ACQUISITION ANNOUNCEMENTS AND STOCK MARKET VALUATIONS OF ACQUIRING FIRMS’ RIVALS: A TEST OF THE GROWTH PROBABILITY HYPOTHESIS IN CHINA

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To examine the impact of acquisition announcements on the stock market returns of rivals of the acquiring firms, we propose a growth probability hypothesis: when an acquisition is announced, it signals the potential for future growth in the acquirer’s industry to the market, resulting in positive stock market reactions to rivals of the acquiring firms. We test the growth probability hypothesis with a longitudinal sample of Chinese domestic and cross-border acquisitions during 1993–2008. The results provide robust support for this hypothesis as a means to explain market reactions to rivals of acquiring firms. We also empirically test and negate alternative theoretical explanations advanced in prior literature to explain positive market reactions to rivals of the target firms. Copyright © 2012 John Wiley & Sons, Ltd.
the market power of participating firms, thus weakening the competitive advantages of other firms in the industry. This fosters the general belief that M&As are harmful to the competitors of the firm that undertakes the acquisition (Brito, 2003; Molner, 2007), but no consistent empirical evidence supports this belief. Moreover, theoretical explanations advanced to explain the positive market reaction to rivals of target (rather than acquiring) firms remain far from convincing, as we elaborate in the next section.

We therefore propose an alternative explanation, according to the growth probability hypothesis, of positive stock market reactions to rival firms after M&A announcements. We argue that M&As convey information about the potential for future growth in the industry of the acquiring firm, irrespective of whether the M&A itself takes place in the same industry (horizontal) or another industry (non-horizontal). The rivals of acquiring firms thus experience positive abnormal returns when M&As are announced. We further propose that the positive stock market reaction to the rival firms is contingent on acquisition-specific and industry-specific variables that influence market signals regarding the growth potential of rival firms. We test our hypotheses on a longitudinal sample of domestic and cross-border acquisitions in China during 1993–2008. China, with its average gross domestic product (GDP) growth rate of approximately 10 percent since 1991 and annual M&A growth rate of 70 percent since 2000, provides an ideal setting to develop and test our growth probability hypothesis.

Our research makes three important contributions to the literature on M&As. First, by proposing and testing the growth probability hypothesis, we help shift the current focus in M&As on the acquirer or target firms to rival firms. A focus on just the acquirer or the target firm cannot determine the specific mechanism by which M&As benefit or harm different groups of firms in an industry (Chatterjee, 1986). Instead, by focusing on rival firms, we decipher if the benefits of M&As reflect the creation of greater market power or diminished competitiveness among the remaining firms in an industry. Second, we challenge the conventional wisdom that M&As are always harmful for the remaining firms in the industry. Many firms try to scuttle M&A deals pursued by their competitors or try to get inside merger events (Akdogu, 2003). Our theory suggests being an outsider to an acquisition may, in fact, result in a positive market reaction. Finally, M&As often occur in waves because rival firms follow the M&A behavior of their competitors (Pepall, Richards, and Norman, 2005). Thus, a better understanding of how investors react to rival firms after a focal firm’s M&A announcement can help us recognize the dynamics underlying industry-specific waves.

THEORY AND HYPOTHESES

Theoretical background

Three theoretical arguments attempt to explain rivals’ gains in the aftermath of M&A announcements. First, consistent with Stigler (1950), some industrial organization scholars argue that horizontal M&As result in reduced competition, which creates collusion between the remaining firms and increases market power for the acquirer, target, and any remaining rival firms (Clougherty and Duso, 2009). However, this collusion and market power hypothesis has been rejected in several empirical studies (Eckbo 1983, 1985; Stillman, 1983). Second, the acquisition probability hypothesis suggests that horizontal M&As increase the probability that rivals of target firms will become targets of future acquisition activities (Wallace, Song, and Walkling, 2000). Wallace and colleagues (2000) find some support for this hypothesis, but it cannot describe the effects of non-horizontal acquisitions on the rivals of acquiring firms. Third, the managerial hubris hypothesis (Jemison and Sitkin, 1986; Roll, 1986) notes that most acquisitions destroy the value of the acquiring firm, so rivals gain from M&A activities. To support this reasoning, Clougherty and Duso (2009) cite meta-analytic studies that confirm M&As harm the merging firms. Thus rivals (of either the acquiring or target firms) benefit only if the merger fails and the focal firms suffer. Extant literature again offers no conclusive empirical evidence of this effect.

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1 Stigler (1950) first argued that being an insider to a merger is not always beneficial, because rival firms can free-ride on the efforts of the merging firms to improve industry profitability without incurring any acquisition costs. Salant, Switzer, and Reynolds (1983) and Deneckere and Davidson (1985) also demonstrate that in Cournot and Bertrand competitions, being an outsider to a merger is more beneficial than being an insider.

2 We empirically test the alternative theoretical explanations and show that they do not explain the market reaction to the rivals of the acquiring firms when M&As are announced.
While there is research on the impact of M&As on rivals of target firms (with mixed empirical evidence), there is little research on the market reactions to rivals of acquiring firms on M&A announcements. Moreover, even without the preceding limitations, explanations that apply to rivals of target firms do not necessarily apply to rivals of acquiring firms across both horizontal and non-horizontal acquisitions. For example, the collusion and market power and the acquisition probability hypotheses refer specifically to horizontal acquisitions; non-horizontal acquisitions neither reduce industrywide competition nor increase acquisition probability in the acquiring firm’s industry. Thus, existing theories about the impact of M&A announcements for the rivals of target firms offer limited value for explaining the effect of M&A announcements on the rivals of acquiring firms.

Several scholars have called for more detailed analyses to understand how markets react to these rivals. For example, Chatterjee (1992:269) suggests that research should try to ‘uniquely determine the capital market’s expectations about the motive behind the original takeover bid.’ More recently, in an extensive review of M&A literature, Haleblian et al. (2009: 491) came to the conclusion that ‘little is known about how acquisitions affect rival firms in the market.’ In response to these calls, we propose and test a new theoretical explanation based on the growth probability hypothesis to study the market reaction to M&A announcements for the acquirer’s rivals. Before we elaborate on our arguments for the growth probability hypothesis, we detail the context in which we ground and test our theoretical arguments.

**M&As in China**

China has an annual GDP growth rate in the range of 8–12 percent, which has made it the fastest growing economy in the world for many years. In turn, M&As have become popular strategic tools for Chinese firms to pursue inorganic growth, especially since the establishment of stock markets to help privatize state-owned enterprises (SOEs). Government played and continues to play an active role in promoting these formerly SOE firms (Backman, 2001), and M&As that help listed firms grow might provide positive growth signals about rivals of the acquiring firms as well. The socialist legacy of China’s past also did not allow the emergence of large enterprises, which created highly fragmented markets. The 2005 National Economic Census listed 192,000 SOEs, 456,000 collective enterprises, and 1.98 million private enterprises (Yuen, 2006). Many firms, especially former SOEs, possess good assets and resources because of their state support, but they remain poorly managed, making them ideal targets for M&As. If a firm wants to grow into a new product or geographic market in China, it is almost always easier to do so by acquiring another firm than by growing organically. Thus, inorganic growth through M&As constitutes a primary growth mechanism for listed firms in China.

Finally, being big is becoming a virtue in China (and many other emerging economies). An unofficial goal of the Chinese government is to populate the Fortune 500 list with as many Chinese firms as possible (Backman, 2001; Chen and Shih, 2008). Its tenth five-year plan (2001–2005) specifically states that government should encourage cross-region reorganization through M&As to help establish internationally competitive enterprises (Chen and Shih, 2008). Thus, investors in China do not view M&As negatively. In contrast with developed markets, acquiring firms often experience positive abnormal returns on their M&A announcements. For example, Chi, Sun, and Young (2008) studied the market reactions to 1,148 M&A deals by Chinese listed firms and found positive abnormal returns for the acquiring firms.

These characteristics of emerging markets in general and China in particular clearly show the tremendous opportunities for firms to grow inorganically. This is evident by the growth of M&As in China. In terms of number of M&As by country, China ranked second behind the United States in 2010, at 3,800 deals, and third in terms of transaction value, at about US$150 billion (Economist, 2011). Noting these contextual characteristics, we develop our growth probability hypothesis to explain market reactions to the rivals of acquiring firms after M&A announcements.

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3 For example, the Aluminum Group of China, in 2006, spent US$256 million to acquire stakes in eight aluminum companies. In the same year, it also spent US$70 million to acquire the Shanghai Non-Ferrous Metals Group to diversify into non-ferrous metals (Fuchun, 2007).
The growth probability hypothesis

According to the growth probability hypothesis, an acquisition in a growth market signals future growth potential for the remaining firms in that industry, resulting in positive market valuations of the acquirer’s rival firms. We first discuss the mechanism by which acquisition announcements signal growth potential for rival firms, and then outline the relevance of this potential for growth markets like China.

An acquisition announcement provides different signals to the market, depending on the underlying motives for acquisitions. The motives vary according to whether the acquisition is horizontal or non-horizontal in nature (Haleblian et al., 2009). In the case of horizontal acquisitions, firms may identify value creation opportunities that they could obtain through scale economies and increasing efficiency of operations (Banerjee and Eckard, 1998), redeployment and acquisition of resources (Capron, Dussauge, and Mitchell, 1998; Puranam and Srikanth, 2007), or increased market power and reduced competition in an industry (Prager, 1992; Kim and Singal, 1993). In all these cases, the acquisition signifies the presence of value-creating opportunities, which are available not only to the acquirer but also to the remaining players in the industry. As a result, the market reacts positively to these remaining players.

A non-horizontal acquisition also can be value enhancing if it helps the focal firm better exploit its existing capabilities and resources and/or if the target firm is undervalued due to poor management. Such acquisitions provide signals of possible operational and/or financial synergies. However, firms also engage in non-horizontal acquisitions in response to environmental factors, such as increased uncertainty (Schilling and Steensma, 2002), regulatory changes (Beneish, Jansen, Lewis, and Stuart, 2008), or a high level of resource dependence on another industry. These non-horizontal acquisitions highlight sources of synergy in the external environment. If the firms can diversify and restructure, even in the face of impending regulatory or other challenges in their primary industry, then their rivals also may have a high probability of making successful adjustments, perhaps through similar non-horizontal acquisitions. Growth through non-horizontal acquisitions also provides risk-reduction benefits and signals a less volatile earning stream (Elgers and Clark, 1980; Gaughan, 2011), which is particularly important in emerging markets. Thus, an acquisition announcement in response to external pressures can imply that firms in the same industry as the acquiring firm have the potential to make adjustments, similar to the focal firm. In anticipation, investors likely react positively to rivals.

There is both theoretical and empirical support for the positive information effect conveyed by M&As. In industrial organization literature, Brito and Catalao-Lopes (2006) show that in the absence of strong antitrust sentiments, firms have the potential to become near monopolies, which benefits all remaining players. In this scenario, firms may prefer to become acquirers, rather than targets. Chatterjee (1986) argues that M&A announcements can contain information about innovations that make it possible for the acquiring firm to create efficiencies. Rival firms then may use this information to exploit the same efficiencies and grow. Although Chatterjee (1986) only looks at the rivals of target firms, he finds general support for this information effect. Likewise, Bradley, Desai, and Kim (1988) suggest that acquisition announcements, particularly the first ones in an industry, signal unique, industry-specific resources, which enhances market valuations for rival firms.

The positive impact of acquisition announcements on the growth potential of rival firms should be especially relevant in China. First, the large-scale institutional changes in China in the past few decades have created conducive opportunities for inorganic growth through M&As (Backman, 2001). According to neoclassical theory, firms use M&As as efficient responses to external shocks (Mitchell and Mulherin, 1996). The presence of a large number of firms, coupled with regulatory changes and available liquidity in the market—the conditions prevalent in China—creates ideal conditions for inorganic growth through M&As (Harford, 2005). Second, to support its policy of encouraging large, economically powerful enterprises, the government supports mergers among larger enterprises and encourages them to acquire smaller ones (Backman, 2001). When a listed firm in China acquires another firm, it signals that other listed firms in that industry also have opportunities to undertake such acquisitions and grow. Growth through unrelated diversification is not uncommon in emerging markets and prompts positive evaluations according to institutional void arguments (Khanna and Palepu,
Thus, M&As signal to the market that the rivals of the acquiring firms have the potential to be big, and investors put a premium on firms with this very potential. Accordingly, we propose a baseline hypothesis:

**Hypothesis 1:** Acquisition announcements result in positive abnormal returns for the rivals of the acquiring firms.

In the following sections, we offer more nuanced arguments for the growth probability hypothesis by suggesting factors that should affect the degree to which the market reacts to the rivals of acquiring firms.

**Market reactions to acquirers and returns for rival firms**

In developing Hypothesis 1, we anticipate that in a growth market such as China, all M&A announcements signal future growth potential for rival firms, resulting in a positive market reaction to the acquiring firm’s rivals. However, the market’s expectations about the potential success or failure of an acquisition should also influence assessments of the growth potential of the rival firms. An acquisition to which the market reacts positively should send a positive signal about growth potential; one to which the market reacts negatively may send a negative signal about the growth prospects of rivals in the industry of the acquiring firm (Moeller, Schlingemann, and Stulz 2005). That is, the degree of market reaction to the rivals of the acquiring firms is contingent on the type of market reaction (positive or negative) that acquisitions generate for the acquiring firms.

If the market expects an acquisition to be beneficial for the acquiring firm, the potential to create synergies appears clear (Chatterjee, 1986). These synergies might be operational, collusive, or financial (Walker and Hsu, 2007) and arise due to firm-specific or environment-specific factors (Brito and Catalao-Lopes, 2006). In the case of operational synergy, the acquiring firm experiences improved efficiency, often as a result of resource transfers between the acquirer and the target (Capron and Pistre, 2002). Collusive synergies arise if the merger allows the acquiring firm to drive out competition and enjoy higher prices for its products and services. Finally, financial synergies indicate that the acquisition has lowered the cost of capital. Operational and collusive synergies are often associated with horizontal acquisitions, but financial synergies tend to involve non-horizontal acquisitions.

In the case of a horizontal acquisition, the consolidated industry creates market power for all players and signals the potential for further industry consolidation (Brito and Catalao-Lopes, 2006). Consequently, the market reacts favorably to both the focal firm and its rivals. Even in the case of a non-horizontal acquisition, a positive market reaction indicates opportunities for rival firms to grow and diversify in other industries. Backman (2001) provides several examples of such a dynamic in growth markets such as China. China National Petroleum Corporation (CNPC) and China Petroleum Chemical Corporation (Sinopec) are cases in point (Backman, 2001). When CNPC was merging with other firms in the same and other industries, markets reacted positively to both CNPC and its main competitor, Sinopec. In this case, investors’ expectations were not misplaced; Sinopec also became a conglomerate by acquiring several SOEs soon thereafter.

As this example shows, China offers ample opportunities for firms to create synergies. Moreover, the source of these synergies often relies just as much on the environment as on the firms involved, such as the Chinese government’s active promotion of increasing firm size through acquisitions (Chen and Shih, 2008). Target firms often sell at substantial discounts to help a listed acquiring firm grow without compromising its strengths. The availability of a vast number of undervalued potential targets also means there are ample opportunities to create operational and financial synergies. In contrast with the developed markets, which tend to prioritize consumers’ interests and enforce strict competition laws to limit M&A activity, the Chinese government also encourages collusive synergies, which rely on the contributions of external factors. Therefore, the benefits of these synergies likely are shared across all competitors in the industry, not maintained by just the firm involved in the M&A.

Acquisitions that generate negative market reactions instead represent negative signals to the
market about the industry of the acquiring firm (Jovanovic and Braguinsky, 2004; Moeller et al., 2005). If the focal firm cannot capture value from an acquisition, there appears to be a lack of synergy available to other firms as well in that industry. The market also perceives that there may not be any internal or external growth opportunities for incumbent firms. Finally, these negative signals make it less likely that the rival firms themselves would engage in acquisitions. That is, M&As become legitimate means to achieve inorganic growth when firms observe markets reacting positively to M&A announcements, which creates the isomorphic pressure for rivals to engage in acquisitions too. However, if markets react negatively to M&A announcements, they no longer appear to provide legitimate growth tools. Even if rival firms still engaged in M&As, markets would be likely to react negatively.\(^5\) Market reactions to various key corporate activities appear to follow such trends; stock prices shift in the same directions for rival firms and focal firms in cases such as dividend announcements (Firth, 1996), earnings forecasts (Baginski, 1987), bankruptcy announcements (Lang and Stulz, 1992), and merger proposals (Eckbo, 1983). Consistently, we expect rival firms to experience market returns that parallel those for the acquiring firm.

Hypothesis 2: The returns for rivals of an acquiring firm are contingent on the returns for the acquiring firm; when an acquisition generates positive (negative) returns for the acquiring firm, rivals also experience positive (negative) returns.

Industry competition and returns for rival firms

Our arguments related to the growth potential hypothesis are mostly industry specific, such that the level of competition in an industry likely affects the degree of market reaction. Oligopolistic industries (high concentration) reveal greater interdependence among firms, so a strategic initiative by one firm is likely to be felt strongly by its rivals (Brito and Catalao-Lopes, 2006; Scherer and Ross, 1990). But if an industry is characterized by a high level of competition and several players, the effect of any action by one firm may be too small to be sensed by other players (Brito and Catalao-Lopes, 2006; Clougherty and Duso, 2009; Scherer and Ross, 1990). The information effect thus should vary with the level of competition in an industry.

With respect to the growth probability hypothesis, an acquisition in an industry with a low level of competition should enhance growth chances for all industry participants (Tirole, 1988). In oligopolistic industries, a few large firms have high market share; they also likely possess greater internal resources and thus more growth potential than the smaller, little market share firms in a less concentrated industry. An acquisition by one of the huge market firms changes the competitive dynamic of the entire industry, and given managers’ normative assumption that acquisitions make the focal firm more competitive (Brito, 2003; Molnar, 2007), rival firms likely pursue all possible tactics to improve their own competitiveness (Akdogu, 2003). To pursue available growth opportunities, these rivals may become acquirers themselves.

This dynamic is supported from an industrial organization perspective. In a series of experimental games, Kamien and Zang (1990, 1991, 1993) show that when entry barriers are high and antitrust policies are weak, firms can create near-monopolies in oligopolistic industries. In addition, oligopolistic industries have fewer, larger players that generally have ‘deep pockets’ (Tirole, 1988). In a highly competitive industry though, rivals are smaller and cannot generate enough resources to continue to grow (Tirole, 1988). This distinction gets aggravated if capital markets are poorly developed (Fudenberg and Tirole, 1986), because in the absence of strong capital markets, firms find it difficult to generate external capital and must rely more on their internal resources (Khanna and Palepu, 2000). Smaller firms lack sufficient internal resources and therefore suffer more from weak capital markets. Thus, larger firms with internal resources are more likely to grow than are smaller firms with limited resources.

These arguments reinforce the idea of more interdependence among firms in oligopolistic industries. A high level of interdependence causes stronger contagion and competitive effects for all firms. However, in our Chinese study context, where the government actively promotes the growth of large firms, by ‘managing’ competition, the contagion effect seems likely to be stronger.

\(^5\) We are thankful to an anonymous reviewer for suggesting this dynamic.
than the competitive effect. Furthermore, the presence of a few, ‘deep pocket’ firms suggests room to grow through acquisitions. Thus, we expect a stronger positive reaction from the stock market when an acquisition announcement refers to an industry with lower competition.

**Hypothesis 3:** The positive abnormal returns to rivals of an acquiring firm are greater if the level of industry concentration is higher (i.e., competition is lower).

The intra-industry effects of important corporate events also vary depending on whether the announcements refer to related or unrelated industries (Chen, Ho, and Shih, 2007; Lang and Stulz, 1992). We previously assumed that all rival firms in less competitive industries generally experience a more positive market reaction; if we relax this assumption, we can examine if the degree of market reaction in less competitive industries depends on whether the acquisition is horizontal or non-horizontal.

A horizontal acquisition in an oligopolistic industry further reduces the number of players in the industry, so rivals may have trouble finding ways to grow through even more horizontal acquisitions (Clougherty, 2005). Recall that firms in highly concentrated industries tend to be large and enjoy high market share. A merger between two such players would create a massive company that should lead the industry. This company then enjoys great market power and can adopt low or even predatory pricing tactics (Tirole, 1988), which pressure rival firms’ bottom lines, limit their growth potential, and perhaps even push them out of the market (Brito and Catalao-Lopes, 2006). These rival firms might want to pursue horizontal acquisitions to limit the market power of the acquiring firm, but such a strategy is difficult in highly concentrated industries that do not contain many suitable target firms to acquire (Pepall et al., 2005).

If firms in such an industry instead make non-horizontal, diversifying acquisitions, it could be a result of two things. First, the focal firm may have a relatively weaker competitive position in its primary industry and thus explore other growth opportunities (Jovanovic and Braguinsky, 2004). In a regulated market such as China, unrelated diversification through M&As would signal that the government wants firms in that industry to grow in unrelated domains. Second, there may be private synergies available to the focal firm in some other industry (Chatterjee, 1986). Again, the source of such private synergies in tightly regulated markets such as China and India often stem from environment-specific, as well as firm-specific, factors. Examples of private synergies include the creation of internal markets for labor, capital, or products in the presence of institutional voids that limit efficient market-based exchanges or the use of political capital (Khanna and Palepu, 2000). Emerging market firms often achieve such synergies by operating in multiple industries and becoming conglomerates (Khanna and Rivkin, 2001). Thus unrelated diversification through M&As by a firm in an industry with low competition signals growth opportunities available beyond traditional domains for rival firms; to maintain competitive parity, these rivals are highly likely to become acquirers themselves in the future.

Based on the above arguments, we propose that while a non-horizontal acquisition in a less competitive industry will have a positive effect on the returns for the rival firms, a horizontal acquisition will have a negative effect. Accordingly, we hypothesize:

**Hypothesis 4:** The positive effect of industry concentration on rivals’ returns is weaker for horizontal acquisitions than for non-horizontal acquisitions.

**METHODS**

**Empirical setting**

We test our hypotheses with a sample of completed and uncompleted M&As in China during a 16-year period, from 1993 to 2008. As one of the fastest growing economies in the world, China provides an ideal setting for studying and testing the growth probability hypothesis. In particular, since 1991, stock markets in China have experienced phenomenal growth, with market capitalization of listed companies increasing from US$2 billion in 1991 to US$523 billion by 2001 and then to nearly US$5 trillion in 2009. In July 2009, China overtook Japan as the world’s second largest stock market by value (Bloomberg, 2010). Even though China is not a market-oriented economy by Western standards, it has made significant
strides, particularly with respect to its stock market reforms (Miller et al., 2008).  

Sample and data collection

We collected data about M&A deals from the SDC platinum database, using several criteria. First, we chose deals whose transaction value was at least $1 million. We limit the sample to large transactions because they represent economically significant events and are more likely to affect stock market reactions to rival firms. Second, to obtain information about firm-level variables, we chose only entities publicly listed on stock exchanges. Third, we selected acquiring firms whose daily stock prices and annual accounting information appeared in the Datas- 
stream database. These criteria resulted in a sample of 1,074 domestic and cross-border M&As announced by Chinese firms during 1993–2008. Of these 1,074 M&As, nearly 40 percent were incomplete.

To identify rival firms, we used the four-digit standard industrial classification (SIC) codes of the acquiring firms, obtained from both the SDC and Datastream databases. The firms in our sample belonged to 49 unique industries in mainland China. The top three industries in terms of the number of M&As are chemicals, construction and materials, and electricity, with 78, 71, and 70 M&As, respectively. We also collected stock price data from two Chinese stock exchanges: the Shanghai and Shenzhen Stock Exchanges. The final sample features 616 unique acquiring firms and 1,076 unique non-acquiring firms (that did not make any acquisitions during the sample period). For each acquisition, we consider that the rival firm sample comprises both non-acquiring firms and firms that made acquisitions in the past or would make acquisitions later during the sampling period. Our sampling approach is similar to that taken by other studies that examine market reactions to rivals of target firms (e.g., Chen et al., 2007; Clougherty and Duso, 2009).

Dependent variable: cumulative abnormal returns from acquisition announcements

To measure the stock market reaction to Chinese M&A announcements, we collected the daily stock prices for acquiring and rival firms around the announcement dates. We used a standard market model to calculate the cumulative abnormal returns (Brown and Warner, 1985) and coded the announcement date as \( t_0 \). For each acquiring firm \( j \) during the event window \( t_{-2} \) to \( t_{+2} \) (i.e., two days before and after the announcement date), we calculated the abnormal return as:

\[
AR_{j,t} = R_{j,t} - (\alpha + \beta \times R_{m,t}),
\]

where \( AR_{j,t} \) is the abnormal return, \( R_{j,t} \) is the acquiring firm’s daily stock return, and \( R_{m,t} \) is the daily stock market return (for the market on which the acquiring firm is listed). The market model parameters, \( \alpha \) and \( \beta \), are estimated for 130–30 days before the announcement date. We added the daily abnormal returns to measure the cumulative abnormal returns (CAR) during the five-day period \((-2, +2)\) surrounding the acquisition announcement:

\[
CAR_j = \sum_{t=-2}^{+2} AR_{j,t}.
\]

Our use of a five-day event window is consistent with other studies in this area (e.g., Fuller, Netter, and Stegemoller, 2002; Masulis, Wang, and Xie, 2009). As a robustness check, we also conducted the analysis using a three-day event window \((-1, +1)\); the results remain the same.

We followed a similar procedure to calculate the cumulative abnormal returns for each rival firm in the industry (\( CAR_{i} \)) and for each acquisition announcement, which produced 70,734 CAR observations. According to Wallace and colleagues (2000), the abnormal returns of the rival firms cannot be considered independent observations, because rival firms in the same industry react to an acquisition announcement at the same time. To correct for this cross-sectional dependence problem, we adopted the procedure they suggest and grouped the rival firms’ CARs into industry portfolios. Each portfolio of CARs of the rival firms represents the average of the CAR of the individual rival firm in each industry after an acquisition.
where CAR_{ri} is the cumulative abnormal return for a rival firm r in industry i, N is the number of rival firms in industry i, and CAR_{p,i} is the abnormal returns of the rival firm portfolio, which essentially equals the average abnormal returns of each rival firm in the industry portfolio. There are 1,074 industry rival firm portfolios corresponding to acquisition announcements made in the Chinese market during the study period. We use the rival firms’ portfolio CARs as the dependent variable in our regression models.

**Independent variables**

**Focal firms’ acquisition performance.** For each focal firm’s acquisition, we measure acquisition performance with abnormal returns on stock prices (CAR [−2, +2]). A positive abnormal return suggests that the market perceives the acquisition favorably, which increases the wealth of the shareholders. A negative abnormal return signals a pessimistic view of the transaction and destroys the focal firm’s shareholder wealth. In our main analysis, we categorize the acquirer firms’ CARs as a binary variable, with positive CARs equal to 1 and negative or zero CARs equal to 0.

**Degree of industry concentration.** Consistent with other studies (Chen et al., 2007), we use a sales-based Herfindahl index (H_{p,t}), which we normalize with the following equation:

\[ H_{p,t}^{*} = \frac{(H_{p,t} - 1/N)}{1 - 1/N}, \]

where \( H_{p,t}^{*} \) is the normalized Herfindahl index (between 0 and 1) for industry p in year t, and N is the number of firms in industry p. A high value of \( H_{p,t}^{*} \) indicates high concentration (low competition) in the industry.

**Industry relatedness.** We measure industry relatedness of the target and acquiring firms using the firms’ four-digit SIC codes, which represents the most detailed industry information available through the SDC Platinum database. In line with extant literature (e.g., Hayward, 2002; Morck, Shleifer, and Vishny, 1990; Reuer, Shenkar, and Ragozzino, 2004), we develop a binary variable to classify acquirer and target firms as related if they have the same four-digit SIC code and unrelated otherwise.

**Control variables**

To confirm that our results are not confounded by other M&A effects, we include several commonly controlled variables in our regression models. First, we control for cross-border acquisitions (= 1 if the target firm is located outside mainland China and 0 otherwise). Moeller et al. (2005) find that U.S. firms acquiring foreign targets experience significantly lower announcement returns than those that acquire domestic targets. We also control the target firm’s public status (Chang, 1998), mode of payment (= 1 for stock payments, and 0 for cash payments) (Fuller et al., 2002), and merger type (= 1 for mergers in which the acquiring firm combined with the target firm and both firms lost their identity, and 0 for acquisitions where the target firm was subsumed within the acquiring firm). We also included a dummy variable for each year of our study period.

We also control for several financial characteristics of the rival and acquiring firms. In particular, we control for the rival firms’ cash status and asset growth ratio. In line with the free cash flow theory (Jensen, 1987), firms with excess free cash have greater incentive to invest in future acquisitions and thus exhibit greater growth potential. Similarly, firms with higher asset growth ratios are more likely to grow through future acquisitions than are those with lower ratios. We use the cash balance divided by total assets in the fiscal year before the focal firm’s acquisition to measure the cash-to-assets ratio for each rival firm. We also calculate the percentage growth in total assets of each rival firm in the fiscal year before the focal firm’s acquisition, using a portfolio approach.

To address alternative theoretical mechanisms for rival firm reactions, such as the acquisition probability hypothesis (Wallace et al., 2000), we control for the financial characteristics of the rival firms: book-to-market ratio, debt-to-assets ratio, and return on assets. These measures represent valuations of the rival firms’ assets, leverage in their capital structure, financial resources, and operational efficiency; they also reportedly increase the acquisition probability of rival firms and can generate higher market returns for the rivals (Wallace et al., 2000). To capture the size difference
between rival and acquiring firms (Eckbo and Thorburn, 2000), we use the market capitalization of the rival firms, divided by the market capitalization of the acquiring firm, and thereby calculate a measure of relative size.

Other than the asset growth ratio, we control for the same financial measures for the acquiring firms in the last fiscal year before their acquisition announcement. The financial ratios differ significantly across industries, so we use the industry median-adjusted ratios to control for industry heterogeneity. Finally, we include a dummy variable for completed acquisitions, to ensure that our results are not influenced by the status of the acquisition.

Analysis

As we described previously, we first calculated CARs to provide a basis for testing our baseline hypothesis (Hypothesis 1). Next, we analyze cross-sectional variations in rival firms’ CARs. Since our models include predictors at the industry level as well as firm level, we adopt a multilevel modeling technique that can partition the variance of the dependent variable between industry- and firm-level variables. Furthermore, we analyze main and interactive effects of the industry-level variable (i.e., industry concentration) on firm-level outcomes (i.e., rival firms’ abnormal returns), adjusted for other firm-level predictors (Hypotheses 2–4), and therefore we turn to random effects intercept-as-outcomes models (Parboteeah and Cullen, 2003). We follow Cohen et al.’s (2003) recommendations to center the industry-level variable at the grand mean and also center the firm-level variables by the industry mean when testing their interaction effect (Martin, Cullen, and Parboteeah, 2007). After dropping some cases due to missing values for our control and explanatory variables, we were left with a sample of 643 observations across 49 industry groups for the regression analysis.

RESULTS

Table 1 contains the descriptive statistics and correlation matrix. A review of the correlations among independent variables indicates that multicollinearity is not a problem. As Table 1 shows, the acquiring firms’ CAR and industry concentration have a positive correlation with the rival firms’ CAR, consistent with our hypotheses.

We use an event study approach to examine the separate returns for the acquirer, rival, and target firms; in Table 2, we summarize the CAR for the various event windows, and all of them are significantly greater than zero. In Hypothesis 1, we predicted that rivals of acquiring firms would experience positive abnormal returns after M&A announcements, and we conduct univariate analyses to test this hypothesis. The CAR for the rival firms is significant ($p < 0.01$) and positive across various alternative event windows, in support of Hypothesis 1. Our subsequent analyses use an event window of $(-2, +2)$, but other event windows lead to similar results.

The test of Hypothesis 2 employs both univariate tests and multivariate analysis. First, we split our sample of rival firms according to the positive or negative market reactions to the acquisition announcement. Second, we assess market reactions for rivals in each subsample. We find that (1) when acquirers experience a positive market reaction, rival firms also experience a significant and positive market reaction and (2) when acquirers experience a negative market reaction, rival firms also experience a significant and negative market reaction. Two further subsamples, based on a split of horizontal versus non-horizontal acquisitions, provide the same results as we find with the full sample, as we show in Table 3.

The multilevel regression analysis results in Table 4 provide further support for Hypothesis 2. Model 1 shows that the coefficient for the CAR of the acquiring firms (a binary variable) is positive and significant ($\beta = 0.009, p < 0.01$).

In Hypothesis 3, we predicted an association of industry concentration with larger returns for rival firms. Model 1 (Table 4) shows that the coefficient for industry concentration is positive and significant ($\beta = 0.036, p < 0.01$), which implies that rival firms experience higher abnormal returns in highly concentrated industries (lower competition). Hypothesis 3 is supported.

Finally, in Hypothesis 4, we predicted that the positive relationship between industry concentration and rival firms’ CAR would be stronger

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7 This is not conclusive evidence for Hypothesis 1, but our approach matches other management studies that use event studies (e.g., Eden, Valdez, and Li, 2005; Gubbi et al., 2010; Kang, 2008; Uhlenbruck, Hitt, and Semadeni, 2006).
Table 1. Descriptive statistics and correlations

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<tbody>
<tr>
<td>[1] Rival firm CAR (−2, +2)</td>
<td>−</td>
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<td>[2] Cross-border acquisitions</td>
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<tr>
<td>[3] Industry relatedness (four-digit SIC)</td>
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<td>0.00</td>
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<tr>
<td>[5] Rival firms’ asset growth rate</td>
<td>0.09</td>
<td>0.10</td>
<td>0.06</td>
<td>0.01</td>
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<tr>
<td>[6] Rival firms’ book to market ratio</td>
<td>0.08</td>
<td>0.05</td>
<td>0.06</td>
<td>0.01</td>
<td>−0.26</td>
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<tr>
<td>[7] Rival firms’ cash to assets ratio</td>
<td>0.11</td>
<td>−0.03</td>
<td>−0.08</td>
<td>0.02</td>
<td>0.23</td>
<td>−0.12</td>
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<tr>
<td>[8] Rival firms’ debt to assets ratio</td>
<td>−0.08</td>
<td>0.00</td>
<td>−0.02</td>
<td>0.00</td>
<td>−0.09</td>
<td>−0.10</td>
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<tr>
<td>[9] Rival firms’ ROA ratio</td>
<td>−0.08</td>
<td>0.03</td>
<td>−0.03</td>
<td>0.04</td>
<td>0.05</td>
<td>−0.09</td>
<td>0.10</td>
<td>0.82</td>
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<tr>
<td>[10] Acquiring firms’ book to market ratio</td>
<td>−0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>0.08</td>
<td>−0.05</td>
<td>0.03</td>
<td>0.00</td>
<td>−0.06</td>
<td>0.00</td>
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<tr>
<td>[11] Acquiring firms’ cash to assets ratio</td>
<td>−0.07</td>
<td>−0.08</td>
<td>−0.05</td>
<td>0.03</td>
<td>0.02</td>
<td>−0.03</td>
<td>−0.04</td>
<td>0.07</td>
<td>0.08</td>
<td>0.06</td>
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<tr>
<td>[12] Acquiring firms’ debt to assets ratio</td>
<td>−0.04</td>
<td>−0.04</td>
<td>0.04</td>
<td>−0.08</td>
<td>−0.05</td>
<td>0.00</td>
<td>−0.01</td>
<td>−0.02</td>
<td>−0.02</td>
<td>0.00</td>
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<td>[13] Acquiring firms’ ROA ratio</td>
<td>−0.02</td>
<td>0.30</td>
<td>0.08</td>
<td>0.02</td>
<td>0.05</td>
<td>0.04</td>
<td>−0.22</td>
<td>0.03</td>
<td>0.00</td>
<td>0.04</td>
<td>0.16</td>
<td>−0.20</td>
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<tr>
<td>[14] Relative size of rival firm to acquiring firm</td>
<td>0.03</td>
<td>0.06</td>
<td>−0.08</td>
<td>−0.04</td>
<td>0.05</td>
<td>−0.03</td>
<td>0.12</td>
<td>−0.09</td>
<td>−0.02</td>
<td>0.08</td>
<td>−0.05</td>
<td>0.22</td>
<td>−0.20</td>
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<tr>
<td>[15] Dummy: merger transaction</td>
<td>0.02</td>
<td>0.08</td>
<td>−0.10</td>
<td>−0.04</td>
<td>0.01</td>
<td>−0.04</td>
<td>−0.02</td>
<td>0.03</td>
<td>0.02</td>
<td>−0.05</td>
<td>−0.01</td>
<td>−0.04</td>
<td>0.11</td>
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<tr>
<td>[16] Percentage of stock payment</td>
<td>0.05</td>
<td>0.04</td>
<td>−0.03</td>
<td>−0.06</td>
<td>0.05</td>
<td>−0.04</td>
<td>0.06</td>
<td>−0.02</td>
<td>−0.03</td>
<td>−0.08</td>
<td>−0.05</td>
<td>−0.11</td>
<td>0.10</td>
<td>0.37</td>
<td></td>
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<tr>
<td>[17] State ownership</td>
<td>0.02</td>
<td>−0.03</td>
<td>0.05</td>
<td>0.00</td>
<td>−0.02</td>
<td>−0.04</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
<td>0.06</td>
<td>0.00</td>
<td>0.03</td>
<td>−0.03</td>
<td>−0.03</td>
<td>−0.02</td>
<td>−0.04</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>[18] Acquiring firms’ CAR (−2, +2) (binary variable)</td>
<td>0.22</td>
<td>0.00</td>
<td>0.01</td>
<td>−0.01</td>
<td>−0.04</td>
<td>−0.03</td>
<td>0.08</td>
<td>0.00</td>
<td>0.01</td>
<td>−0.03</td>
<td>0.01</td>
<td>0.00</td>
<td>−0.06</td>
<td>0.02</td>
<td>0.04</td>
<td>0.08</td>
<td>−0.04</td>
<td></td>
<td></td>
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<tr>
<td>[19] Industry concentration</td>
<td>0.16</td>
<td>0.34</td>
<td>−0.05</td>
<td>−0.03</td>
<td>−0.10</td>
<td>0.08</td>
<td>−0.25</td>
<td>−0.02</td>
<td>−0.04</td>
<td>−0.02</td>
<td>−0.10</td>
<td>0.01</td>
<td>0.21</td>
<td>−0.06</td>
<td>0.08</td>
<td>0.05</td>
<td>−0.01</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[20] Completed acquisitions</td>
<td>0.03</td>
<td>0.18</td>
<td>0.07</td>
<td>0.01</td>
<td>−0.01</td>
<td>0.06</td>
<td>0.00</td>
<td>−0.11</td>
<td>−0.11</td>
<td>0.12</td>
<td>0.02</td>
<td>−0.03</td>
<td>0.08</td>
<td>0.02</td>
<td>−0.09</td>
<td>−0.10</td>
<td>0.05</td>
<td>−0.04</td>
<td>0.15</td>
<td></td>
</tr>
</tbody>
</table>

**Mean**

|                  | 0.00 | 0.07 | 0.26 | 0.24 | 0.18 | 0.50 | 0.16 | 0.32 | 0.18 | 0.00 | 0.02 | 0.03 | 0.00 | 0.02 | 0.18 | 0.09 | 0.01 | 0.56 | 0.10 | 0.51 |

**Std. deviation**

|                  | 0.02 | 0.25 | 0.44 | 0.43 | 0.11 | 0.28 | 0.05 | 0.18 | 1.51 | 0.01 | 0.10 | 0.19 | 0.10 | 0.04 | 0.38 | 0.28 | 0.04 | 0.50 | 0.14 | 0.50 |

Notes: \( n = 643 \); correlations greater than 0.07 are significant at \( p = 0.05 \). ROA = return on assets.
Table 2. CAR for acquiring, rival, and target firms

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>S.E.</th>
<th>% Positive</th>
<th>t-Test (t value)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAR for the acquiring firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACAR (−1, +1)</td>
<td>1074</td>
<td>0.0093</td>
<td>0.0040</td>
<td>0.0018</td>
<td>54.84%</td>
<td>5.2630***</td>
</tr>
<tr>
<td>ACAR (−2, +2)</td>
<td>1074</td>
<td>0.0119</td>
<td>0.0070</td>
<td>0.0023</td>
<td>55.49%</td>
<td>5.2628***</td>
</tr>
<tr>
<td>ACAR (−5, +5)</td>
<td>1074</td>
<td>0.0121</td>
<td>0.0038</td>
<td>0.0033</td>
<td>52.05%</td>
<td>3.7131***</td>
</tr>
<tr>
<td><strong>CAR for the rival firms</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Rival CAR (−1, +1)</td>
<td>1074</td>
<td>0.0016</td>
<td>0.0003</td>
<td>0.0005</td>
<td>51.12%</td>
<td>3.1372***</td>
</tr>
<tr>
<td>Rival CAR (−2, +2)</td>
<td>1074</td>
<td>0.0020</td>
<td>0.0006</td>
<td>0.0007</td>
<td>52.05%</td>
<td>3.0053***</td>
</tr>
<tr>
<td>Rival CAR (−5, +5)</td>
<td>1074</td>
<td>0.0029</td>
<td>0.0008</td>
<td>0.0010</td>
<td>51.77%</td>
<td>2.8900***</td>
</tr>
<tr>
<td><strong>CAR for the target firms</strong></td>
<td></td>
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<tr>
<td>TCAR (−1, +1)</td>
<td>77</td>
<td>0.0154</td>
<td>0.0079</td>
<td>0.0059</td>
<td>62.34%</td>
<td>2.6203**</td>
</tr>
<tr>
<td>TCAR (−2, +2)</td>
<td>77</td>
<td>0.0223</td>
<td>0.0118</td>
<td>0.0085</td>
<td>58.44%</td>
<td>2.6358*</td>
</tr>
<tr>
<td>TCAR (−5, +5)</td>
<td>77</td>
<td>0.0378</td>
<td>0.0269</td>
<td>0.0138</td>
<td>59.74%</td>
<td>2.7317***</td>
</tr>
</tbody>
</table>

***1% significance; ** 5% significance; * 10% significance.

in non-horizontal acquisitions; to test Hypothesis 4, we split the sample into horizontal and non-horizontal acquisitions in Models 2 and 3. The industry concentration coefficient for horizontal acquisitions (Model 2) is negative and significant ($\beta = -0.035$, $p < 0.05$), whereas for non-horizontal acquisitions (Model 3), this coefficient is positive and significant ($\beta = 0.041$, $p < 0.01$). Therefore, markets appear to react positively toward rival firms when an acquiring firm makes a non-horizontal acquisition but negatively if it makes a horizontal acquisition in a concentrated industry. Thus Hypothesis 4 receives support.

Sensitivity analyses

We perform several sensitivity analyses to demonstrate the robustness of our results. First, to alleviate concerns about the efficiency of Chinese stock markets in their early years, we split our sample into acquisitions before and after 2000. We reran the analysis with the same controls and independent variables; the results for the post-2000 sample are similar to the full sample results in their signs and significance. For the pre-2000 sample, the small sample size prevented us from estimating the multivariate model. Second, data availability limitations caused us to lose some observations from our multivariate analyses. We therefore reran the analyses with only the hypothesized variables (which increased our sample size to 1,000); the results for all hypothesized effects remain qualitatively the same. We also added the significant control variables to this model, which changed the sample to 786. Again, the results for all hypothesized effects remain the same. Third, we reanalyzed our data by replacing the four-digit SIC industry relatedness variable with two- and three-digit SIC codes. The results are consistent in both sign and significance. Fourth, we reran all the sensitivity analyses on a subsample of only completed acquisitions; all of the results remain qualitatively the same.

Tests for alternate theoretical explanations

We test for several alternative explanations advanced by prior literature to explain market reactions to rivals of target firms. First, the market power hypothesis suggests that horizontal acquisitions reduce the number of players in the industry and thus enhance the market power of all remaining players. These rivals then experience positive abnormal returns when M&As are announced. To test for this argument, we conducted our analyses with two subsamples involving only horizontal or only non-horizontal acquisitions. If the market power hypothesis holds, rival firms should earn significantly higher positive returns from horizontal acquisitions than from non-horizontal ones. However, as Model 1 shows, the coefficient for industry relatedness is not significant. This finding refutes the market power hypothesis: rival firms react positively to acquisition announcements, irrespective of the type of acquisition.

Second, we test the acquisition probability hypothesis, which suggests that acquisitions increase the probability of target firms’ rivals becoming targets of future acquisitions and therefore
Table 3. Split sample CAR analysis

<table>
<thead>
<tr>
<th>Rival firm reaction:</th>
<th>Combined acquisition sample:</th>
<th>Non-horizontal acquisition sample:</th>
<th>Horizontal acquisition sample:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rival CAR (−2, +2)</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>−0.0032</td>
<td>−0.0031</td>
<td>−0.0033</td>
</tr>
<tr>
<td></td>
<td>S.E.</td>
<td>0.0009</td>
<td>0.0011</td>
</tr>
<tr>
<td></td>
<td>t-Test of Mean Difference</td>
<td>−2.0821†</td>
<td>−2.9852†</td>
</tr>
<tr>
<td></td>
<td></td>
<td>±0.966</td>
<td>±0.961</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>478</td>
<td>354</td>
</tr>
</tbody>
</table>

**DISCUSSION AND CONCLUSION**

In this study, we propose a growth probability hypothesis to explain stock market reactions to the rivals of acquiring firms when M&As are announced. Our findings provide robust support for this hypothesis. The market reacts positively to rival firms when M&As are announced if the focal acquirer also experiences a positive market reaction. Furthermore, the rival firms experience higher stock market returns in industries with lower levels of competition. This relationship is moderated by whether the acquisition is horizontal or non-horizontal. That is, the positive effect of industry concentration on rivals’ market returns is significantly weaker in the case of horizontal acquisitions than in the case of non-horizontal acquisitions.

Although we did not offer a hypothesis about the market reaction to acquiring firms on M&A announcements, our findings merit a discussion. In the case of Chinese firms, acquiring firms earn positive abnormal returns, which contrasts with findings in developed economies where acquiring firms generally experience negative or no returns from an acquisition announcement (King et al., 2004; Tuch and O’Sullivan, 2007). Yet Gubbi et al.
Table 4. Results for HLM analysis of rival firms’ announcement returns

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Full sample</th>
<th>Horizontal acquisition sample</th>
<th>Non-horizontal acquisition sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rival firm CAR (−2, +2)</td>
<td>Control model</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Constant</td>
<td>−0.0162</td>
<td>0.0174</td>
<td>−0.0222</td>
</tr>
<tr>
<td>Cross-border acquisitions</td>
<td>0.0035</td>
<td>0.0039</td>
<td>−0.0024</td>
</tr>
<tr>
<td>Private target firms</td>
<td>−0.0033</td>
<td>0.0020*</td>
<td>−0.0033</td>
</tr>
<tr>
<td>Rival firms’ book to market ratio</td>
<td>0.0084</td>
<td>0.0047*</td>
<td>0.0086</td>
</tr>
<tr>
<td>Rival firms’ debt to assets ratio</td>
<td>0.0068</td>
<td>0.0095</td>
<td>0.0112</td>
</tr>
<tr>
<td>Rival firms’ ROA ratio</td>
<td>−0.0018</td>
<td>0.0011*</td>
<td>−0.0021</td>
</tr>
<tr>
<td>Acquiring firms’ book to market ratio</td>
<td>−0.0226</td>
<td>0.1014</td>
<td>−0.0015</td>
</tr>
<tr>
<td>Acquiring firms’ cash to assets ratio</td>
<td>−0.0156</td>
<td>0.0086*</td>
<td>−0.0137</td>
</tr>
<tr>
<td>Acquiring firms’ debt to assets ratio</td>
<td>−0.0056</td>
<td>0.0046</td>
<td>0.00063</td>
</tr>
<tr>
<td>Acquiring firms’ ROA ratio</td>
<td>−0.0024</td>
<td>0.0095</td>
<td>−0.0032</td>
</tr>
<tr>
<td>Relative size of rival firm to acquiring firm</td>
<td>0.0107</td>
<td>0.0248</td>
<td>0.0173</td>
</tr>
<tr>
<td>Dummy: merger transaction</td>
<td>−0.0003</td>
<td>0.0024</td>
<td>−0.0009</td>
</tr>
<tr>
<td>Percentage of stock payment</td>
<td>0.0007</td>
<td>0.0032</td>
<td>−0.0010</td>
</tr>
<tr>
<td>State ownership</td>
<td>0.0187</td>
<td>0.0205</td>
<td>0.0199</td>
</tr>
<tr>
<td>Rival firms’ cash to assets ratio</td>
<td>0.0672</td>
<td>0.0235***</td>
<td>0.0752</td>
</tr>
<tr>
<td>Rival firms’ asset growth rate</td>
<td>0.0260</td>
<td>0.0099***</td>
<td>0.0342</td>
</tr>
<tr>
<td>Completed acquisitions</td>
<td>0.0012</td>
<td>0.0019</td>
<td>0.0003</td>
</tr>
<tr>
<td>Acquiring firms’ CAR (−2, +2) (binary variable)</td>
<td>0.0092</td>
<td>0.0016***</td>
<td>0.0123</td>
</tr>
<tr>
<td>Industry concentration</td>
<td>0.0357</td>
<td>0.0070***</td>
<td>−0.0354</td>
</tr>
<tr>
<td>Industry relatedness (four-digit SIC)</td>
<td>−0.0012</td>
<td>0.0019</td>
<td>0.0003</td>
</tr>
<tr>
<td>Level 1 number of observations</td>
<td>643</td>
<td>Yes</td>
<td>643</td>
</tr>
<tr>
<td>Level 2 number of observations</td>
<td>49</td>
<td>Yes</td>
<td>49</td>
</tr>
</tbody>
</table>

* p < 0.10; ** p < 0.05; *** p < 0.01; all two-tailed.
(2010) also report positive abnormal returns for international acquisitions of Indian firms. Although Gubbi et al. (2010) did not include domestic acquisitions, their findings, like ours, suggest that emerging economy firms generate benefits from M&A activities.

Our study also has some limitations. First, the unique features of the Chinese context set some boundary conditions on our theoretical arguments. Even with its recent reforms, China is not a market economy in a true sense. It also differs from other emerging markets (e.g., India) in significant ways such as the extensive governmental interference in China as exemplified by the vast number of SOEs remaining in China. Consequently, the context of our study sets forth important boundary conditions, as we have discussed in the theory section, for the applicability of the growth probability hypothesis. It thus would be interesting to test our arguments in other emerging markets, as well as in developed markets. Our findings seemingly should be valid in contexts that have undergone institutional transitions in recent years and are experiencing sustained economic growth, such as India or Brazil. However, we also predict that support for our contextual hypotheses (especially Hypothesis 4) may be weaker in emerging markets such as Brazil and Chile, which experience substantially less state interference than China and India. In addition, even in developed market contexts we may find support for our theoretical arguments in sectors and industries with greater growth potential.

Second, our event study methodology is limited in the sense that it captures relatively short-term sentiments of the market. Third, we examine a limited set of contingency variables, related to rival firms’ growth potential, industry competition, and acquisition success. Further research should examine how the specific heterogeneity of the acquiring firm and the rival firms affect rivals’ returns.

Fourth, we have focused exclusively on the rival firms in each industry, but decreasing competition after industry consolidation might have significant value implications for suppliers and customers. An investigation along these lines would provide a more complete assessment of the impact of M&As on other stakeholders.

Yet our research still contributes to both theory and practice related to M&As. In particular, we find that rival firms do not suffer when focal firms make acquisitions, irrespective of whether those acquisitions are in related or unrelated industries. The prime mechanism for this effect is signaling the increased growth potential for all firms in the industry in which M&As are announced. This finding has significant implications for managers who assume mergers are harmful and want to be insiders in merger events (Akdogu, 2003; Molnar, 2007). Being an outsider may be more beneficial, especially if the merger takes place in an industry characterized by low levels of competition. In addition, our study provides insights about the sources of value creation in M&A activities. Both acquiring and rival firms benefit from merger activities; thus in the Chinese market, M&As demonstrate greater industrywide growth dynamics, benefiting all players in the process.

We also contribute to the debate about the different motives for and competitive effects of M&A activities. By analyzing market reactions for acquiring firms, target firms, and rivals, it may be possible to identify whether a merger will enhance market power, generate synergies for the acquiring firm, or signal growth potential for the remaining firms. Finally, we note that mergers occur in waves, a trend often explained by suggesting that senior executives closely watch what their competitors are doing and seek to emulate them (Pepall et al., 2005). By studying how the market reacts to rival firms when competitors announce mergers, we offer a useful approach that managers and policy makers can use to understand and handle industry-level acquisition waves.

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