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Can firms learn by observing? Evidence from cross-border M&As

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Can Firms Learn by Observing? Evidence from Cross-Border M&As

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Can Firms Learn by Observing? Evidence from Cross-Border M&As

Abstract

In the presence of high uncertainty and limited experience, can observing the actions of other acquiring predecessors help firms make better acquisition decisions? Using a sample of cross-border M&As conducted by US acquirers in developing countries, we document a positive and significant relationship between an acquirer's performance and its predecessors' acquisition activity. This relationship is especially pronounced in the prevalence of news events about the outcome of predecessors' acquisitions, when predecessors consist of US peers from the same industry and/or when targets are based in culturally distant countries. Our findings shed light on one channel through which information spillovers across industries and acquiring firms could be a key driver of value creation in developing market cross-border M&As.

1. Introduction

Learning by observing the actions of others is a common strategic behavior in the mergers and acquisitions (M&A) market. For instance, Haunschild (1993, 1994), and Westphal et al. (2001) find that firms rely on their board interlocks in other acquiring firms for information on how much to pay for targets; Haunschild and Miner (1997) find that firms hire acquisition advisors based on the frequency their large and successful peers have used them in the past; Baum, Li, and Usher (2000) report that Ontario nursing home chains tend to acquire targets near those of their counterparts' recent target locations; Yang and Hyland (2006) find that US public firms in the financial service industry are more likely to engage in unrelated acquisitions if their competitors undertake more unrelated acquisitions as well; Almazan et al. (2010) find that firms located within industry clusters make more acquisitions; and DeLong and DeYoung (2007), and Cai et al. (2011) document evidence consistent with industry-wide information spillovers around M&A deals and acquisition bids, respectively. While academics have long been aware of information spillovers across firms and industries in the context of M&As (see, e.g., Griliches, 1979), we know very little about whether such observational learning has a real effect on the performance of acquiring firms.¹

In this study, we look at a sample of developing country, cross-border M&As to examine whether the past acquisition experience of other firms in the same target country plays a role in explaining the performance of US acquiring companies. Compared to acquisitions in large and

¹ Empirical work has documented the importance of “learning from others” in several contexts, such as the adoption of new crops (Ryan and Gross, 1943), the diffusion of patent drugs (Coleman, 1966), the choice of new agricultural techniques (Hagerstrand, 1969; Rogers, 1983), economic demography (Watkins, 1991), and the purchase of consumer products (Kotler, 1986). The empirical evidence in the finance, management and strategy literature pertaining to learning from the actions of others in an M&A setting is largely limited, however, to case study analyses on a single or small set of industries and countries. For example, DeLong and DeYoung (2007) use a sample of 216 observations in the US banking industry. Barkema and Schijven (2008) provide a good summary of the field.

established developed markets, the limited experience and exposure to external learning sources, as well as the high level of uncertainty, complexity and heterogeneity in the acquisition process, make developing country cross-border M&As an ideal laboratory to study the effect of learning from predecessors on the success of mergers and acquisitions (Zollo and Singh, 2004).

We specifically ask whether controlling for country and deal characteristics, as well as an acquirer's own acquisition experience, firms can learn how to better plan and execute mergers by observing their predecessors' previous mergers, and whether investors can learn how to better value cross-border, developing country mergers as they observe and evaluate more of them. There are numerous channels through which useful information can spill over from one company or industry to another, including relationships with consulting firms, underwriters and M&A advisors (Ofek, and Sarvary, 2001; Haunschild and Miner, 1997), industry networks (Irwin and Klenow, 1996; Almeida and Kogut, 1999), membership in interlocking boards (Haunschild, 1993, 1994; Haunschild and Beckman, 1998; and Westphal et al., 2001) or geographic proximity between firms (e.g., DeLong, 2001; Almazan et. al, 2010; Choi et al., 2010; and Kedia et al., 2008). If information spillovers from the acquisition activity of others can translate into learning gains and reduce the bargaining and transaction costs associated with the high information asymmetry in developing market countries, the effort to structure learning processes within organizations could be a key driver of value creation.

To examine whether learning from other acquirers matters in the success of mergers and acquisitions, we rely upon the existing literature to construct measures of three fundamental facets of learning. We start with *frequency based learning* (see, e.g., DeLong and DeYoung, 2007), where firms execute practices previously used by large numbers of other organizations, and proxy for such learning by the number of past acquisition deals made by other acquirers in the same target country. We then measure *trait based learning* (Bala and Goyal, 1998), where

firms use practices previously used by other similar organizations with mutual traits, such as industry and country of origin. We specifically measure such learning by the number of past acquisition deals conducted by same industry and/or US origin predecessors. Finally, we consider *outcome based learning* (Bikhchandani, Hirshleifer and Welch, 1998) in which firms imitate the practices that appear to have had good outcomes for other organizations in the past and avoid practices with bad outcomes. To account for such learning, we measure the number of financial press releases about the outcome of past M&A deals in the target's country of origin. To the extent that qualitative information about the acquisition outcome of predecessors becomes especially crucial in developing markets, where cultural distance and weaker freedom of press make information about the local legal, political and economic environment more difficult to evaluate, we expect such information to be positively associated with a firm's acquisition performance.²

To determine the effect of observational learning on an acquirer's accounting profitability, long- and short-term stock returns, and likelihood of deal completion, our proxies for acquisition performance, we start with a sample of 317 cross-border, developing market transactions made by non-financial, US public firms during 1993-2010. In determining developing market affiliation, we follow the International Monetary Fund classifications, and collect information on 43 non-advanced market acquisitions.³ Controlling for acquirer, target country and deal characteristics, we then document several striking results.

First, we find a positive relationship between the likelihood of deal completion and learning from the past acquisition experience of industry peers, especially if they are based in the

² We thank the referee for suggesting this important source of learning by observing other acquirers.

³ <http://www.imf.org/external/pubs/ft/weo/2012/02/pdf/text.pdf>

US. This is consistent with the arguments in Almazan et al. (2010) and Guillén (2002) that under uncertainty, economic agents learn most effectively from the experience of their peers and neighbors in guiding their decision making. While the effect of the *overall* number of prior acquisitions is positively associated with the likelihood of deal completion, its magnitude is only marginally significant, indicating that the decision on whether to complete an acquisition is mainly driven by the actions of similar trait acquirers.

Second, we examine whether learning by observing affects an acquirer's post-merger accounting performance. While market returns predict investor future expectations, measuring long run, post-merger accounting performance allows us to capture *actual* financial performance over a relatively long period of time. Again, we document a positive and significant relationship between the number of acquisitions conducted by industry peers, especially those based in the US, and the average, industry adjusted change in operating performance following the acquisition event. The effect of learning from others on an acquirer's post-merger operating performance is both statistically significant and economically meaningful, and can be as high as 5.6%, depending on the model specification. This is consistent with the notion that information spillovers play an important role in value creation in cross-border, developing market M&As.

Third, we find that the positive effect of learning by observing others' acquisitions on an acquirer's accounting performance is also significant when measured by the number of financial press releases about the outcome of prior M&As in the same target country, suggesting effective spillover of information through media coverage. Thus consistent with the predictions of Bikhchandani et al. (1998), observing predecessors' M&A decisions, as well as their outcomes, can effectively increase the likelihood of informative learning and thus acquisition success.

We then examine the effect of learning by observing on the value of acquiring firms, measured by the market adjusted five-year buy-and-hold abnormal returns around the acquisition

announcement month (*BHAR*). Consistent with our conjecture, we find a strong, positive and significant relationship between an acquirer's long-term stock performance, the prevalence of press release events about the outcome of prior M&As, and past acquisitions made by local US, industry peers in the same target country. For example, controlling for other factors, the *BHAR* earned by an acquirer who observes the past acquisition behavior of (US) industry peers over a five-year horizon starting at bid announcement is (1.9%) 6.2% higher than that of an acquirer with no such learning opportunities. The relationship between an acquirer's long-term stock performance and the mere number of past acquisitions by all predecessors in the same target country, however, is only weakly and marginally significant, indicating that observing the acquisition behavior of a large number of prior acquirers is insufficient for effective learning, unless such observing involves local, same industry predecessors.

The existence of a positive, statistically significant effect of the past acquisition experience of US industry peers, the prevalence of news coverage about the outcome of their acquisitions, and an acquirer's acquisition performance is robust to a host of sensitivity tests and control variables, including accounting for the complexity of the deal, form of payment, country level governance measures such as local corruption and constraints on executive power, year fixed effects, merger waves, and deal and acquirer characteristics. Because acquirers can also learn from their own acquisition experience, we also control for "learning by doing" effects in all regressions (see, e.g., Aktas et al., 2013). Our results, however, continue to hold, indicating a stable and persistent positive relationship between learning from local peers and/or from informative news events on prior acquisition outcomes, and acquisition performance.

Finally, we examine whether market investors are better able to identify value enhancing, developing market mergers, if a substantial number of other firms have merged in the recent past or if there have been recent press releases about the outcome of such mergers. While we find no

relationship between our learning-by-observing measures and the cumulative abnormal stock return (*CAR*) for the average acquirer around the acquisition announcement, *ceteris paribus*, there is a strong, positive effect of learning-by-observing on *CARs* for high-tech industry targets. These findings are consistent with the interpretation that all else equal, risk-averse investors are willing to pay higher prices in high information states if information uncertainty is reduced by learning from the experience of others. Such effect is particularly strong for high-tech targets, where information asymmetry is highly pronounced to begin with (Sevilir and Tian, 2010). Thus under semi-strong market efficiency, investors are better able to price high-tech, developing market new mergers when there is relevant information spilling over from other recent M&As.

Because national borders are associated with factors such as culture, religion, language and geographic distance that are also likely to affect the costs and benefits of mergers (see Ahern, Daminelli and Fracassi, 2012; Ongena and Penas 2009; and Rose, 2000), we also examine how target country cultural heterogeneity affects the relationship between learning from others and acquisition performance. To the extent that cultural distance creates greater information asymmetry and uncertainty, we expect predecessors' experience to play a stronger role in a firm's acquisition performance in target countries where cultural heterogeneity is more significant (Kogut and Singh, 1988). Not surprisingly, we find that the positive effect of learning from others on acquisition performance is more strongly pronounced in culturally remote markets, indicating that such learning is more beneficial in economic settings that are inherently different from the US.

Our paper adds to a few streams of research in the management, strategy and finance literature that document learning by observing effects in a variety of strategic activities, ranging from new product introduction and market entry to timing of investment and mergers and

acquisitions.⁴ While the literature on observational learning has made substantial strides since the 1990s (Miner and Haunschild, 1995), it is still unclear whether such learning can lead to performance improvement (Shaver et al., 1997; Beckman and Haunschild, 2002; DeLong and DeYoung, 2007). Our study contributes to this literature by documenting a positive relationship between learning-by-observing and acquisition performance that is especially pronounced for same industry, US peers and targets based in culturally distant, developing economies.

Our findings are also consistent with several studies that find a strong, industry-wide (Almeida and Kogut, 1999; Almazan et al., 2010) and local (DeLong, 2001; and Uysal et al., 2008) information spillover in the context of M&As. While these prior papers mainly focus on acquisition experience in one country or industry, as far as we are aware, this is the first study that looks at developing country acquisitions.

The remainder of the paper is organized as follows. Section 2 summarizes the data, variables and methodology. Section 3 presents the results, and Section 4 concludes.

2. Data

2.1. Sample and methodology

To conduct this study, we start with data from the Worldwide M&A section of the SDC Platinum Database for all M&As that took place by US acquirers during 1993-2010 (17,244 deals).⁵ We then limit our transactions to cross-border deals conducted in developing economy countries, as classified by the IMF (1,755 observations). We specifically obtain information on acquirer identities, target firm country, public status, primary four digit SIC codes for both acquirers and

⁴For excellent reviews on learning from others, see Lieberman and Asaba (2006) and Barkema and Schijven (2008).

⁵Some of the databases in SDC go back to the 1970s. However, Netter, Stegemoller and Wintoki (2011) report that SDC data coverage is highly limited throughout the 1980s, and that SDC only covers deals of any value, including unreported values starting from 1992. We therefore start our sample period in 1993.

targets, tender offer status, payment method, and shares owned by acquirers following the transaction. Because some of the performance measures we use in our study involve market price data, we exclude transactions made by private acquirers and those where the percentage of shares acquired is less than 50% of the target's shares outstanding as defined by SDC (818 transactions). Following conventional sample selection criteria, we also exclude financial firms (SIC 6000-6999), and restrict the sample to deals with information on transaction value and identifiable GVKEY from Compustat. After imposing the above selection criteria, our final sample results in 543 deals made by U.S. acquirers in 43 developing market economies, of which 317 are completed transactions that involve transfer in control.,

2.2. Description of variables

The dependent variables used throughout our analyses include the *likelihood of deal completion*, the acquirer's *Cumulative Abnormal Return (CAR)* and market adjusted *five year Buy-and-Hold Return (BHAR)* around the acquisition announcement date, and the *change in post merger performance (ΔROA)*. The *likelihood of deal completion* is a dummy variable that receives a value of 1 if the acquisition has been completed, resulting in transfer in control, and 0 otherwise. The long-run change in financial performance, ΔROA is based on industry adjusted data, and measures the average pre-merger (3 to 1 years prior) to post-merger (3 to 5 years after) change in the return on assets of the acquiring firm after first normalizing *ROA* to average industry wide levels in those years. This approach thus largely inoculates ΔROA from intertemporal changes in recorded financial performance that are caused by industry-wide phenomena or economy-wide phenomena that systematically affect a given industry.

To compute abnormal stock returns associated with acquisition announcements, we use standard event study methodology (see, e.g., Brown and Warner, 1980). The market model abnormal returns are computed using the CRSP equally weighted index returns. The parameters

for the market model are estimated over the (-250, -20) day interval. Using these parameters, for each of the 317 acquisitions in our sample of completed deals, we estimate an acquirer's abnormal return over a three-day announcement period (-1, +1) and use both a t-test and a nonparametric Wilcoxon signed rank test to perform significance tests.

Our *BHAR* are adjusted for firm size and book-to-market ratio. To calculate *BHARs*, we follow Mitchell and Stafford (2000) and measure the five-year buy-and hold abnormal return for each acquirer as the difference between the buy-and-hold return of the acquirer and the buy-and-hold return of the appropriate size and book-to-market portfolio. Both value-weighted and equal-weighted averages of the *BHARs* are computed across acquirers.⁶

Throughout the analysis, we also use acquirer, deal and country specific characteristics. Our acquirer related measures are from Compustat, and include the natural logarithm of market size, 4 weeks prior to the announcement (*LnMkt*); the natural logarithm of total assets (*LnAT*); and market-to-book ratio (*MtB*), measured four weeks prior to the acquisition announcement. We include a dummy variable to denote whether an acquirer has an ownership stake in the target firm prior to the announcement (*Toehold*); We also control for an acquirer's learning by doing experience (*LBD*). Specifically, we measure *LBD* as the number of prior acquisitions conducted by the acquirer in the same target country in the two years prior to the focal transaction.

Deal characteristics include a transaction size value (*Transaction*), and *Relative Size* measured as the ratio of the transaction value to the acquirer's market value 4 weeks before the

⁶ Our results are qualitatively similar when in the spirit of Mitchell and Stafford (2000), we also form equal- and value-weighted portfolios each calendar month using the sample of all acquirers with an acquisition within the last three years. Monthly excess returns on these 'event' portfolios are then regressed on the three Fama and French factors. Results are available upon request. .

announcement; a dummy variable to denote high-tech industry affiliation for the target firm (*Hitech*); a dummy variable to denote whether the acquirer's two-digit SIC code is the same as the target's (*Related*); the natural logarithm of deal size (*Transaction*); and an indicator to denote whether the target is a public company (*Public Tgt.*), whether the acquisition involves a friendly offer (*Friendly Offer*), and whether the form of payment was cash (*Cash 100*).

Prior research also shows that the difference between bidder and target corporate governance is an important factor that could affect post-merger performance (see, e.g., Martynova and Renneboog, 2008; Burns et al. 2007; Bris and Cabolis, 2008; Bris, Brisley, Cabolis, 2008; Francis et al. 2008).⁷ To control for country level corporate governance, we use the *Executive Constraints* variable that is a widely used measure of the extent of institutionalized constraints on the decision making power of chief executives (see Jagers and Marshall, 2000, for more details on variable construction)⁸. This variable ranges from one to seven, with higher values representing stronger shareholder rights. For every deal, we then calculate the *Difference in Executive Constraints* as the difference between shareholder rights in the US and the target country, with higher values reflecting weaker shareholder rights (weaker constraints on executive power) in the target country as compared to the US. In addition, to capture any unobservable country specific factors that may influence deal completion, we create a target country level

⁷ We thank the referee for raising this important issue.

⁸ The variable takes seven different values: (1) Unlimited authority (there are no regular limitations on the executive's actions, as distinct from irregular limitations such as the threat or actuality of coups and assassinations); (2) Intermediate category; (3) Slight to moderate limitation on executive authority (there are some real but limited restraints on the executive); (4) Intermediate category; (5) Substantial limitations on executive authority (the executive has more effective authority than any accountability group but is subject to substantial constraints by them); (6) Intermediate category; (7) Executive parity or subordination (accountability groups have effective authority equal to or greater than the executive in most areas of activity). This variable is calculated as the average from 1960 through 2000.

variable, *TgtCountryCompleteness*, which is the average completion rate of all cross-border M&As in the target country during the five-year period prior to the focal deal.

To account for cultural differences between the target country and the US, we use the Hofstede (1980, 2001) cultural distance measure, which reflects the differences in how firms organize, function and manage in different country origins (see Kogut and Singh, 1988 for details on construction).⁹ Such differences matter as they can significantly affect the likelihood of acquisition success (Weber and Camerer, 2003). We thus measure *Culture Close*, a dummy variable we use to denote countries that are culturally similar to the US. Specifically, this variable receives a value of one if the target country's cultural deviation from the US is less than the sample median difference between the US and all target countries in a given year, and zero otherwise.

As a measure of country level governance, we use the *Control of Corruption* indicator compiled by Kaufmann, Kraay and Mastruzzi (2010) during 1996-2009. This variable has values that range from -25 to 25, with higher values reflecting better corruption control in the respective target country.

We also use the *Freedom of Press* index, constructed by *Freedom House* as a control variable.¹⁰ The Freedom House index covers most of the countries in our sample from 1980 to 2011 and the values of the aggregate score range from 0 ("least free") to 100 ("most free").¹¹ *Freedom of the Press* is commonly used as a measure of good government, public access to

⁹ Hofstede's (1980, 2001) measure is based on a set of four indices - uncertainty avoidance, power distance, masculinity and individualism. To date, it is one of the most popular measures of cross cultural differences (see also Chakrabarti et al. 2009 for details).

¹⁰ See <http://www.freedomhouse.org/report-types/freedom-press>

¹¹ While the index construction methodology has been revised slightly over time, there are three main categories used to assess a country's freedom of the press, including: laws and regulations that influence media content, political pressure and controls on media content, and economic influence over media content.

information and information accountability. Although Tetlock (2010) suggests that the financial press could help in mitigating information asymmetry across economic agents, media coverage, or the accountability of media coverage, could be compromised in many countries that US firms target for M&A transactions. As a result, in countries with weaker freedom of the press, acquirers may depend on information from predecessors' past acquisitions to collect useful data about a target country's legal, political and economic environment.

Finally, to capture the various forms of information spillover associated with learning-by-observing, we define three facets of observational learning. We start with *frequency based learning*, where firms execute practices previously used by large numbers of other organizations, and proxy for such learning by the number of acquisition deals made by other acquirers in the same target country (*Cumulative Learning by Observing – CLBO*). Because more recent deals are expected to contribute more to an acquirer's knowledge of the target country, we impose a five-year cutoff period between the current acquisition and past acquisitions conducted by predecessors.¹²

We then measure trait based learning, where firms use practices previously used by other similar organizations with mutual traits, such as industry and/or country of origin. We specifically measure such learning by the number of past acquisition deals conducted by same 2-digit SIC industry and/or US origin predecessors up to five years prior to the focal acquisition event (*Cumulative Industry Learning by Observing – CILBO*; *Cumulative Learning by Observing US Acquirers – CLBO_US*; and *Cumulative Industry Learning by Observing US Acquirers– CILBO_US*).

¹² Our results are qualitatively similar, however, if we impose a 3- or a 7-year cutoff period.

Finally, we consider outcome based learning, in which firms learn from the practices that appear to have had good outcomes for other organizations in the past and avoid practices with bad outcomes. To account for such learning, we measure the number of financial press releases about the outcome of M&A deals in the target country in the five years prior to the acquisition announcement (*Top News*). We specifically follow Tetlock (2010), and collect information about the outcome of such prior deals from major newspaper databases such as ProQuest, Lexis-Nexis, and Factiva, and rely on the Harvard-IV-4 psychological dictionary word classification to categorize positive and negative words in each news story, using the *General Inquirer*, a well known semantic quantitative analysis program.¹³ To the extent that media content could capture otherwise hard to quantify aspects of firm fundamentals (Tetlock, 2007), especially in developing market economies, where information is more difficult to evaluate and come by, we expect firms to be better able to plan and execute mergers as they are exposed to more qualitative information about predecessors' acquisition experience.

2.3. Summary statistics

Table 1 presents the distribution of our sample by target country and number of transactions for completed deals during 1993-2010. A closer analysis of the data suggests that many targets are clustered in a relatively small number of countries, including Brazil, Mexico, China, Argentina, India, South Africa and Puerto Rico, altogether representing around two thirds of our 317 completed acquisitions sample.

¹³ We specifically collect acquisition news events from the Wall Street Journal, The Economist, Fortune, Financial Times, Forbes, The New York Times, The Washington Post, and USA Today. However, our main results hold when we expand the coverage to any publisher. In quantifying qualitative information about acquisition events from media text data, we follow Tetlock (2010) and use the popular Harvard-IV-4 dictionary on the internet General Inquirer's web site that lists each word in the negative and positive categories: http://www.wjh.harvard.edu/~inquirer/spreadsheet_guide.htm. Examples of negative words include *loss*, *failure*, and *difficult*. Examples of positive category words include: *advantage*, *beneficial* and *booming*.

[Insert Table 1 about here]

Table 2 presents the descriptive statistics of the variables used throughout the analysis by acquirer, deal, target country and learning variables, for all acquisition attempts and completed deals, respectively. Compared to the pool of overall bidders, acquirers who complete acquisition deals tend to be significantly smaller, with an asset size of \$4.2 billion compared to \$15.5 billion for the general population of bidders. The difference is statistically significant at the 1% level. Although the pool of overall acquirers reflects an average market size of a little over \$19 billion, which is significantly larger than the \$3.8 billion market size for acquirers with completed deals, they represent significantly smaller bids, as apparent by the average relative transaction size. It thus appears that although, on average, developing country acquirers involved in completed deals tend to be smaller than the overall pool of bidders, the deals they conduct reflect economically significant events.

[Insert Table 2 about Here]

In general, an analysis of the descriptive statistics in Table 2 reveals that the deals that are more likely to be completed involve, on average, smaller acquirers and a lower percentage of public targets. Such completed acquisitions are also more prevalent in culturally distant countries, with stronger freedom of the press and control of corruption. Completed deals are also more likely to represent more friendly offers, compared to the overall pool of transactions. These differences in means across the pool of all bidders and bidders with completed acquisitions are all statistically significant at least at the 5% level.

Turning to our learning-by-observing measures, acquirers who complete deals have, on average, significantly higher exposure to prior acquisition events by predecessors compared to the overall pool of acquirers. For example, while on average, all bidders observe 185 prior deals in the same target country, acquirers with complete acquisitions observe 198 prior acquisition

events. The difference is significant at 5% level. In addition, while all acquisition attempts by US acquirers follow an average of 18 prior acquisitions made by US predecessors, completed acquisitions follow 21 acquisitions by US predecessors in the same target country. The difference is significant at 1% level. A similar pattern also holds for prior acquisitions made by industry peers in general and US based industry peers.

Overall, the univariate results indicate that on average, developing market acquisition completion is strongly affected by the level of prior exposure to the experience of other acquirers in the same target country. This supports our conjecture that learning-by-observing is an important strategic behavior that can affect a firm's acquisition performance, especially in opaque, developing markets.

3. Empirical results

We now proceed with empirical tests examining the general relationship between learning by observing and acquisition performance, measured by the likelihood of deal completion, changes in operating performance and long- and short-term stock performance. We then examine whether our results are affected by cultural heterogeneity in the country where the acquisition takes place.

3.1. Main results

So far, we have shown that compared to the pool of both complete and incomplete developing market transactions, completed deals are more likely to be associated with greater exposure to the experience of predecessors. However, acquisition performance could also differ across learning-by-observing measures if there are systematic differences in firm and deal characteristics. To address this issue, in this section we use regression analysis to examine the extent to which differences in acquisition performance can be attributable to observational

learning. To minimize the effect of outliers, we winsorized all accounting variables at the 1% level.

3.1.1. The effects of learning by observing on the likelihood of acquisition completion

Generally speaking, deal completion can be viewed as a measure of acquisition performance, especially in the eyes of managers and financial advisors. Given the complexity of conducting a merger or acquisition, which becomes even more pronounced in the case of developing market deals, learning from others may alleviate such difficulties and improve completion rates.

To estimate the effect of learning by observing on the likelihood of acquisition completion we run a logit model in which the dependent variable is equal to 1 when the deal is completed and results in transfer in control, and 0 otherwise. Our choice of explanatory variables is based on DeLong and DeYoung (2007), among others. Control variables are lagged values and include our five learning-by-observing measures (*CLBO*, *CLBO_US*, *Top News*, *CILBO* and *CILBO_US*), as well as acquirer, deal, target country characteristics and year fixed effects as defined above.

[Insert Table 3 about here]

The results are reported in Table 3. The signs of the control variables are largely consistent with our univariate results above: completed deals are more likely to be friendly and related acquisitions, and conducted by smaller acquirers in countries with stronger control of corruption. With the exception of *Top News*, our learning by observing measures all have a positive coefficient, indicating that learning from others is associated with greater chances of completing an acquisition deal. Such information spillover is especially pronounced for local peers. For example, adjusting for log transformation, an additional prior acquisition by a US, same industry peer (that is an increase in *CILBO_US* by one) is associated with an increase in the

likelihood of deal completion by 4.4%. The results in Table 3 also show that the effect of learning-by-observing is particularly significant when such learning comes from observing US and/or industry peers. This is consistent with the arguments in Almazan et al. (2010, 2007) and Guillén (2002) that under uncertainty, economic agents learn most effectively from the experience of their peers and neighbors in guiding their decision making.

Acquisition completion likelihood, however, should not be studied alone in examining the effect of observational learning on acquisition performance. This is the case because some deals may be completed for reasons other than the fact of a good investment. For instance, Moeller, Schlingemann and Stulz (2004) find that larger firms are more likely to complete a transaction by paying a higher premium, resulting in value loss. Similarly, Hunter and Jagtiani (2003) show that deals advised by top ranked advisors are more likely to be completed, but those deals are also associated with declined synergistic gains. We therefore proceed with a battery of tests to examine the effect of learning-by-observing on three additional measures of acquisition performance: change in operating performance, and long- and short-term stock performance.

3.1.2. The effect of learning by observing on post-merger operating performance

In this section we examine whether learning-by-observing plays a role in the post-merger operating performance of acquirers in developing market economics. The long-run change in financial performance, ΔROA is based on industry adjusted data, and measures the average pre-merger (3 to 1 years prior) to post-merger (3 to 5 years after) change in the return on assets of the acquiring firm after first normalizing ROA to average industry wide levels in those years. This approach largely isolates post merger performance from inter-temporal changes in industry-wide phenomena.

Table 4 displays the results from ordinary least squares (OLS) estimation in which the dependent variable is ΔROA . In each regression model, we separately use one of our five

learning-by-observing measures, reflecting *frequency* (*CLBO*), *trait* (*CLBO_US*, *CILBO*, and *CILBO_US*) and *outcome-based-learning* (*Top News*), respectively. We include control variables to account for deal, acquirer, target country characteristics and year fixed effects. Because acquirers can learn from their own acquisition experience, we also control for “learning by doing” in all regressions (see, e.g., Aktas et al., 2013). In addition, in all regression models, we control for country level governance (*Executive Constraints*, *Freedom of Press* and *Control of Corruption*), as defined above.

To conduct our estimations, we include completed deals where acquirers gain absolute control rights after the transaction (ownership higher than 50%) and exclude those strategically insignificant deals that account for less than 1% of the acquirer’s market value of equity 4 weeks prior to the announcement. The sample is truncated at 2008 so that there is enough information to measure the change in operating performance after the transaction is completed.

[Insert Table 4 about here]

We find evidence consistent with learning-by-observing in all five regressions in Table 4, with the strongest implied improvement in operating performance that results from *trait* based learning (learning-by-observing industry and/or US peers). For example, an increase in *CLBO_US* by one transaction evaluated at the sample means generates an estimated 0.002 increase in ΔROA . Using the average (unreported) pre-merger acquiring firm ROA of 0.197 as a benchmark, this corresponds to a substantial 1.0% improvement in post-merger profitability. Similarly, an increase in *CILBO* (*CILBO_US*) by one transaction is associated with a 3.0% (5.6%) increase in average pre-merger ROA. This is consistent with non-trivial information spillover related improvement in post-merger operating performance that is highly pronounced when learning is based on similar trait predecessor acquisition experience. As can be seen from the positive and significant coefficient on the *Top News* variable, such information spillovers are

also associated with an operating performance improvement of 0.51% for every incremental increase in media coverage events. It is also interesting to note that the coefficient of learning-by-doing (*LBD*) is positive and significant in some of the regressions, indicating that learning from others has a strong effect on acquisition performance that is not subsumed by an acquirer's own acquisition experience.

3.1.3. The effect of learning by observing on long-term stock performance

We now proceed with examining the implications of learning from others for an acquirer's long term market performance. As with our tests above, we focus on completed deals, where acquirers gain absolute control rights after the transaction (ownership higher than 50%) and exclude strategically insignificant deals that account for less than 1% of the acquirer's market value 4 weeks prior to the announcement. We calculate an acquirer's market-adjusted five-year buy-and-hold returns (*BHAR*), and define the acquisition announcement month as the purchase month. The results are reported in Table 5, where the dependent variable, *BHAR*, is used as a proxy for acquisition performance, and our five learning-by-observing measures, acquirer, target country, deal characteristics and year fixed effects are used as independent variables, as reported above.

[Insert Table 5 about here]

The results show a strong, positive and significant relationship between an acquirer's long-term stock performance, the prevalence of press release events about the outcome of M&As in the target country, and past acquisitions made by local US industry peers. For example, controlling for other factors, the *BHAR* earned by an acquirer who observes the past acquisition behavior of (US) industry peers over a five-year horizon starting at bid announcement is (1.9%) 6.2% higher than that of an acquirer with no such external learning opportunities. The relationship between an acquirer's long-term stock performance and the mere number of past

acquisitions by all predecessors in the same target country (*CLBO*), however, is only marginally economically meaningful, indicating that observing the acquisition behavior of a large number of prior acquirers is insufficient for effective learning, unless such observing involves local, same industry predecessors or qualitative information spillovers from media coverage about the outcome of prior deals.

3.1.4. Learning by observing and announcement effects

To study the implications of learning from others on short term announcement effects, we collect stock return information from CRSP and require that acquirers have at least 100 days of stock return data, 46 days prior to the announcement date. In our analysis, we follow standard event study methodology and report the three-day cumulative abnormal returns around the acquisition announcement.

Table 6 presents the OLS results using the announcement effect of CARs (-1, 1) as a dependent variable. If the stock market is efficient *and* investors are fully informed about the phenomenon they are pricing (strong efficient market), then investors will be able to accurately price a new merger, regardless of the amount of information spilling over from other recent mergers. However, if the stock market is efficient *but* investors lack full information about the phenomenon they are pricing (semi-strong efficient markets), then investors will be better able to price a new merger when there is relevant information spilling over from other recent mergers.

The results in Table 6 indicate that after controlling for the standard factors that are shown to influence shareholder reaction to acquisition announcements, learning-by-observing variables have an insignificant effect on *CARs* for the *average* acquirer in our sample. The insignificant effect of learning by observing on *CARs* implies that investors infer little information from other firms' past acquisition experience.

[Insert Table 6 about here]

In contrast, we find relatively broad evidence that market investors learn-by-observing when the target is a high-tech firm. The positive coefficient on the interaction term between our learning-by-observing measures and the high-tech dummy variable indicate that the correlations between *CARs* and learning-by-observing are more positive for mergers that occur during high information states. These findings are consistent with the interpretation that risk-averse investors are willing, *ceteris paribus*, to pay higher prices when high information uncertainty is reduced via learning-by-observing. Such effect is particularly strong for high-tech target acquisitions, where information asymmetry is highly pronounced *ex ante* (Sevilir and Tian, 2010). These findings are also consistent with Chari, Ouimet and Tesar (2010), who report that acquirers in emerging markets experience significantly larger synergy effects when there is an intangible asset transfer, and Hasan, Khalil and Sun (2012) who find that the previously reported higher acquirer returns in emerging markets are driven by high-tech related acquisitions.

The results in Table 6 also show that investors react negatively if the acquirer has recently conducted cross-border M&As in the target country, as evident by the negative coefficient on the learning-by-doing (*LBD*) control variable. So while the data strongly supports the possibility that acquirers in developing markets and investors in high information uncertainty settings benefit by observing other previous mergers, we find relatively little evidence here to suggest that investors learn from an acquirer's own previous mergers. This counter intuitive finding reflects the possibility that investors who are in the best position to learn from an acquirer's experience, that is, investors in acquiring firms that perform a lot of mergers, have noisy information settings because these acquirers are perpetually digesting other developing market targets, which makes it difficult to distinguish between high and low quality mergers for any single merger in our empirical framework.

In sum, the results in Tables 3-6 confirm the positive effect of learning-by-observing when U.S. firms acquire targets from non-advanced economies and suggest that such learning by observing becomes especially pronounced when learning comes from local industry peers, media coverage about the outcome of recent deals, and for high-tech affiliated acquisitions.

We next examine the extent to which target country cultural heterogeneity affects the relationship between learning from others and acquisition performance. To the extent that cultural distance creates greater information asymmetry and uncertainty, we expect predecessors' experience to play a stronger role in a firm's acquisition performance in target countries where cultural heterogeneity is more significant (Kogut and Singh, 1988).

3.1.5. Learning-by-observing, acquisition performance and cultural heterogeneity

While cultural conflict often plays a large role in producing merger failure, it is often neglected when the benefits of a potential merger are examined (Weber and Camerer, 2003). In this section, we examine the extent to which cultural differences between an acquirer and its target affect the way acquirers learn by observing predecessors' recent acquisitions. To account for cultural differences between the target country and the US, we use the Hofstede (1980, 2001) cultural distance measure, as described above. Specifically, we define *Culture Close* as a dummy variable that receives a value of one for target countries that are culturally similar to the US, and zero otherwise, based on the sample median difference between the US and all target countries in a given year.

[Insert Table 7 about here]

Table 7 summarizes the effect of learning-by-observing on our four proxies of acquisition performance (likelihood of completion, change in operating performance, and long- and short term market returns, respectively), controlling for cultural differences. We control for all deal, acquirer, target country characteristics and year fixed-effects but omit their coefficients for

brevity and focus on our learning-by-observing independent variables. For every dependent variable, we separately use each one of our five learning-by-observing measures, as we did above, resulting in 20 regressions (five for each performance measure) for culturally distant- and culturally- close targets, respectively. The results in Table 7 suggest that the effect of learning-by-observing is significantly stronger in the sub-sample of target countries where cultural differences are the most pronounced. Unreported F-tests of whether the slopes on each of our learning measures are the same for firms acquiring targets in culturally close and culturally distant countries are statistically significant in all cases for all five measures of learning-by-observing. This indicates that managers learn more effectively from other predecessors when the target is based in a culturally distant country. Thus to the extent that such cultural differences magnify uncertainty and information asymmetry, learning from others becomes especially crucial.

4. Conclusion

In this study we examine the financial performance of cross-border US M&As in developing economy markets between 1993-2010, as well as the ability of the stock market to predict this performance on a short- and a long-run basis, controlling for the possibility that acquirers and investors can learn by observing other predecessors in the same target country. We find persistent evidence of improved post-merger financial performance as well as evidence of more accurate stock market predictions of this performance, consistent with the possibility that acquirers learn from the experience of their predecessors.

We hypothesize that managers of acquiring firms can learn by observing information that spills over from recent mergers, where we distinguish this passive learning from the more traditional notion of active learning-by-doing. Although we find weak evidence of learning associated with the mere quantity of past mergers, we document a strong, positive relationship

between acquisition performance, measured by the likelihood of deal completion, post merger-financial performance and short and long-term market performance, and learning by observing similar trait, local, same industry peers and/or qualitative news coverage about the outcome of prior deals.

Similarly, we hypothesize that investors become better able to accurately value mergers by observing the performance of predecessors. Indeed, we find evidence consistent with the conjecture that the stock market learns by observing in the long run, and also in the short run, when targets are affiliated with the high-tech industry. The positive effect of learning-by-observing on acquisition success in the high-tech industry is consistent with the interpretation that risk-averse investors are willing, *ceteris paribus*, to pay higher prices in high information states if information uncertainty is reduced by learning from predecessors.

Finally, we examine whether cultural heterogeneity strengthens acquirers' reliance on learning-by-observing in developing market acquisitions. Not surprisingly, we find that the positive effect of learning from others on acquisition performance is more strongly pronounced in culturally remote markets, indicating that such learning is more beneficial in economic settings that are inherently different from that of the US.

Our results indicate that learning from others matters in the context of cross-border, developing market M&As. With the increasing integration of the world's economies, it is likely that more mergers will involve firms from different countries, including countries in developing markets. We thus provide an important, preliminary analysis of the patterns of learning that matter in highly uncertain and complex economic environments, where a firm's own acquisition experience might be limited and therefore insufficient for effective learning. While academics have long been aware of information spillovers across firms and industries in the context of M&As, there is very little evidence about whether such observational learning has a real effect

on the performance of acquiring firms. Our findings shed light on one channel through which information spillovers across industries and acquiring firms could be a key driver of value creation in developing market, cross-border M&As. To the best of our knowledge, this article is the first to address the importance of learning from others for a sample that is not potentially biased by focusing on one industry. Our results should have important managerial implications, because they reveal the importance of learning-by-observing. An organizational structure flexible enough to encourage such learning thus appears highly desirable, especially in developing market, culturally distant acquisitions.

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Table 1**Summary of target countries**

This table summarizes the distribution of completed cross-border M&As resulting in transfer of control and conducted by US acquirers in non-advanced economies from 1993 to 2010.

Name	Observations		Name	Observations
Angola	1		Jamaica	1
Antigua	1		Kazakhstan	1
Argentina	31		Lithuania	2
Belize	1		Malaysia	7
Bermuda	3		Mexico	44
Bolivia	2		Neth Antilles	4
Brazil	47		Nicaragua	1
British Virgin	4		Pakistan	1
Bulgaria	2		Peru	2
Chile	15		Philippines	2
China	42		Poland	7
Colombia	6		Puerto Rico	12
Costa Rica	3		Romania	1
Dominican Rep	2		Russian Fed	9
Ecuador	1		South Africa	13
Egypt	5		Thailand	6
El Salvador	1		Trinidad & Tob	2
Guatemala	2		Turkey	1
Haiti	1		United Arab Emirates	1
Hungary	8		Venezuela	6
India	14		Zambia	1
Indonesia	1		Total	317

Table 2
Summary of sample characteristics

This table presents the summary statistics of cross-border M&As conducted by U.S. acquirers in developing market countries during 1993-2010. *All Attempts* include incomplete transactions and transactions that do not result in transfer in control. *Completed Deals* include completed transactions that result in transfer in control. *Total Assets (Market 4 wks before)* reflects the asset size (market value) of the acquirer four weeks prior to the acquisition. *MtB* is the market-to-book ratio of the acquiring firms, measured by the acquirers' market value four weeks prior to the announcement. *Hitech* is a dummy variable that denotes whether the target company is a high-tech firm. *Transaction* is the value of the transaction (in \$mil). *Relative Size* is the ratio of the transaction value to the acquirer's market value 4 weeks before the announcement. *LBD* refers to the number of deals conducted by the acquirers in the target country during the two years prior to the focal transaction. *Public Tgt.*, *Friendly* and *Cash100* are dummy variables that denote public targets, friendly acquisitions and deals for which the form of payment was only cash, respectively. *Executive Constraints* refers to the difference country-level number of executive constraints between the US and the target country. *Freedom of the Press* measures good government, access to information, and accountability of information, with higher scores indicting lower freedom of press. *Control of Corruption* is from the governance indicators compiled by Kaufmann, Kraay and Mastruzzi (2010). Higher values indicate better corruption control. *Culture Close* refers to countries with similar culture as the US, based on the sample median. *CLBO (CLBO_US)* denotes the cumulative number of mergers conducted by other (US based) acquirers in the same target country up to five years prior to the focal acquisition event. *CILBO (CILBO_US)* denotes the cumulative number of mergers conducted by other (local US), same two digit SIC industry acquirers in the same target country up to five years prior to the focal acquisition event. *Top News* is the cumulative number of media coverage events about the outcome of prior acquisitions in the same target country up to five years prior to the focal acquisition event. Other variables are defined in the Appendix. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

	All Attempts (1) N=543	Completed Deals (2) N=317	Differences in means (2-1)
<i>Firm Characteristics</i>			
Total Assets (\$mil.)	15,498.910	4,191.101	-11,307.809***
Market 4 wks before (\$mil.)	19,017.780	3,806.977	-15,210.803***
MtB	1.908	1.643	-0.265
LBD	0.126	0.128	0.002
<i>Deal Characteristics</i>			
Hitech	0.225	0.220	-0.005
Transaction (\$mil.)	123.837	158.527	34.690***
Relative Size	0.074	0.170	0.096
Public Tgt.	0.155	0.108	-0.047***
Friendly	0.921	0.972	0.051***
Cash100	0.243	0.227	-0.016
<i>Country Characteristics</i>			
Executive Constrains	2.902	3.022	0.120*
Freedom of the Press	45.798	43.039	-2.759**
Control of Corruption	-0.082	-0.013	0.069***
Culture Close	0.489	0.462	-0.027**
<i>Learning-by-Observing</i>			
CLBO	185.185	198.079	12.894**
CLBO_US	18.354	20.747	2.393***
Top News	5.709	5.907	0.198
CILBO	4.634	5.400	0.766***
CILBO_US	1.143	1.386	0.243***

Table 3

Learning-by-observing and the likelihood of acquisition completion

This table presents the results of a logit regression model of the likelihood of deal completion. The dependent variable is a dummy variable that receives a value of 1 if the deal is a completed, and 0 otherwise. The observational learning variables are defined above. *Executive Constraints* measures the country-level difference in corporate governance (shareholder rights) between the U.S. and the target country. *TgtCountryCompleteness* is the average completion rate of all the cross-border M&As in the target country during the two-year period prior to the focal deal. *Freedom of the Press* ranges from 0 to 100 with higher values representing countries with weaker freedom of press. *Control of Corruption* ranges from -2.5 to 2.5, with higher values indicating better corruption control. *Merger Waves* are defined following Harford (2005). *LBD* measures the acquirers' recent cross-border M&As in the target country two years prior to the focal transaction. The other control variables are defined in Table 2. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

		(1)	(2)	(3)	(4)	(5)
	CLBO	0.001* (0.088)				
	CLBO_US		0.009* (0.096)			
	Top News			0.001 (0.988)		
Country and Industry Information						
	CILBO				0.025* (0.077)	
	CILBO_US					0.184*** (0.001)
Control Variables						
	lnMkt	-0.587*** (0.000)	-0.581*** (0.000)	-0.576*** (0.000)	-0.588*** (0.000)	-0.591*** (0.000)
	Hitech	-0.330 (0.175)	-0.299 (0.215)	-0.251 (0.300)	-0.370 (0.133)	-0.405* (0.098)
	PublicT	-0.082 (0.777)	-0.064 (0.824)	-0.094 (0.745)	-0.062 (0.829)	-0.108 (0.711)
	Friendly	1.571*** (0.001)	1.542*** (0.000)	1.454*** (0.001)	1.503*** (0.001)	1.601*** (0.000)
	Cash100	0.183 (0.413)	0.159 (0.477)	0.218 (0.324)	0.168 (0.453)	0.146 (0.516)
	Related	0.463** (0.030)	0.479** (0.024)	0.490** (0.021)	0.487** (0.023)	0.480** (0.025)
	Executive Constraints	0.139* (0.069)	0.130* (0.091)	0.140* (0.071)	0.145* (0.059)	0.146* (0.059)
	TgtCountryCompleteness	0.162 (0.808)	-0.013 (0.984)	0.130 (0.844)	0.061 (0.927)	-0.098 (0.884)
	Freedom of the Press	-0.007 (0.331)	-0.007 (0.291)	-0.007 (0.343)	-0.010 (0.180)	-0.009 (0.202)
	Control of corruption	0.291* (0.100)	0.302 (0.136)	0.225 (0.274)	0.274 (0.176)	0.345* (0.095)
	Merger Waves	-0.881 (0.220)	-0.846 (0.233)	-0.860 (0.225)	-0.880 (0.218)	-0.758 (0.289)
	LBD	-0.040 (0.851)	-0.070 (0.742)	-0.069 (0.742)	-0.105 (0.621)	-0.210 (0.326)
	Year Effects	Yes	Yes	Yes	Yes	Yes
	Obs.	543	543	543	543	543
	Pseudo R ²	0.257	0.258	0.264	0.258	0.266
	Prob > F	0.000	0.000	0.000	0.000	0.000

Table 4**Learning-by-observing and changes in post-merger operating performance**

This table presents the OLS regression results of regressing the changes in pre-merger operating performance on learning by observing measures. The dependent variable, ΔROA is the average pre-merger (3 to 1 years prior) to post-merger (3 to 5 years after) change in the return on assets of the acquiring firm after first normalizing ROA to average industry wide levels in those years. The observational learning variables are defined above. *Executive Constraints* measures the country-level difference in corporate governance (shareholder rights) between the U.S. and the target country. *Freedom of the Press* ranges from 0 to 100 with higher values representing countries with weaker freedom of press. *Control of Corruption* ranges from -2.5 to 2.5, with higher values indicating better corruption control. *Merger Waves* are defined following Harford (2005). *LBD* measures the acquirers' recent cross-border M&As in the target country two years prior to the focal transactions. The other control variables are defined in Table 2. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

		(1)	(2)	(3)	(4)	(5)
	CLBO	0.001*** (0.002)				
	CLBO_US		0.002** (0.020)			
	Top News			0.001* (0.100)		
	CILBO				0.006** (0.047)	
	CILBO_US					0.011*** (0.010)
<i>Control Variables</i>						
	LnMkt	-0.003 (0.634)	-0.002 (0.743)	-0.001 (0.888)	-0.001 (0.908)	-0.001 (0.840)
	MtB	0.002 (0.417)	0.002 (0.438)	0.001 (0.602)	0.001 (0.634)	0.002 (0.359)
	Hitech	-0.041 (0.133)	-0.036 (0.178)	-0.033 (0.203)	-0.033 (0.210)	-0.035 (0.198)
	Cash 100	0.031** (0.040)	0.028* (0.079)	0.034** (0.028)	0.016 (0.374)	0.031** (0.042)
	RelativeSize	0.025 (0.608)	0.018 (0.726)	0.030 (0.566)	0.019 (0.714)	0.016 (0.752)
	Related	-0.015 (0.563)	-0.009 (0.710)	-0.017 (0.520)	-0.018 (0.504)	-0.015 (0.566)
	Executive Constraints	0.004 (0.521)	0.003 (0.733)	0.002 (0.827)	0.004 (0.544)	0.005 (0.479)
	Freedom of the Press	0.001 (0.719)	0.001 (0.548)	0.001 (0.318)	0.001 (0.969)	0.001 (0.619)
	Control of corruption	0.001 (0.961)	0.003 (0.863)	-0.002 (0.940)	-0.002 (0.919)	0.006 (0.733)
	Merger Waves	0.033 (0.222)	0.025 (0.163)	0.043** (0.019)	0.038* (0.100)	0.042** (0.041)
	LBD	0.012 (0.156)	0.009 (0.302)	0.012* (0.097)	0.005 (0.541)	0.008 (0.300)
	Year Effects	Yes	Yes	Yes	Yes	Yes
	Obs.	168	168	168	168	168
	Ajd. R ²	0.225	0.201	0.229	0.249	0.200
	Prob. >F	0.013	0.000	0.000	0.000	0.022

Table 5
Learning-by-observing and long-term market performance

This table presents the OLS regression results of the effects of learning by observing on the acquiring firms' *BHAR*. The dependent variable is the five-year *BHAR*. The observational learning variables are defined above. *Toehold* is a dummy variable and it is one if the acquiring firms have ownership of the target firms before the announcement of the focal transactions. *Executive Constraints* measures the country-level difference in corporate governance (shareholder rights) between the U.S. and the target country. *Freedom of the Press* ranges from 0 to 100 with higher values representing countries with weaker freedom of press. *Control of Corruption* ranges from -2.5 to 2.5, with higher values indicating better corruption control. *Merger Waves* are defined following Harford (2005). *LBD* measures the acquirers' recent cross-border M&As in the target country two years prior to the focal transactions. All other control variables are defined in Table 2. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

		(1)	(2)	(3)	(4)	(5)
	CLBO	0.001*** (0.001)				
	CLBO_US		0.008*** (0.000)			
	Top News			0.010*** (0.001)		
	CILBO				0.019*** (0.002)	
	CILBO_US					0.062*** (0.002)
<i>Control Variables</i>						
	LnMkt	0.019 (0.403)	0.027 (0.220)	0.017 (0.477)	0.020 (0.369)	0.021 (0.341)
	MtB	-0.023** (0.026)	-0.023** (0.032)	-0.017 (0.119)	-0.022** (0.039)	-0.017 (0.103)
	RelativeSize	-0.010 (0.959)	-0.022 (0.911)	-0.052 (0.800)	-0.040 (0.837)	-0.034 (0.866)
	Hitech	-0.085 (0.372)	-0.035 (0.718)	-0.058 (0.539)	-0.072 (0.458)	-0.066 (0.508)
	Toehold	0.191* (0.074)	0.148 (0.165)	0.150 (0.169)	0.175 (0.102)	0.165 (0.118)
	Related	-0.217** (0.031)	-0.233** (0.017)	-0.231** (0.021)	-0.215** (0.032)	-0.229** (0.020)
	Executive Constraints	-0.034 (0.340)	-0.024 (0.496)	-0.017 (0.653)	-0.013 (0.721)	-0.003 (0.926)
	Freedom of the Press	-0.001 (0.636)	-0.003 (0.311)	-0.001 (0.644)	-0.004 (0.256)	-0.003 (0.317)
	Control of corruption	-0.159* (0.062)	-0.134 (0.137)	-0.153 (0.113)	-0.168* (0.063)	-0.129 (0.152)
	Merger Waves	-0.178 (0.683)	-0.126 (0.767)	-0.127 (0.775)	-0.118 (0.781)	-0.080 (0.848)
	LBD	-0.083 (0.130)	-0.089 (0.111)	-0.079 (0.147)	-0.101** (0.041)	-0.119** (0.040)
	Obs.	235	235	235	235	235
	Adj. R ²	0.339	0.339	0.333	0.331	0.337
	Prob > F	0.000	0.000	0.000	0.000	0.000

Table 6
Learning-by-observing and announcement effects

This table presents OLS regressions of the effect of learning by observing on an acquiring firm's $CAR(-1, 1)$. The dependent variable is the three-day accumulative abnormal returns around the announcement date. The observational learning variables are defined above. *Executive Constraints* measures the country-level difference in corporate governance (shareholder rights) between the U.S. and the target country. *Freedom of the Press* ranges from 0 to 100 with higher values representing countries with weaker freedom of press. *Control of Corruption* ranges from -2.5 to 2.5, with higher values indicating better corruption control. *Merger Waves* are defined following Harford (2005). *LBD* measures the acquirers' recent cross-border M&As in the target country two years prior to the focal transactions. Other control variables are defined in Table 2. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level.

		(1)	(2)	(3)	(4)	(5)
Country Information						
	<i>CLBO *Hitech</i>	0.001* (0.094)				
	<i>CLBO</i>	-0.001 (0.355)				
	<i>CLBO_US *Hitech</i>		0.001* (0.072)			
	<i>CLBO_US</i>		-0.001 (0.455)			
	<i>Top News *Hitech</i>			0.003*** (0.000)		
	<i>Top News</i>			0.001 (0.733)		
Country and Industry Information						
	<i>CILBO *Hitech</i>				0.003** (0.046)	
	<i>CILBO</i>				-0.001* (0.085)	
	<i>CILBO_US *Hitech</i>					0.010* (0.090)
	<i>CILBO_US</i>					-0.001 (0.529)
Control Variables						
	LnMkt	0.009 (0.431)	-0.009 (0.430)	0.013 (0.337)	-0.006 (0.585)	-0.011 (0.316)
	LnAT	-0.014 (0.286)	0.003 (0.773)	-0.019 (0.209)	0.002 (0.862)	0.007 (0.590)
	MtB	-0.009** (0.057)	0.007 (0.139)	-0.010* (0.088)	0.007 (0.138)	0.008* (0.096)
	RelativeSize	0.127** (0.046)	0.124** (0.037)	0.122** (0.043)	0.122** (0.042)	0.125** (0.046)
	Toehold	0.021* (0.097)	0.024* (0.077)	0.019 (0.146)	0.019 (0.111)	0.026* (0.056)
	HitechT	-0.009 (0.786)	0.004 (0.868)	0.017 (0.444)	-0.002 (0.923)	0.001 (0.984)
	Public T	-0.018 (0.245)	-0.019 (0.266)	-0.015 (0.375)	-0.015 (0.339)	-0.023 (0.178)
	Executive Constraints	-0.003 (0.696)	-0.001 (0.986)	-0.001 (0.999)	-0.001 (0.923)	0.001 (0.998)
	Freedom of the Press	0.001 (0.237)	0.001 (0.653)	0.001 (0.690)	0.001 (0.470)	0.001 (0.478)
	Control of corruption	-0.007 (0.658)	-0.013 (0.453)	-0.016 (0.362)	-0.018 (0.286)	-0.011 (0.513)
	Expropriation Risk	-0.025*** (0.002)	-0.021** (0.011)	-0.019** (0.021)	-0.017** (0.033)	-0.020** (0.015)
	Merger Waves	-0.006 (0.904)	0.009 (0.833)	0.024 (0.571)	0.015 (0.709)	0.012 (0.789)
	LBD	-0.017** (0.041)	-0.020** (0.018)	-0.019** (0.020)	-0.016* (0.059)	-0.018** (0.033)
	Year Effects	Yes	Yes	Yes	Yes	Yes
	Obs.	263	263	263	263	263
	Adj. R2	0.347	0.338	0.342	0.335	0.336
	Prob > F	0.000	0.000	0.000	0.000	0.000

Table 7**Learning by Observing by cultural distance**

This table summarizes the effect of learning by observing on acquisition performance, controlling for target country cultural heterogeneity. We define *Culture Close* as a dummy variable that receives a value of one for target countries that are culturally similar to the US, and zero otherwise, based on the sample median difference between the US and all target countries in a given year. Culture measures are from Hofstede (1980, 2001). We use the same control variables as in Tables 3-6 but omit their coefficients for brevity and focus on learning-by-observing variables. For every dependent variable, we separately use each one of our five learning-by-observing measures, as we did above, resulting in 20 regressions (five for each performance measure) for culturally distant- and culturally- close targets, respectively.

		Culture Far				Culture Close			
		Completeness (N=272)	Δ ROA (N=69)	Five-year BHAR (N=114)	CARs ^a (N=131)	Completeness (N=271)	Δ ROA (N=99)	Five- year BHAR (N=121)	CARs ^a (N=132)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Learning-by-observing									
	CLBO	0.002** (0.022)	0.001** (0.020)	0.001*** (0.000)	0.001* (0.100)	0.001 (0.654)	0.001 (0.160)	-0.001 (0.994)	0.001 (0.160)
	CLBO_US	0.020** (0.040)	0.003* (0.053)	0.008** (0.043)	0.001* (0.100)	0.021 (0.120)	0.001 (0.189)	0.006** (0.049)	0.001 (0.767)
	Top News	0.009 (0.784)	0.008 (0.221)	0.008 (0.281)	0.003*** (0.000)	0.012 (0.329)	0.009 (0.114)	0.009 (0.144)	0.003 (0.183)
	CILBO	0.032* (0.074)	0.008* (0.090)	0.021** (0.031)	0.002* (0.090)	0.068 (0.107)	0.004** (0.029)	0.006 (0.555)	0.004 (0.363)
	CILBO_US	0.283*** (0.004)	0.025* (0.100)	0.025 (0.627)	0.010 (0.260)	0.191 (0.111)	0.009** (0.020)	0.047** (0.053)	0.01 (0.904)

^a The learning by observing coefficients reported for *CAR* regressions are the interaction between our learning-by-observing measures and the high-tech target dummy variable.

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