the acquirer's own, the predictions from our model would still hold.

⁹ We assume an equal split of value for simplicity. The share that each party captures of the value they jointly create will be the outcome of a complex bargaining process, modeling which would require making additional assumptions about the relative bargaining position of the two parties (their opportunity costs, utility functions, risk preferences, etc), and is beyond our current scope.

¹⁰ The premium paid by the acquirer is given by $P_A^B - V_B$, and includes both acquirer overpayment and the target's share of synergies.

Expression (3) highlights a key asymmetry between acquiring inferior and superior targets, with the benefit from acquiring a target with superior capability coming entirely from the acquisition of new capabilities, while that from a target with inferior capability comes from a combination of capability deployment and capability acquisition. More generally, (3) shows that the value captured by the acquirer is impacted by the level and context of target capabilities. Increases in target capability cause the benefit from capability deployment to decline, and those from capability acquisition to increase, while integration costs first decrease and then increase. Increases in the distance between capability contexts cause the benefits of capability deployment to decline and the information costs to increase, while both capability acquisition benefits and integration costs first increase and then decrease.

Using (3), we can examine the relationship between target capability and the value captured by the acquirer. Taking the partial derivative of (3) with respect to θ_B , we get:

$$\frac{\partial \pi_A}{\partial \theta_B} = r\eta \left(\frac{\delta C}{\alpha} - \frac{(1+r)}{2} \right) \text{ if } \theta_B \leq \theta_A ; r\eta \left(\frac{1-r}{2} - \frac{\delta C}{\alpha} \right) \text{ if } \theta_B > \theta_A \quad \dots(4)$$

Expression (4) shows that the effect of target capability on acquirer value capture is decreasing for inferior targets, so long as $\frac{(1+r)}{2} > \frac{\delta C}{\alpha}$, which is likely to be the case for potentially valuable targets¹¹. Thus, acquirers pursuing inferior targets will always prefer targets with low levels of capability, so as to maximize the benefits of capability deployment. Moreover, this effect is decreasing with relatedness¹², meaning that the firm's preference for inferior targets is stronger in existing or close contexts than in new or distant contexts. For superior targets, however, the effect of target capability depends upon the relatedness in

¹¹ Note that if $\frac{\delta C}{\alpha} \geq \frac{1}{2}$, then the acquirer stands to lose half or more of the target's value as integration costs – a case in which the acquirer is unlikely to realize value in any case. We therefore limit our subsequent discussion to the case where $\frac{\delta C}{\alpha} < \frac{1}{2}$

¹² Formally, $\frac{\partial^2 \pi_A}{\partial \theta_B \partial r} = -\eta \left[\frac{1}{2} + r - \frac{\delta C}{\alpha} \right] \text{ if } \theta_B \leq \theta_A ; \eta \left(\frac{1}{2} - r - \frac{\delta C}{\alpha} \right) \text{ if } \theta_B > \theta_A$

context. Specifically, we can define $r^* = 1 - \frac{2\delta C}{\alpha}$ such that the acquirer value is increasing in target capability level for $r < r^*$, but decreasing for $r > r^*$. For targets with superior productivity, our model thus predicts that target value will continue to fall with target capability level in existing contexts, but will start to rise with target capability in new contexts. Overall, the model predicts that the acquirer will always prefer weak targets in existing or close contexts, but that this effect will grow weaker as it starts to consider targets in newer, more distant contexts.

These relationships are shown graphically in Figures 1 to 3. Figure 1 shows a three-dimensional plot of the value captured by the acquirer (π_A) as a function of target capability level (θ_B) and the relatedness of target capability context (r). It shows that the highest peak in acquirer value capture occurs where targets have inferior capability and high relatedness. When pursuing targets with similar or superior levels of capability, however, moderate values of relatedness are better for the acquirer than high values, with Figure 1 showing a second, though lower, peak for targets with superior capability and moderate relatedness. These two peaks correspond to the two types of strategic fit in the theory section above—a capability deploying peak for targets with low levels of capability in existing contexts, and a capability acquiring peak for targets with high levels of capability in new though related contexts. Moreover, the relative height of the two peaks confirms our intuition that firms will, on average, prefer acquisitions that are primarily capability deploying. Figure 1 also shows that acquirers do not capture value from targets in very distant contexts (r close to 0)¹³, suggesting that acquirers are very unlikely to buy extremely distant targets irrespective of the target’s capability level.

¹³ While π_A could be negative in principle, we assume that the acquirer will never buy a target with negative expected value capture, so that the minimum value of π_A plotted is zero.

Insert Figures 1, 2 and 3 about here

Figure 2 then shows a simplified two-dimensional version of these relationships, plotting the relationship between acquirer value capture and target capability level for existing contexts and, separately, for new (moderately related) contexts. It shows that value captured by the acquirer declines with target capability for inferior targets, with the decline being steeper for targets in existing contexts. For superior targets, the value captured by acquirer increases with target capability in new contexts, while continuing to decline with target capability in existing contexts, albeit at a slower rate. Figure 2 thus predicts that acquirers will generally prefer targets with weaker capability levels in existing contexts, with this preference being stronger for inferior targets; while in new contexts, the effect of target capability will be negative for inferior targets and positive for superior targets. It also predicts that acquirers will generally prefer targets in existing contexts to those in new contexts.

Finally, Figure 3 shows how the lines in Figure 2 shift with changes in the buyer's acquisition capability. As expected, the figure shows that firms with strong acquisition capabilities capture more value from acquisition than those with weak acquisition capabilities, with the advantage being greater in new contexts than in existing contexts. In particular, Figure 3 suggests that low acquisition capability firms may find it unprofitable to pursue targets in new contexts, on account of the high information and integration costs associated with such targets, and may therefore focus their attention on firms with inferior capabilities in existing contexts. In contrast, firms with strong acquisition capabilities may generally be more willing to pursue superior targets, and especially likely to do so in new contexts, on account of their superior ability to keep information and integration costs low.

Hypotheses Development

Having proposed a general theory of capabilities-based target selection, and formalized it in a

simple model, we now turn to define hypotheses based on the theory, so as to put it to empirical test. While we believe that our theory applies across a range of different types of capabilities and contexts, our empirical tests in this study focus on a single type of capability—manufacturing productivity—and a single definition of context—geographic markets. Our purpose, then, is to define testable hypotheses about the selection of targets by acquirers based on the level of the target’s manufacturing productivity and its location in existing or new geographic markets.

Our decision to focus on geographic markets as the salient context builds on prior work that has argued that firms face significant challenges when acquiring in new or distant geographic markets (Yang et al., 2010), including ex ante information challenges in identifying and evaluating targets (Baum et al., 2000; Chakrabarti and Mitchell, 2013), and ex post integration challenges resulting from cultural differences across geography (Weber et al., 1996; Weber and Camerer, 2003; Bjorkman, Stahl and Vaara, 2007) as well as the ongoing challenges of managing across geographical distance (Berry, Guillen and Zhou, 2010). Consistent with this work, as well as our theoretical argument that acquirers will, on average, prefer targets in existing contexts, we propose the baseline hypothesis that:

H1: The probability of a potential target being acquired will be lower for targets in markets that are new to the acquirer than in the acquirer’s existing markets.

Next, consider manufacturing productivity as our focal capability. As predicted by our model, we expect the effect of target manufacturing productivity to vary based on whether the target is in an existing context or a new context. In existing contexts the primary source of value for acquirers is capability deployment, the potential for which declines with target productivity. In new contexts acquirers have less to gain from capability deployment relative to existing contexts, but have the potential to capture value through capability

acquisition, the benefit from which increases with target productivity. Thus, as our model predicts and Figure 2 shows, target productivity will have a consistently negative effect on acquisition likelihood in existing markets, but in new markets this negative effect will be weaker for inferior targets and will become positive for superior targets.

In terms of hypotheses, these arguments suggest two things. First, they suggest that, on average, the manufacturing productivity of the target will have a negative effect on the likelihood of it being acquired. This follows from the fact that acquisition likelihood only increases with target productivity for superior targets in new markets, and falls in all other cases. Second, they suggest that this general preference for less productive targets will be weaker in new markets than in existing markets¹⁴. We therefore predict,

H2: The probability of a potential target being acquired will be greater, the lower the manufacturing productivity of the target.

H3: The negative relation between the productivity of a potential target and its acquisition likelihood will be weaker for targets in markets that are new to the acquirer than in the acquirer's existing markets.

While the hypotheses above make no distinction between acquirers, our theoretical discussion above suggests that acquirers' target preferences will vary with their acquisition capabilities. Specifically, as predicted by our formal model and shown in Figure 3, we expect that firms with weak acquisition capabilities will generally limit themselves to pursuing weaker targets in existing regions, on account of the high information and integration costs of pursuing other types of targets. In contrast, firms with strong acquisition capabilities will be better able to overcome these information and integration costs, and are therefore likely

¹⁴ In principle, our theory suggests that we should test the effect of target productivity separately for targets inferior to the acquirer and those superior to the acquirer. While we do so empirically using a two-slope model (described in detail below), we do not define separate hypotheses for the two cases for the sake of brevity.

to both undertake more acquisitions, and pursue a wider set of targets (Mitchell and Shaver, 2003; Zollo and Singh, 2004; Laamanen and Keil, 2008). Specifically, we expect such firms to be more willing to pursue superior targets and those in new regions. We therefore hypothesize:

H4a: The negative relation between the productivity of a potential target and its acquisition likelihood will be weaker, the stronger the buyer's acquisition capabilities.

H4b: The positive moderating effect of new regions on the relation between target productivity and acquisition likelihood will be stronger, the stronger the buyer's acquisition capabilities.

DATA AND METHODS

Chinese Brewing Industry

We test these predictions by examining acquisitions in the Chinese brewing industry from 1998 to 2007. The years between 1998 and 2007 marked a period of substantial growth and consolidation for China's brewing industry. During this period, industry output increased from 38.7 billion RMB to 83.1 billion RMB (all numbers are in 1998 RMB), making China the largest beer market in the world. This rapid growth was accompanied by increasing consolidation achieved through aggressive acquisition activity, with the eight-firm concentration ratio increasing from 28.7 percent to 67.5 percent during the same time period, turning a fragmented industry with over 400 small, local brewers into a consolidated industry with large national players – a consolidation not dissimilar to the one that occurred in the US brewing industry in the 1950s (McGahan, 1991).

Underlying this rapid growth and consolidation was a cross-industry change in Chinese government policy. Prior to the mid-1990s, Chinese industry had been largely regional, with high trade barriers between administrative regions within the country. There

are 31 such administrative regions in mainland China, each with different subcultures, dialects, income levels, and levels of market development and competition (Chang and Wu, 2014). Prior to deregulation, each region operated as a self-contained market with the objective of each regional administration being to maximize local economic growth.

With the progress of economic reform and liberalization, there was a growing impetus away from self-contained regional markets towards greater exploitation of scale and scope economies on a national scale (Gilley, 2001), enabled by the lowering of inter-regional barriers by the government. The Chinese brewing industry was no exception to this policy change, with the government lowering or removing restrictions on the sale of beer across regions, and explicitly favoring the growth of large national brewers.

These policy changes provide a unique opportunity to study target selection because they represent an arguably exogenous change that makes salient a large number of acquirer-target combinations that were previously untenable. A key challenge with studying acquirer target selection empirically is the difficulty of accounting for the endogeneity of the acquirer and target's pre-acquisition positions. In the case of the Chinese brewing industry, however, there is a strong policy rationale for why acquirers did not consider either acquiring in other regions or consolidating within their existing region prior to our study period. As a result we have the unique opportunity to observe firms choosing between a set of potential targets that they may not have considered before for reasons exogenous to the acquirers themselves.

There are several other factors that make the Chinese brewing industry a good setting to empirically test our theory. First, the high levels of acquisition activity in a short period of time mean that we have sufficient variance to test our predictions in a single industry in a single country. Second, the regional and fragmented nature of the industry before 1998, as well as the size and geographic diversity of China, enables us to treat the

different regions of the country as distinct markets. Third, the study context provides access to detailed, comprehensive and statutory data on the entire population of firms in the industry, allowing us to consider the complete pool of potential targets.

Data

This study uses the Annual Industrial Survey Database (1998-2007) from the Chinese National Bureau of Statistics (NBS)¹⁵. The NBS collects financial information on all industrial establishments whose sales are more than 5M RMB (roughly US\$ 685,000 using the 2007 exchange rate) with each plant being treated as a separate establishment, as it is a tax paying legal entity¹⁶. By law, all qualified plants in China are required to cooperate with the survey and submit the requested financial information. From this full NBS database, we extract data for the brewing industry based on the Chinese 4-digit standard industry classification code (1513 prior to 2003 and 1522 thereafter). Based on this plant-level dataset, we manually identify parent firms for each plant for each year. To do so, we first search each firm's annual reports (if they are publicly listed) and website. We then search newspaper and magazine articles and analyst reports, both in Chinese and in English, through the China National Knowledge Infrastructure (CNKI), Baidu.com, Google.com, Business Monitor Online, IBISWorld, ABI/Inform Global, and Business Source Complete, and use these other sources to verify and cross-check our matching. We consider an acquisition to have occurred when a change in parent firm occurs. Using this method, we identify 184 total acquisitions during our study time period (1998-2007)¹⁷. Finally, we construct firm-level variables by aggregating plant-level measures where necessary.

¹⁵ We end our study in 2007 because it is the last year for which data from the NBS is available to us.

¹⁶ Because plants are independent legal entities in the Chinese context, they are called 'firms' in the dataset. For the sake of consistent presentation, however, we call the reporting entity a *plant*, and the ultimate owner a *firm* throughout the paper.

¹⁷ Non-beer industry firms acquired breweries in 34 cases. Because these non-beer industry parents became valid participants in the brewing industry only *after* these acquisitions, we exclude these 34 cases. These corporate parents do however enter our analysis as potential acquirers and targets after these events.

Measures

Dependent variable

Since we wish to understand the decision of an acquiring firm to acquire a potential target plant, we create all possible combinations of acquirer-target-year, which is our unit of analysis. The dependent variable *Acquisition* is a binary variable, taking the value of one if a given firm acquires a given target plant in a given year and taking the value of zero if not. All plants existing at time t are considered potential acquisition targets by a given acquiring firm. An acquiring firm or a target plant is dropped from the sample if it dissolves. Note that this approach allows us to account for the complete population of potential targets, and eliminates any concern of sample selection bias (Berchicci et al., 2012). Overall, there are 1,229,057 acquirer-target-year combinations, including the 184 actual acquisitions.

Main predictors

We measure a firm's manufacturing productivity using the productivity index developed by Caves, Christensen, and Diewert (1982) and later modified by Aw, Chung, and Roberts (2003)¹⁸. This productivity index has several advantages over conventional parametric measures, such as the residuals from the Cobb-Douglas production function and its variants (Van Biesebroeck, 2007). The index is straightforward in computation, flexible in allowing

¹⁸ The productivity index is defined as follows:

$$Productivity_{it} = (\ln Y_{it} - \overline{\ln Y_t}) + \sum_{\tau=2}^t (\overline{\ln Y_{\tau}} - \overline{\ln Y_{\tau-1}}) - \left[\sum_{j=1}^m \frac{1}{2} (S_{ijt} + \overline{S_{jt}}) (\ln X_{ijt} - \overline{\ln X_{jt}}) + \sum_{\tau=2}^t \sum_{j=1}^m \frac{1}{2} (S_{jt} + \overline{S_{j\tau-1}}) (\overline{\ln X_{jt}} - \overline{\ln X_{j\tau-1}}) \right]$$

where i denotes firm, t year, and j type of input ($j=1, \dots, m$). Y_{it} denotes output, and X_{ijt} denotes inputs including labor input, material input, and capital stock. S_{ijt} denotes input shares, defined as the ratio of labor costs to output for labor input, the ratio of material costs to output for material input, and one minus labor share and material share for capital input. The first term in this equation captures the deviation of a firm's output in year t from the industry average output in that year. The second term reflects the change in industry average output across all years. The third and fourth terms repeat the same for each input j , which are summed using input share for each firm (S_{ijt}) and the average input share for each 3-digit industry ($\overline{S_{jt}}$ in the third term and $\overline{S_{j\tau-1}}$ in the fourth term) in each year as weights. The productivity index measures the proportional difference between the productivity of firm i in year t relative to the hypothetical firm in the base year.

heterogeneous production technology, and allows for consistent comparison of plant level productivity across years. Our main independent variable *Target Productivity* is the value of this productivity index for the potential target plant in the previous year. Note that we include a control for *Acquirer Productivity* (measured in the same way) in all our models, so that the coefficient of *Target Productivity* captures the effect of target capability controlling for that of the acquiring firm. In order to calculate *Acquirer Productivity* for acquirers with more than one plant, we aggregate their productivity to its weighted average, using plant sales as weights.

We operationalize markets as geographic regions, with each geographic region being treated as a distinct market. Our main predictor is then a binary variable *New Region* which takes the value one if the target operates in a region where the acquirer has no existing presence, and zero otherwise.

We consider two alternate measures of acquisition capability. First, we consider the extent of a firm's geographic diversification, on the basis that geographically diversified firms are likely to have both greater experience coordinating and organizing across multiple markets, and more generalized capabilities (Montgomery and Wernerfelt, 1988; Goerzen and Beamish, 2003; Villalonga and McGahan, 2005; Levinthal and Wu, 2010), and that this will enable them to better evaluate and integrate new targets (Barkema and Vermeulen, 1998; Zollo and Winter, 2002; Chakrabarti and Mitchell, 2013). *Acquirer Geographic Diversification* is calculated as one minus the Herfindahl index of its sales distribution across regions.

Second, we consider the firm's prior *Acquisition Experience* (measured as the count of acquisitions the firm has undertaken in the past) as a measure of acquisition capability, consistent with prior work (Haleblian and Finkelstein, 1999; Villalonga and McGahan, 2005; Haleblian, Kim and Rajagopalan, 2006; Puranam and Srikanth, 2007; Kim et al, 2011). While the two measures represent distinct theoretical constructs, they are highly related in our

empirical context, since most expansion into new areas is undertaken through acquisition. We therefore use both geographic diversification and acquisition experience as measures of general acquisition capabilities.

Control variables

In addition to these main independent variables, we include a number of controls. First, to account for the role of market power and economies of scale in driving acquisitions (Chandler, 1990), we include controls for (logged) values of both *Acquirer Sales* and *Target Sales*¹⁹. Second, we control for the acquirer's financial constraint by including a measure of *Acquirer Debt Level* calculated as the ratio of the acquiring firm's total debt to its total equity. Third, we control for the nature of acquirer ownership by including dummy variables for whether the acquirer is *Majority State Owned* or *Majority Foreign Owned*. We also include a control for *Ownership Difference* which takes the value one if the majority owner of the acquirer is of a different type (using a five part classification of ownership types as state, foreign, private, collective, or incorporated) from the majority owner of the target. Fourth, we control for *Business Group Affiliation*, an institutional factor in emerging markets that can influence a firm's acquisition propensity by affecting access to internal capital market, agency behavior, and risk sharing (La Porta, Lopez-de-Silanes, and Shleifer, 1999; Chang, 2003; Ma, Yao, and Xi, 2006). Fifth, to account for differences in the richness of the information context (Capron and Shen, 2007), we include a *Region Information Index*, which measures the availability of information intermediaries (specifically lawyers and accountants) in the target's region, and is a sub-index of a marketization index of Chinese provinces created by the National Economic Research Institute (Chang and Wu, 2014). Finally, to control for the

¹⁹ To account for the possibility that firms are buying inferior plants with the intent of closing them to eliminate competition, we also look at whether targets were closed shortly after acquisition. We find no plants that were closed within four years of being acquired, and only four acquired plants that were ever closed, suggesting that this was not a major driver of acquisitions in our context, perhaps due to rapid industry growth.

extent of rivalry in the target market we include a measure of *Region Concentration*, measured as the Herfindahl index of industry sales in the target region.

Summary statistics and correlations of these variables are provided in Table 1.

*** Insert Table 1 about here ***

Model

The dependent variable for our study is a dichotomous variable that captures the acquisition decision for all possible combinations of acquirers and targets; we use a logit regression to estimate the model. A conventional logit model estimates the acquisition probability with the following functional form:

$$\ln \frac{P_{ijt+1}}{(1 - P_{ijt+1})} = \beta_0 + \beta_1 X_{it} + \beta_2 Y_{jt} + \beta_3 Z_{ijt} + year + region + \varepsilon_{ijt}$$

where P_{ijt+1} is the probability that the acquisition event occurs, i.e. that the i th acquirer will acquire the j th target plant in year $t+1$. The log odds of the probability are estimated to be linearly affected²⁰ by a vector of the acquiring firm's characteristics (X_{it}), target plant characteristics (Y_{jt}) including *Target Productivity* and characteristics of the target region, and the *New Region* and *Ownership Difference* measures (Z_{ijt}). We lag all the independent variables by one year. All models contain year and region dummies. Since a given acquirer could potentially acquire multiple target plants over multiple years, robust standard errors are used to account for intra-firm non-independence of observations (Rogers, 1993; White, 1980).

Since our analytical model predicts that the effect of target productivity will vary depending upon whether the target's productivity is superior or inferior to that of the acquirer, we also use a two-slope model (Greene, 1993; Baum et al., 2005), splitting our main

²⁰ In supplementary analysis (available upon request) we also include the square of *Target Productivity* in both our one-slope and two-slope models in order to test for curvilinear effects. We find no evidence for a significant effect of these square terms.

Target Productivity measure into a measure of *Superior Productivity* = *Target Productivity* if *Target Productivity* > *Acquirer Productivity* and zero otherwise, and a measure of *Inferior Productivity* = *Target Productivity* if *Target Productivity* ≤ *Acquirer Productivity* and zero otherwise, and including these two new measures and their interaction with our *New Region* dummy in our regression. For completeness, we also include a dummy variable for *Superior Target*, which equals 1 if *Target Productivity* > *Acquirer Productivity* and zero otherwise²¹.

One concern with our analysis is that our sample is overwhelmingly dominated by non-events (we have 184 events out of a total of 1,229,057 observations), so that a traditional logit model may underestimate the probability of rare events, in turn biasing its estimation of coefficients (King and Zeng, 2001). To address this issue, we used the rare event logit model developed by King and Zeng (2001) and used by other researchers (Henisz and Delios, 2001; Jensen, 2003; Sorenson and Stuart, 2001; Zhou, 2011).

RESULTS

The results of our analysis are shown in Table 2. Model I is the baseline model with all controls. Model II then includes our main predictors. Consistent with Hypothesis 1, *New Region* enters the regression with a negative and significant sign, implying that firms are less likely to pursue targets in new markets. Model II also shows support for Hypothesis 2, with the coefficient of *Target Productivity* being negative and significant, implying that firms are less likely to buy a potential target, the greater its productivity. Finally, the interaction between *New Region* and *Target Productivity* enters the regression with a positive and significant coefficient. This implies that acquirers' preference for less productive targets is significantly weaker in new markets than in existing markets, supporting Hypothesis 3.

²¹ 52.4 percent of potential targets in our final sample have productivity greater than the acquirer, though only 30.4 percent of targets that are acquired have superior productivity.

Model III is a two-slope model, testing our theoretical prediction that the effect of target productivity on acquisition likelihood varies with whether the target is superior or inferior to the acquirer. For *Inferior Productivity*, our model predicts a negative effect for both existing and new regions, with this effect being weaker in new regions. Model III shows that *Inferior Productivity* does in fact have a significant negative effect on acquisition likelihood, consistent with our prediction and further confirming Hypothesis 2, but the interaction between *Inferior Productivity* and *New Region*, while positive (as predicted), is not significant. Turning to *Superior Productivity*, our analytical model predicts that its effect will be negative for existing regions, but positive for new regions. Model III shows support for this prediction, with the main effect of *Superior Productivity* being significant and negative, while its interaction with *New Region* is significant and positive. We thus see a reversal of slope in the effect of *Superior Productivity* between existing and new regions, with a significant difference between them, which is consistent with our analytical model and provides strong support for Hypothesis 3.

Insert Table 2 and Figures 4a and 4b about here

Given the non-linear nature of our model, we cannot directly interpret the interaction effects in Table 2 (Hoetker, 2007). To understand these interactions better, we graph them out using the simulation-based approach suggested by Zelner (2009). Figure 4a shows the predicted likelihood of acquisition as a function of target productivity for targets in new and existing regions separately (based on Model III)²². All other independent variables are set to either their sample mean (for non-binary variables) or their sample mode (for binary variables) (Zelner, 2009). Figure 4b then plots the difference between the new

²² Because we consider the entire population of potential targets, the baseline probability of acquisition is very low (184 events out of 1,229,057 observations), reflecting the fact that the chance of one firm in the industry acquiring another in a given year is generally negligible.

and existing region lines shown in Figure 4a, along with a 95 percent confidence interval around the predicted difference. These plots show that acquisition likelihood declines with target productivity for inferior targets in both new and existing regions, though the likelihood of acquisition is significantly higher for targets in existing regions than in new regions. For superior targets, acquisition likelihood continues to decline with target productivity for targets in existing regions, but starts to rise for targets in new regions, with the difference in the two slopes being significant. As the figure shows, acquisition likelihood is significantly lower in new regions than in existing regions for targets with productivity similar to the acquirer, but becomes higher in new regions than in existing regions (though not significantly so) for targets with substantially higher productivity than the acquirer, consistent with Hypothesis 3. In general, Figure 4a is strongly consistent with Figure 2, providing support for our theory.

These results are economically significant. Holding all other variables at their average level, a target in an existing region with manufacturing productivity one standard deviation below that of the acquirer is 51 percent more likely to be acquired than a target with productivity equal to the acquirer, while a target with productivity one standard deviation above the acquirer is 42 percent less likely to be acquired. For targets in new regions, a target with productivity one standard deviation below the acquirer is 29 percent more likely to be acquired, and a target with productivity one standard deviation above the acquirer is 61 percent more likely to be acquired, compared to a target with productivity equal to the acquirer.

To test hypotheses 4a and 4b we turn to a split sample analysis which is shown in Models IV to VII. Models IV and V show the results of our two-slope regression in the subsamples of geographically diversified and focused (i.e. single region) firms respectively,

while Models VI and VII show them for subsamples of firms with and without prior acquisition experience. Both sets of results show a similar pattern: first, consistent with H4a, the coefficient of *Inferior Productivity* is more negative for firms with weak acquisition capabilities than for those with strong acquisition capabilities, with the difference in coefficients being significant for focused vs. diversified acquirers ($z=3.80^{***}$), though not for experienced vs. inexperienced acquirers ($z=1.33$). Hypothesis 4a is thus partially supported. Second, consistent with Hypothesis 4b, we see a positive and significant interaction between *Inferior Productivity* and *New Region* in less capable acquirers, but an insignificant (and negative) coefficient for high capability acquirers, with the difference between them being significant ($z=3.10^{***}$ for the difference between diversified and focused acquirers, and $z=2.33^{**}$ for the difference between experienced and inexperienced acquirers). Hypothesis 4b is thus supported. Third, we also see that the effects of *Superior Productivity* are only significant in the case of strong acquisition capability firms, i.e., those that are geographically diversified or have prior acquisition experience. In particular, the coefficient of the interaction between *Superior Productivity* and *New Region* is positive and highly significant for strong acquisition capability firms, but insignificantly different from zero for weak acquisition capability firms. Though the difference in these coefficients between the two types of acquirers is not statistically significant in either case (largely due to the high standard error of the coefficients in the weak acquisition capability case), these results are directionally consistent with our predictions in Hypotheses 4a and 4b.

To interpret these results more clearly, we graph the results for Models IV and V in Figure 5a and 5b respectively using the same approach as that used in Figure 4a²³ (graphs for Models VI and VII, not shown, are similar). Consistent with our theoretical predictions,

²³ All other variables are set to the subsample mean or mode when drawing these figures. Note that the figures use different scales, reflecting the greater baseline probability of acquisition by diversified firms.

these graphs show that firms with weak acquisition capabilities generally restrict themselves to acquiring inferior targets in existing regions. They almost never acquire targets in new regions, and are also very unlikely to buy superior targets. In contrast, firms with strong acquisition capabilities are not only more likely to undertake acquisitions in general, but they are open to a broader range of targets, including targets with superior productivity, and those in new regions. Interestingly, these figures show that geographically diversified acquirers have a higher propensity to acquire targets with similar capability levels in existing areas, than predicted by our model. It may be that firms with strong acquisition capabilities are able to capture some value from ‘cream-skimming’ acquisitions, or to realize complementarities between different types of functional capabilities. That one difference aside, the consistency between our theoretical predictions in Figure 3 and the observed empirical relationships in Figures 5a and 5b strongly confirm our theoretical arguments.

Insert Figures 5a and 5b about here

CONCLUSION

These empirical findings provide strong support for our theory. As predicted by our analytical model, we find that acquirers pursue weak targets in existing markets, consistent with capability deployment, but are relatively more willing to acquire superior targets when entering new markets, consistent with capability acquisition. These preferences are moderated by the buyer’s acquisition capabilities, with firms that have weak acquisition capabilities generally limiting themselves to buying inferior targets in existing markets, while those with strong acquisition capabilities pursue a broader range of targets and are relatively more willing to enter new markets and acquire superior targets.

By predicting and successfully testing these results, our study contributes to the

M&A literature in a number of ways. To begin with, it complements and extends recent work that offers a capabilities-based perspective on acquisitions (Karim and Mitchell, 2000; Capron and Mitchell, 2009), applying this perspective to the question of acquirer target selection. We highlight two sources of value from acquisition (Rhodes-Kropf and Robinson, 2008)—the value from deploying the acquirer’s existing capabilities to improve target performance (Jovanovic and Rousseau, 2002; Berchicci et al., 2012) and the value of acquiring new capabilities from the target to combine with those of acquirer (Karim and Mitchell, 2000; Ahuja and Katila, 2001; Ranft and Lord, 2002; Capron and Mitchell, 2009)—and map these two distinct sources of value to two distinct types of targets, thus expanding our conception of strategic fit (Larsson and Finkelstein, 1999; Kim and Finkelstein, 2009). In doing so, we shed new light on the long-standing debate between the need for similarity or difference in acquisitions (Harrison et al., 1991; Kim and Finkelstein, 2009), and emphasize the need to adopt a multidimensional perspective when comparing capabilities (Tanriverdi and Venkatraman, 2005; Zaheer et al., 2013).

Our study also advances our understanding of the relatively underexplored question of the antecedents of acquirer target selection. While prior work on target selection has mainly focused on the information challenges associated with identifying and valuing targets (Baum et al., 2000; Schildt and Laamanen, 2006; Chakrabarti and Mitchell, 2013), we bring a capabilities-based perspective to bear on the antecedents of target choice, highlighting the different benefits from an acquisition, and their implications for target selection. We do so, moreover, by developing a rigorous formal model, one that allows us to consider the multiple benefits and costs associated with acquisition in an integrated and coherent way. We are then able to validate the predictions of this model in a longitudinal empirical setting while accounting for the complete set of potential targets.

Finally, our study also contributes to the literature on dynamic capabilities (Teece, Pisano, and Shuen, 1997; Eisenhardt and Martin, 2000; Helfat et al., 2007), especially work on acquisition capabilities (Zollo and Singh, 2004; Laamanen and Keil, 2008). We show that such acquisition capabilities have a significant effect on acquirer target selection, enabling more capable acquirers to pursue sources of acquisition value that may be unavailable to other firms (Mitchell and Shaver, 2003).

As with any study, our work has limitations, which provide the opportunity for future research and improvement. First, while our theory and results are consistent with firms pursuing targets that are likely to maximize acquisition value, we do not directly test the performance of the acquisitions we study. We therefore cannot be sure that these acquisitions are, in fact, resulting in benefit to the acquirers, nor can we empirically confirm that these benefits are the result of capability deployment or acquisition, since we do not observe the deployment or recombination of capabilities post-acquisition. Second, while we believe that our theory applies broadly to many different types of capabilities across many different contexts, we are only able to test our predictions for one type of capability (manufacturing productivity) across one type of context (geographic markets). Future work could build on our study by extending it to other empirical contexts, using our theory and formal model to develop specific predictions for these contexts. Future work could also use our model to develop additional predictions, such as predictions about other factors that impact information or integration costs, or predictions about differences in the level of complementary resources. Finally, our empirical analysis is limited to a single industry (brewing) in a single country (China), one that is experiencing a period of rapid growth. Future work could test the generalizability of our findings across other industries and countries.

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Table 1 Summary statistics and correlations

No	Measure	Mean	S.D.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	Acquisition	0.00	0.01	0.00	1.00	1.00													
2	Acquirer Sales	10.41	1.75	0.69	16.33	0.03	1.00												
3	Acquirer Geo. Diversification	0.03	0.12	0.00	0.87	0.04	0.45	1.00											
4	Target Sales	10.52	1.51	1.79	15.33	0.00	0.01	0.01	1.00										
5	Acquirer Experience	0.26	2.02	0.00	33.00	0.05	0.33	0.60	0.01	1.00									
6	Acquirer Debt Level	7.89	10.05	0.00	38.17	-0.01	-0.18	-0.14	-0.01	-0.08	1.00								
7	Acquirer Productivity	0.17	1.01	-2.82	2.77	0.01	0.54	0.17	0.04	0.11	-0.14	1.00							
8	Majority State Owned	0.28	0.45	0.00	1.00	0.00	-0.10	-0.11	-0.06	-0.06	0.06	-0.22	1.00						
9	Majority Foreign Owned	0.12	0.32	0.00	1.00	0.02	0.37	0.38	0.00	0.12	-0.23	0.11	-0.23	1.00					
10	Ownership Difference	0.75	0.43	0.00	1.00	-0.01	0.01	0.01	0.07	0.00	-0.01	0.03	-0.17	0.05	1.00				
11	Business Group Affiliation	0.07	0.25	0.00	1.00	0.03	0.38	0.29	0.00	0.35	-0.11	0.13	0.03	0.03	0.00	1.00			
12	Region Information Index	2.23	2.01	-0.14	11.28	0.00	0.06	0.06	0.21	0.07	-0.05	0.16	-0.22	-0.01	0.02	0.00	1.00		
13	Region Concentration	0.26	0.17	0.07	1.00	0.00	0.02	0.02	0.04	0.02	-0.02	0.05	-0.09	0.00	0.03	0.01	0.20	1.00	
14	Target Productivity	0.24	1.01	-2.82	2.77	0.00	0.02	0.02	0.61	0.03	-0.02	0.06	-0.09	0.00	0.04	0.00	0.24	0.01	1.00
15	New Region	0.94	0.24	0.00	1.00	-0.02	-0.08	-0.14	0.00	-0.17	0.02	-0.04	0.01	-0.04	0.01	-0.05	-0.01	0.07	-0.01

A capabilities-based perspective on target selection

Table 2 Main results

	All Acquirers			Diversified Acquirers	Focused Acquirers	Experienced Acquirers	Inexperienced Acquirers
	I	II	III	IV	V	VI	VII
Acquirer Sales	1.060*** (0.214)	1.018*** (0.210)	1.031*** (0.210)	0.807** (0.390)	1.240*** (0.298)	0.245 (0.234)	1.328*** (0.269)
Acquirer Geog. Diversification	0.461 (0.925)	0.030 (0.919)	0.007 (0.922)			0.377 (0.984)	-2.017* (1.108)
Target Sales	0.167*** (0.061)	0.269*** (0.066)	0.274*** (0.064)	0.250*** (0.076)	0.294*** (0.097)	0.276*** (0.064)	0.260** (0.124)
Acquirer Experience	-0.021 (0.035)	-0.046 (0.036)	-0.047 (0.036)	-0.028 (0.037)	0.280 (0.984)		
Acquirer Debt Level	-0.024 (0.084)	-0.030 (0.091)	-0.031 (0.092)	-0.176 (0.181)	-0.000 (0.066)	0.064 (0.110)	0.001 (0.062)
Acquirer Productivity	-0.230 (0.321)	-0.241 (0.328)	-0.119 (0.334)	-0.147 (0.539)	-0.240 (0.338)	0.055 (0.866)	-0.389 (0.313)
Majority State Owned	0.601 (0.548)	0.549 (0.576)	0.533 (0.574)	1.336** (0.603)	-0.588 (0.606)	1.633*** (0.506)	-0.925* (0.552)
Majority Foreign Owned	1.153*** (0.353)	1.181*** (0.382)	1.164*** (0.385)	1.334*** (0.399)	1.052* (0.600)	1.479*** (0.422)	0.667 (0.456)
Ownership Difference	-0.834*** (0.160)	-0.847*** (0.164)	-0.838*** (0.165)	-0.664*** (0.109)	-1.177*** (0.356)	-0.623*** (0.145)	-1.312*** (0.380)
Business Group Affiliation	1.155*** (0.373)	1.194*** (0.382)	1.178*** (0.381)	1.798*** (0.531)	0.641** (0.323)	1.765** (0.692)	-0.078 (0.597)
Region Information Index	-0.025 (0.150)	-0.105 (0.174)	-0.100 (0.173)	-0.239 (0.265)	0.202 (0.152)	-0.171 (0.287)	-0.260 (0.190)
Region Concentration	1.459 (1.403)	1.390 (1.413)	1.287 (1.443)	1.489 (1.252)	0.817 (1.013)	1.945 (1.243)	1.253 (1.912)
New Region		-2.009*** (0.438)	-2.153*** (0.465)	-2.214*** (0.538)	-2.128*** (0.644)	-1.932*** (0.506)	-3.050*** (0.511)
Target Productivity		-0.426*** (0.100)					
Target Productivity *New Region		0.482*** (0.187)					
Inferior Productivity			-0.384*** (0.110)	-0.178** (0.076)	-1.271*** (0.275)	-0.265*** (0.100)	-0.662** (0.282)
Superior Productivity			-0.701* (0.413)	-0.750* (0.408)	-0.146 (0.691)	-1.078** (0.440)	-0.125 (0.790)
Inferior Productivity * New Region			0.166 (0.243)	-0.179 (0.227)	1.342*** (0.435)	-0.170 (0.260)	0.880** (0.369)
Superior Productivity* New Region			0.839*** (0.283)	0.888*** (0.313)	0.190 (0.695)	0.953*** (0.324)	0.308 (0.591)
Superior Target			0.270 (0.430)	0.357 (0.421)	0.364 (0.575)	0.820** (0.381)	-0.457 (0.880)
Constant	-25.104*** (2.904)	-23.577*** (3.027)	-23.801*** (3.028)	-21.228*** (5.426)	-27.168*** (4.284)	-15.406*** (3.877)	-26.325*** (3.948)
N	1229057	1229057	1229057	95211	1133846	65822	1163235

Rare-event logit models. Figures in parentheses are robust standard errors. All models include region and year fixed effects. Significance * <0.1, **<.05, *** <.01

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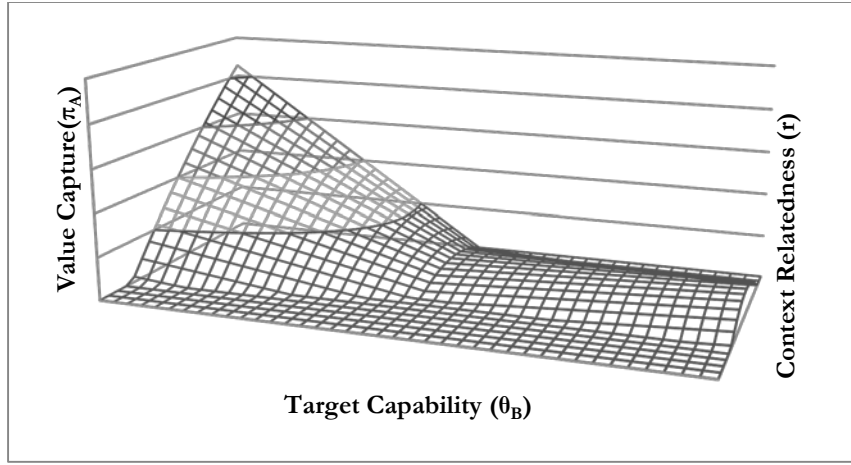


Figure 1

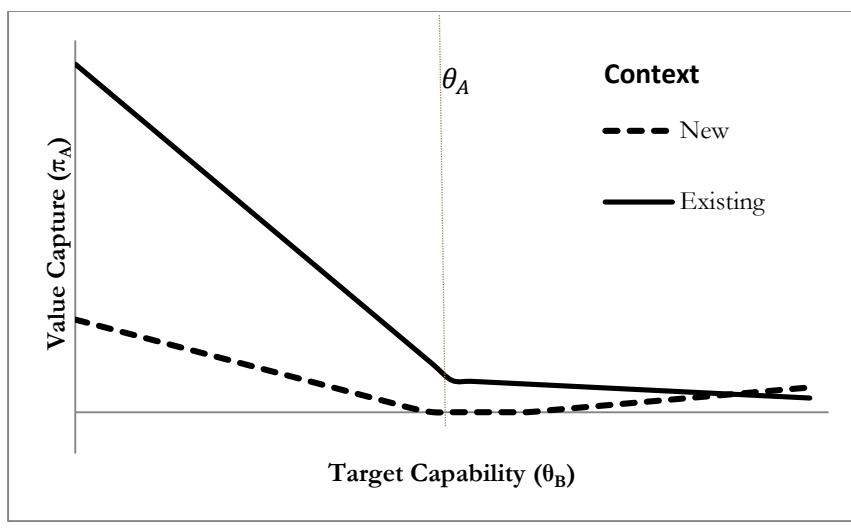


Figure 2

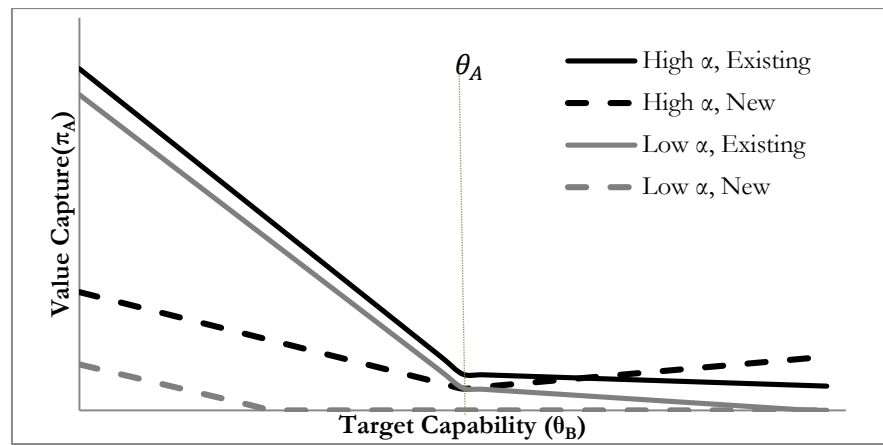


Figure 3

A capabilities-based perspective on target selection

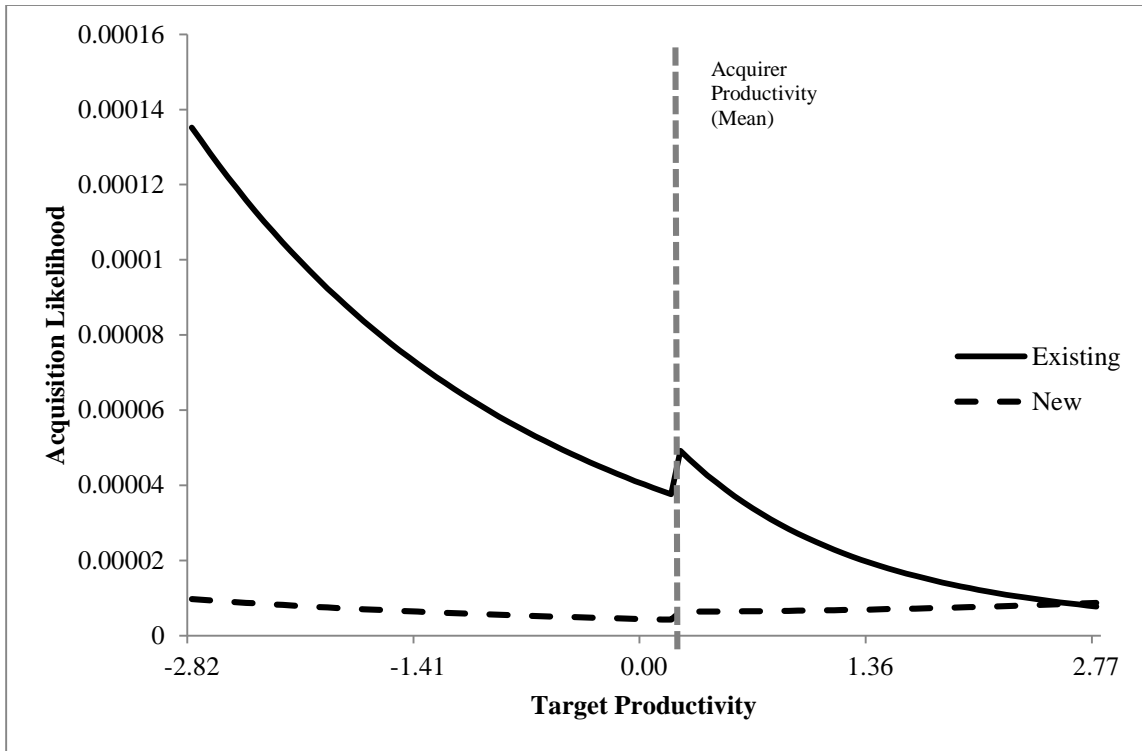


Figure 4a

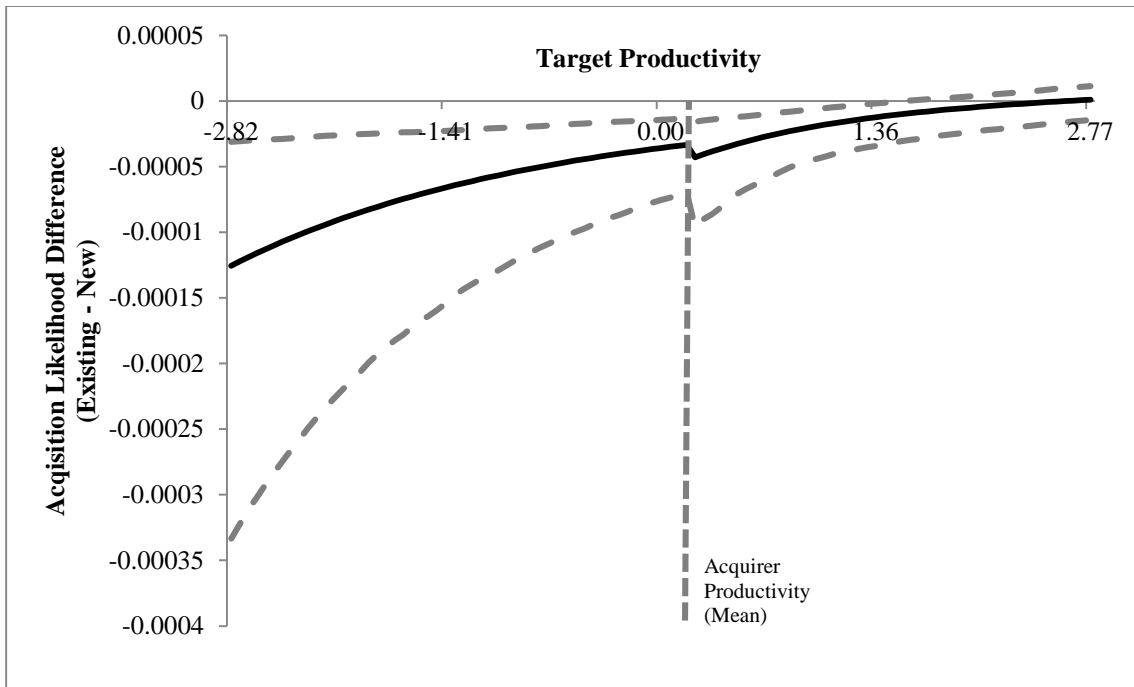


Figure 4b

A capabilities-based perspective on target selection

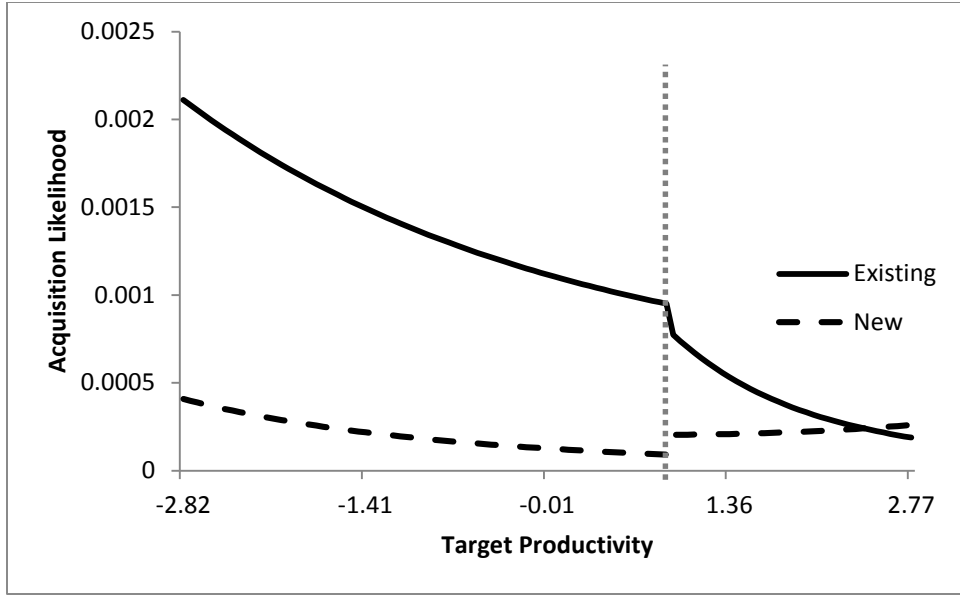


Figure 5a: Diversified Acquirers

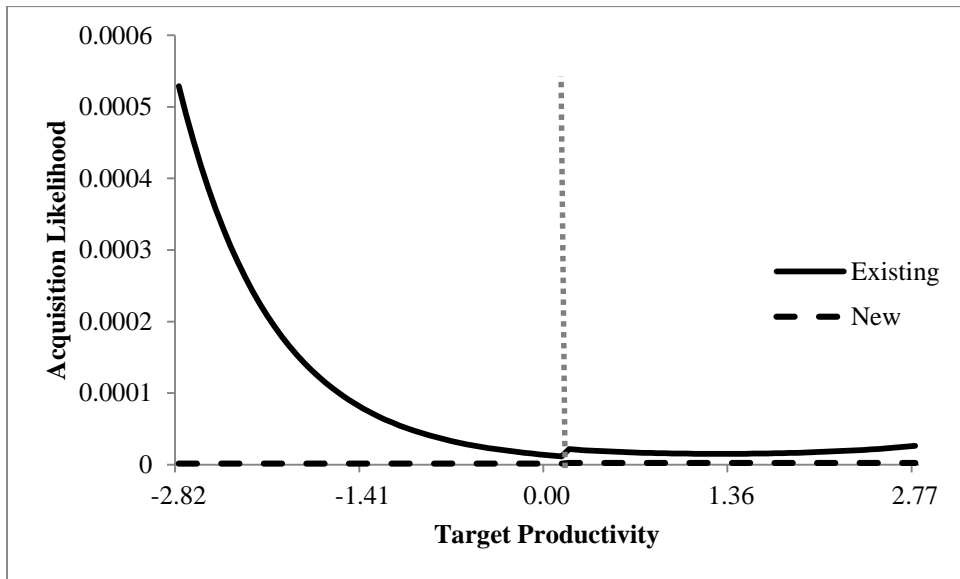


Figure 5b: Focused Acquirers