How do Information Institutions Affect the Performance of International Acquisitions in Emerging Markets?*

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Abstract

Foreign firms acquiring targets in emerging markets face higher information asymmetry due to the fact that the information institutions governing corporate financial transparency in those countries are not well developed. How does the quality of information institution affect international acquisitions performance and how to deal with the information problems effectively? The study tackles these questions in the context of U.S. firms acquiring targets in countries with varying degrees of corporate disclosure and transparency. Our empirical results show that the capital market reacts negatively to higher information asymmetry in international acquisitions in fear of buying a "lemon". This negative reaction is more significant for inexperienced acquirers and firms making unrelated acquisitions. Firms choosing partial acquisitions outperform those choosing full acquisitions under opaque information environment. The results of this study indicate that emerging markets should improve their corporate transparency to increase their attractiveness in the global financial market.

Key words: information asymmetry, international acquisitions, institutions.

The rate of growth of M&A in some of the emerging economies in recent years has exceeded 100 % per year and the M&A volume in emerging economies reached US $ 179 billion in 2007, almost 10 times the amount in 1990 (UNCTAD, 2008). However, the challenges for making acquisitions successful are tremendous (Shimizu, Hitt, Vaidyanath & Pisano, 2004).   Among these obstacles is the uncertainty of evaluating and integrating the target (Reuer & Koza, 2000). In countries with less transparent disclosure environment, sufficient and reliable information for appropriate valuation can be difficult to find from firms' financial reporting and disclosures (Reuer, Shenkar, and Rogizzino, 2004). A high level of information asymmetry between buyers and sellers can unleash significant market imperfections (Akerlof, 1970). In the case of M&A, such limited information makes target selection, valuation and integration very risky (Capron and Shen, 2007; Coff, 1999; Graebner, 2009).

Information asymmetry has long been recognized as one of the most important frictions impeding the efficient transfer of corporate controls (Akerlof, 1970; Jensen and Ruback, 1983; Rossi and Volpin, 2004). Recent strategy literature shows that choosing the right governance or methods of payments could mitigate the information problem to some extent (Balakrishnan & Koza, 1993; Reuer, Shenkar, & Ragozzino, 2004). Yet the full impact of information asymmetry on bidders' gain is still an unsolved question in the literature (Rossi & Volpin, 2004).

Two conflicting theoretical perspectives on the question can be found from the literature from information economics, finance and accounting (Akerlof, 1970; Koeplin, Sarin, & Shapiro, 2000; Easley & O'Hara, 2004). One perspective indicates that when information about a target is poor, the target will have both the motivation and the capability to manipulate information to sell itself at the highest price, which leaves acquirer high risks of "adverse selection" and buying a "lemon". In contrast,

the other perspective argues that when information about the target is poor, the target will have less marketability, which enables the acquirer to leverage its power and impose a deep price discount in purchasing the target as a "bargain", therefore gains more. Although these two competing perspectives could be valid simultaneously, which one dominates is an unsolved empirical question in the literature.

The study address this question by choosing the context of U.S. firms acquiring targets in countries with varying degrees of corporate disclosure and transparency – a natural experiment of acquirers buying targets with different levels of information asymmetry. Compared to domestic acquisitions, international acquisitions face a higher level of information asymmetry, due to national differences in informal and formal institutions. In particular, tremendous variations in information institutions, defined as the rules governing corporate disclosure in a country, often make the valuation process difficult and costly (Bushman, Piotroski, & Smith, 2004, Rossi & Volpin, 2004).

The purpose of this study is to investigate the role of information institutions in affecting the level of information asymmetry in international acquisitions and the consequent impacts on bidders' gain. Specifically, we are interested in: 1) How do the host country's information institutions affect bidders' gain in international acquisitions? 2) When information institutions are poor, what kind of firm-level private information mechanisms may help firms mitigate the information problem?

We argue that the sources of information asymmetry may come not only from the firm-level or transaction-level (Balakrishnan & Koza, 1993; Reuer, Shenkar, & Ragozzino, 2004), but also from the institution-level. Focusing on the role of information institutions and its interaction with micro firm- and transaction-level attributes, we integrate the information asymmetry theory (Akerlof, 1970) with new

institutional economics (North, 1990) and provide a comprehensive analysis of information problems in international acquisitions. By looking into the less-visible institutional roots of information asymmetry underpinning the more-visible market transactions, we highlight the institutional contingencies of foreign investment strategies.

This study may also contribute to the acquisition performance literature by examining how formal institutions matter and to what extent. So far mixed results have been found on the effects of international acquisitions on shareholders' wealth (Anand, Capron, & Mitchell, 2005). One of the reasons that may account for the mixed results is that most of the existing studies have focused on the role of informal institutions such as national culture (Morosini, Shane, & Singh, 1998) and limited research has been conducted as to how formal institutions affect international acquisitions. A fine-grained analysis of formal institutions (Peng & Zhou, 2005), such as information institutions, may yield further insights as to why some international acquisitions outperform others.

Literature Review

The Importance of Information

Information institutions are vital to the production of market information sufficient to support and facilitate exchanges in a capital/product market. A variety of information institutions, such as rules that regulate firms' financial reporting, voluntary disclosures and financial analysts, serve the critical role of reducing the information asymmetry between managers and outsider investors. The credibility of the information is monitored and enforced by independent regulatory institutions, standard setters, internal versus external auditors, and other financial intermediaries (Healy & Palepu, 2001).

According to Healy & Palepu (2001), demand for information institutions supporting corporate disclosure arises from information asymmetry and agency problems between managers and outside investors. Managers typically have better information than outsider investors as to the true value of the business, as well as its future opportunities. The information asymmetry, combined with conflicting incentives between managers and investors, may deter potential investors and impede the efficient allocation of scarce resources in the economy.

International acquisitions face conceptually similar but practically more severe information problems (Rossi & Volpin, 2004). The differences in a country's information institutions, such as accounting standards and financial disclosure rules, often make the valuation process for the target firm difficult and costly (Wittington, 2000). Recent corporate disclosure literature shows that formal institutions governing corporate disclosure vary tremendously around the world in terms of the amount and frequency of disclosed corporate information, as well as its credibility (Bushman, Piotroski, & Smith, 2004). Consequently, the richness of information from firms' financial reporting and disclosure also varies substantially in different countries (Collins and Kothari, 1989; Alford , Jones, Leftwich, & Zmijewski, 1993; Ball, Kothari, & Robin, 2000).

When the target operates under opaque disclosure rules, better-informed target managers not only have the incentive but also are able to misrepresent the value of the firm to sell it at a high price. On the other hand, the acquirer, as a cross-country outside investor, often has limited information and resources to verify the accuracy of the target's financial reports and adjust the valuation accordingly. The information problem is particularly severe when the target firm is embedded in counties with poor information institutions where it is not uncommon to observe biased financial

reporting, deficient disclosure and scarce analyst following (Ali & Huang, 2001; Collins & Kothari, 1989; Alford et al., 1993; Ball et al., 2000). Recently, increasing numbers of international acquisitions took place in emerging economies where high information asymmetry has been a major obstacle for international investors.

The Consequences of Information Asymmetry

The consequences of information asymmetry have been studied extensively across disciplines. In economics literature, Akerlof's (1970) 'market for lemons' model demonstrates that high information asymmetry may lead to adverse selection and potential breakdown of otherwise Pareto-improving transactions. The auction model of incomplete information predicts 'winner's curse', since the winner of a sealed-bid auction of unknown common value tends to overestimate the true value of the auction object (Giliberto & Varaiya, 1989; Wilson, 1967).

The finance and accounting literature shows that high information asymmetry between managers and outsider investors decreases the effectiveness of investor protection and consequent corporate valuation (La Porta, et al., 2000, 2002). High information asymmetry also pushes investors to price-protect themselves by charging higher cost of capital. Investors demand a higher return to hold stocks with less public information to compensate for the non-diversifiable information risk—decision risks due to poor information (Easley & O'Hara, 2004). Merton (1987) shows that in equilibrium, the value of a firm is always lower when there is incomplete information. Barry and Brown (1984) similarly argue that securities with relatively less information have a higher information risk, which translates into a higher discount rate, resulting in a lower price.

Strategy research suggests that information asymmetry exacerbates the difficulty of evaluating the value of targets' resources as well as the potential synergies (Barney,

1988). Under high information asymmetry, "if suitable contractual or institutional remedies for this information asymmetry problem are lacking, the acquirer bears a significant risk of failing to capture value from the deal, because of the risk of overpayment or from incurring excessive transaction costs during due diligence and negotiation processes." (Reuer, et al. 2004: p19).

The strategy literature so far has mainly identified micro factors, such as transaction relatedness (Balakrishnan & Koza, 1993; Reuer & Koza, 2000) and prior experience (Chen & Hennart, 2004) and target ownerships (Capron & Shen, 2006) as the sources for information asymmetry and proposed contractual remedies, such as choosing contingent pay-out or partial ownerships, to align the interest of the acquirer and the target (Reuer, et al. 2004). However, these studies have focused on the micro firm-level (e.g. the acquirer's international experience) and transaction-level (e.g. related vs. unrelated acquisitions) factors that affect the level of information asymmetry in acquisitions and have paid little attention to the type of information problem related to the liability of operating under different institutions in a foreign country.

Information Asymmetry in International Acquisitions

Little is known about how information institutions affect the acquirer's gains in international acquisitions (Rossi & Volpin, 2004). Studies on national factors focus mainly on the influence of cultural distance (Morosini, Shane, & Singh, 1998) and little on other serious challenges, such as the differences in accounting standards, financial disclosure, and legal institutions (Lee & Caves, 1998). These national differences create high uncertainty in evaluating and integrating the target firms (Reuer & Koza, 2000; Rossi & Volpin, 2004), and hence significantly increase the costs of conducting acquisitions abroad (Markides & Ittner, 1994; Datta & Puia,

1995). This is especially true for acquiring firms in emerging economies where the problem is exacerbated by weak information institutions (Peng, 2006).

We investigate the effect of information institutions on international acquisitions by borrowing insights from Akerlof's (1970) information asymmetry theory and new institutional economics (North, 1990). New institutional economics argues that a country's institutions - defined as rules of the game - have significant impact on the cost of market transactions in an economy. The information cost in searching and identifying suitable exchange partners could be tremendous without the appropriate institutions in place facilitating the information flow of exchanges. Therefore when the information institutions supporting corporate disclosure are poor, the acquirers are likely to face high information asymmetry in selecting and evaluating the targets.

The Risks of Buying a "Lemon"

The information asymmetry theory (Aklof, 1970) states that high information asymmetry often leads to adverse selections, where unattractive sellers are more likely to be on the market than attractive ones and buyers are likely to incur high risks of buying market "lemons". In other words, when there is high information asymmetry between exchange parties and the seller has the information advantage, the seller will have both the capability and the motivation to misrepresent its value in order to sell the best price possible. This is also consistent with auction theory which predicts the 'winners' curse' when the bidder has poor information on the true value of the target (Giliberto & Varaiya, 1989; Wilson, 1967). Taken together, it is reasonable to expect that when buying a target embedded in a low information environment, acquirer faces higher risk of failing to accurately evaluate the true value of the target or has to incur higher cost of due diligence. As a result, the bidding firm should suffer greater

negative return due to the high risk of overpaying the target. Therefore, we hypothesize that:

H1a: The capital market reaction to the acquirer will be positively associated with the quality of the target nation's information institutions in an international acquisition.

The Potentials to Make a "Bargain"

Another stream of literature, however, argues the opposite. The main rationale is that when there is limited public information about a target, it means the target has lower level of liquidity or marketability, which could translate to less competition in bidding and lower market price. In other words, buying a target with less information, the acquirer is able to impose a deep price discount on the target in compensation for information risks. As a result, acquirers will gain more in buying targets with less information. Consistent with this argument, several studies (Koeplin, Sarin, & Shapiro, 2000; Shen & Capron; 2006) report that acquirer systematically receive more positive market reactions when acquiring private targets than public firms. This phenomenon has been named as "the private company discount" (Koeplin, Sarin, & Shapiro, 2000). According to this perspective, we lay out the competing hypothesis:

H1b: The capital market reaction to the acquirer will be negatively associated with the quality of the target nation's information institutions in an international acquisition.

The Interaction between Macro- and Micro- Information Factors

While information asymmetry affect the valuation of acquisition deals in general, the level of information asymmetry may vary with the type of acquisition. For example, Balakrishnan and Koza (1993) point out that unrelated alliances and acquisitions often face much higher information asymmetry than related ones, due to

parent firms' unfamiliarity with new business lines. In addition, when making unrelated acquisitions, firms will have to rely more on public financial reports to understand and evaluate the target firm's true value or synergy. Therefore, the market may react less negatively to the poor information institutions for related acquisitions than for unrelated ones.

H2: The association between the market reaction and the target nation's information institutions will be weaker for a product-related acquisition than for an unrelated one.

The liability of poor information institutions in an international acquisition is also likely to be more severe for firms at the initial stage of internationalization (Johanson & Vahlne, 1977). Firms with different levels of host country or international experience may have different capabilities to cope with information problems（Shaver, Mitchell, & Yeung, 1997). For example, the differences in accounting rules and reporting regulations have been a big barrier to firms assessing a target firm's value, because foreign investors often don't know how to make the accounting statements comparable to their own country's standard (Wittington, 2000). However, firms with prior acquisition experience in the host country may be more familiar with accounting statements in that country and will therefore be more experienced in assessing the true value of the target firm. In a word, there are reasons to believe that prior target nation acquisition experience may help mitigate the information problems.

H3: The association between the market reaction and the target nation's information institutions will be weaker for experienced acquirers than for those without prior acquisition experience in that country.

The literature has suggested that under high information asymmetry, as in the cases of unrelated acquisitions or inexperienced acquirers, MNEs would choose international joint ventures, rather than outright acquisitions (Balakrishnan & Koza, 1993), to mitigate the risks of overpaying the target and incurring a high transaction cost (Hennart & Reddy, 1997, 2000). For the logic, when acquiring targets in countries with poor information institutions and the information asymmetry is high, choosing a partial acquisition may be more appropriate than choosing a full acquisition, since a partial acquisition commits less investment and reduces the downside loss. According to Chen and Hennart (2004), the ownership stake of partial acquisitions gives the targets the incentives to refrain from information misrepresentation or cheating, therefore enhancing the performance of partial acquisitions. Consistent with this logic, Balakrishnan and Koza (1993) found that under high information asymmetry, joint ventures perform better than full acquisitions. However, this result was obtained without controlling for the endogeneity of the choice. In our study, if firms endogenously choose partial acquisitions over full acquisitions based on the quality of the host country's information institutions, those firms may be more effective in mitigating information problems, and perform better than those choosing full acquisitions. In sum,

H4: The acquirer' propensity to choose a partial acquisition over a full acquisition will be negatively associated with the quality of the target nation's information institutions.

H5: The stock market reacts more favorably to a partial acquisition than to a full acquisition after controlling for the endogeneity of ownership choice based on the quality of the target nation's information institutions.

METHODS

Sample

The original sample was composed of 4,170 international acquisitions by United States firms (parent) during 1995-1997, drawn from the Security Data Corporation (SDC) database. Stock returns data were pulled from CRSP data and other firm-level control variables were matched from CompuStat data. The data on country information institutions were drawn from the Center for Financial Analysis and Research (CIFAR). After merging these data sources, the final sample for hypothesis testing were composed of 1,575 international acquisitions with 1,309 full acquisitions (above 95% ownership) and 266 partial acquisitions (below 95% ownership) in 33 target nations (See Table 1 for target country distribution in the sample).

[Insert Table 1 about here]

Measurement

Dependent Variable: We measured market reaction to an acquisition announcement using event study methodology. We first calculated the firm-specific forecast return by estimating a market model: $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$, $t \in [-250, -50]$, where R_{it} is firm i's stock return on day t, R_{mt} is the rate of return on a market portfolio of stocks on day t, and ε_{it} is the error term assumed to be normally distributed. The estimated forecast returns above were then used to calculate the risk-adjusted abnormal returns (i.e., $AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$) for trading days surrounding the announcement, as well as cumulative abnormal returns (CARs) over the (-1, 1) event window (i.e., $CAR_i = \sum_{t=-1}^{1} AR_{it}$). The three day window has been widely used in the literature to avoid the potential confounding factors associated with using a longer event window (Anand & Singh, 1997; Marsh, 1998; Reuer & Koza, 2000).

Theoretical variables: The measures of information institutions were adopted

from Bushman et al. (2004) study, where they reported the cross-country variations in

corporate transparency in the year of 1995. The country scores were internally

constructed from "International Accounting and Auditing Trends in 1995", compiled

by the Center for Financial Analysis and Research (CIFAR). CIFAR examined the

annual reports of about 1,000 industrial companies across various industries in 45

countries. To ensure the objectiveness of the comparison, CIFAR coded the inclusion

or omission of over 90 items in these firms' annual reports on information disclosure

regarding general information, income statements, balance sheets, funds flow

statements, accounting standards, stock data, and special items. These firm-level

codes were then aggregated to the country level, representing the quality of each

country's information institutions that support corporate transparency.

Those reported information items in Bushman et al. (2004), however, are not

equally important to outside investors (Hope, 2005). For the purpose of this study, we

only selected those that are most relevant to acquisition valuation. Theoretically

speaking, the valuation of companies in any market is the sum of the current assets

and the value of future prospects. Bruner et al. (2002) suggested that financial

reporting and disclosure communicate the current value of a firm, and financial

analysts provide information about their assessment of a firm's future prospects.

Therefore, we measure information institutions by the level of financial reporting and

disclosure (labeled as *Information* hereafter) and the level of financial analyst activity

(labeled as *Analyst* hereafter) in a country. Specifically, *Information* was a composite

measure of the frequency of financial reporting, the count of disclosed items, and the

consolidation of interim reports, while *Analyst* was measured by the number of

analysts following the largest 30 companies in each country in 1996 (Chang, Khanna

& Palepu, 2000). The level of financial reporting/disclosure and the level of financial analyst activity complement each other, and collectively provide information on the current value and future prospects of the firm.

Control variables: We controlled for several firm characteristics that may affect the market reaction to the acquisition announcements and, those characteristics that may be related to the explanatory variables (Lee & Caves, 1998; Markides & Ittner, 1994). Acquirers' *international acquisition experience* may generate the knowledge and skills for international acquisitions and directly affect the market reaction to a new acquisition announcement (Haleblian & Finkelstein, 1999). We measure international acquisition experience by the acquirer's number of prior international acquisitions 10 years before the focal acquisitions, based on SDC data. The experience variable was transformed by the log of 1 plus the number of experience to correct the skewness of the experience variable. In addition to the international acquisition experience, other international experience may also help focal firms to get familiar with foreign countries' institutional environment and overcome the liability of foreignness. To account for other types of international exposure a firm might have, we controlled for the level of the *internationalization,* measured by the ratio of foreign sales to total sales (Sullivan, 1994; Lu & Beamish, 2004). Beyond the general level of internationalization and international acquisition experience, we also constructed a more specific measure for the host country's acquisition experience. Prior target nation acquisition experience may help tremendously in interpreting the local financial and accounting reporting, as well as legal and cultural issues related to acquisitions in that particular country. *Host country acquisition experience* was coded as a dummy variable with one indicating that the acquirer has prior acquisition experience in the target nation.

Acquirer firm size may affect firms' international experience and performance and was measured by the logarithm of the acquirer's total assets at the end of the year prior to focal acquisition (Vermeulen & Barkema, 2001). *Prior performance*, measured by the acquirer' return on assets (ROA) at the end of the year before the focal acquisition, was also controlled, since past profitability may influence future performance (Lee & Caves; 1998; Markids & Ittner, 1994). *Acquisition relatedness* was found to be highly correlated with acquisition performance; the market reacts more positively for related acquisitions (Singh & Montgomery, 1987). We measured relatedness according to the similarity of SIC code of the acquirer and the target (Haleblian & Finkelstain, 1999). Specifically, if the acquirer and the target share the same 4-digit SIC code, then relatedness is coded as 1 and 0 otherwise. Finally, to control for potential heterogeneity of information sensitivity across different industries, we generated an industry dummy variable, with service industry as 1 and any other industry as 0 (Reuer, et al. 2004).

To better test the effects of information institutions, we also controlled for other potentially confounding institutional factors in a host country. These institutional factors are *host country growth*, measured by the host country's GDP growth in the past 5 years, the level of *political stability* and the quality of the *rule of law* published in the World Bank Report 1996. Finally, *culture distance* has been widely used to control for the cultural liability in international expansion, often measured by Kogut and Singh's (1988) index for weighting and summing: $CD_{(j,k)} = \text{sum}\{(I_{ij} - I_{ik})2/V_i\}/4$, where $CD_{(j,k)}$ is the cultural distance between country j (in this case the US) and k (target nation), and V_i is the variance of the index of the *i*th dimension of culture distance.

Method

Our estimation methods were chosen based on the following econometric issues. First, the data analysis based on the full acquisition sample may encounter sample selection bias because it precludes those partial acquisitions without controlling for the choice effect (Shaver, 1998; Heckman, 1979). If there are some latent variables that correlate to both the choice and the performance of full acquisitions, then the estimation will be biased. We therefore controlled for the sample selection bias using Heckman's (1979) two-stage model and obtained similar results as are presented in GLS random effect model in Table 3. Second, when testing the performance difference between partial and full acquisitions, there is the endogenous variable problem of ownership choice. We therefore controlled for the endogeneity of the choice between partial and full acquisitions using a treatment effect model (Greene, 2003:787-789), a model similar to Heckman's two-stage model that controls for selection bias.

Third, firms within the same countries are embedded in the same institutional environment. This makes the assumption of independence across observations questionable. Either the country fixed effects or random effects model may be appropriate to deal with this type of error structure. However, the country fixed effects model simply absorbs the effects of all time-invariant country variables into the country dummy variable and wipes out the effect of other country-level variables (Kennedy, 2003). The country random effects model, on the other hand, does allow the model to contain other country-level variables. Therefore, given our main theoretical interest in country-level institutional variables, the GLS country random effect model is more appropriate for this study.

The drawback of using random effects model is that the estimation may not be consistent, since it depends on the critical assumption that the random country effects

(as part of the residual) are uncorrelated with the independent variables (Greene, 2003). To solve this issue, we controlled for as many institutional variables as possible, such as economic growth, political stability, rule of law, and culture distance. To further ensure the robustness of our analysis, we also analyzed the data with Hierarchical Linear Modeling (HLM) for nested hierarchical structure data, and found similar results.

FINDINGS

Table 2 presents the descriptive statistics and the correlation table, from which we can see that the average market reaction to an international acquisition deal is modestly positive (mean=0.56%), but there is a large variance among different deals (std =0.06). The acquirer's size and international acquisition experience are significantly associated with the market reactions to acquisition announcements ($p<0.05$). The level of internationalization is positively correlated with international acquisition experience and host country acquisition experience. And at the country-level, country economic growth, political stability, rule of law and information institutions are all significantly correlated ($p<0.05$).

[Insert Table 2 about here]

Table 3 reports the empirical results testing hypotheses 1-3. Model I is the benchmark model, from which we could see that acquirers' prior performance and the level of internationalization have a marginally positive effect on the market reaction to international acquisitions. Related acquisitions, on average, receive positive market reactions, although the coefficient is not statistically significant.

Model II tests Hypothesis 1a and 1b, which predicts the opposite association between market reactions and the quality of host country information institutions in an international acquisition. Model II shows that information institutions measured by

both information intermediaries (*Analyst*, p<0.10) and financial reporting and disclosure (*Information*, p<0.05) have a positive effect on acquirers' cumulative abnormal returns (CARs). Therefore, Hypothesis 1a is supported by the data.

Our empirical results clearly found evidence for H1a, but not H1b. We speculate the following reasons: Although theoretically speaking, the acquirers anticipating potential adverse selection could discount the value of the target at the vary beginning, in reality the targets are unlikely to accept the deals with the price below its true value unless there are liquidation constraints. Therefore, the left side of the distribution of valuation is truncated and acquisition deals with upward estimation bias are more likely to go through. This upward estimation bias may also be complicated by the agency problems (Berkovitch & Narayanan, 1993) and managerial hubris (Roll, 1986), which are not uncommon in acquisition market and are likely to be intensified by the high information asymmetry due to the poor information institutions in the country.

Hypothesis 2 states that the association between market reaction and host country's information institutions will be weaker for related international acquisitions than for unrelated ones. Model III demonstrates the significantly negative interaction between financial information and acquisition relatedness (p<0.01) and therefore supports Hypothesis 2. Finally, Hypothesis 3 suggests that the association between market reaction and host country' information institution will be weaker for acquirers with prior host country experience than for inexperienced acquirers. Model IV specifically tests the interaction between these factors, and finds that the interaction between host country acquisition experience and financial information is significantly negative (p<0.01). It indicates that the quality of information institutions matters less for experienced acquirers than for inexperienced ones; therefore Hypotheses 3 is also supported.

[Insert Table 3 about here]

Table 4 tests Hypothesis 4, which relates to the choice between partial versus full acquisitions, contingent upon firm-level and host country-level factors. Model I is the control model from which we could see that firms undertaking related acquisitions and firms with good prior performance are less likely to choose partial acquisitions ($p<0.05$). The higher the culture distance, the higher is the acquirers' propensity to choose a partial acquisition ($p<0.01$). Model II tests the effect of information institutions on this choice, and the results show that the quality of financial information is negatively associated with choosing partial acquisitions ($p<0.01$), while the effects of analysts' following is not significant. In addition, the model shows that a high quality of rule of law also significantly decreases the chance of choosing partial ownerships.

[Insert Table 4 about here]

Table 5 tests Hypothesis 5, which states that partial acquisitions chosen to overcome the information problems under poor information institutions outperform full acquisitions. Model I is the control model without controlling for the endogeneity of the choice between partial and full acquisitions, where we found only marginally positive market reactions to partial acquisitions. After controlling for the endogenous choice of partial acquisitions, Model II clearly shows that partial acquisitions receive more favorable market reactions over full acquisitions ($p<0.01$). The inverse Mills ratio ($p<0.01$) indicates that a selectivity bias exists for partial acquisitions. Taken together, all of this information supports Hypothesis 5.

[Insert Table 5 about here]

DISCUSSION

Contribution and Implications

Three contributions emerge from this study. First, it provides an empirical test against two competing theoretical perspectives in predicting buyers' gains when facing high information asymmetry in transactions, depending on the buyers' probability of buying a "lemon" due to adverse selection or getting a "bargain" by imposing a price discount. By exploring bidders' gain in international acquisitions with different levels of information asymmetry, our study provides clear empirical evidence that in a takeover market, high information asymmetry hurt bidders' performance.

Second, it extends the information asymmetry theory (Akerlof, 1970) from the micro firm-level and transaction-level attributes to the macro institutional contexts across countries. By integrating the new institutional economics (North, 1900), we argue that host country's information institutions governing financial reporting and disclosure affect the information cost in the global takeover market. Prior studies have mostly focused on informal institutions in international acquisitions, such as national culture, and little is know about the role of formal institutions. This study provides empirical evidence that information institutions do matter significantly and the effect differs for different types of acquisitions. It therefore highlights the institutional contingencies of business strategies in different countries.

Finally, it provides another perspective in the understanding of the performance of international acquisition across countries, where mixed empirical results were found in the literature. Some find significantly positive or non-negative effects on shareholders' wealth (Markides & Ittner, 1994; Morck & Yeung, 1992), while others document significantly negative stock market reactions (Datta & Puia, 1995; Lee & Caves, 1998). Our fine-grained analysis of the host country's institutions (Peng &

Zhou, 2005), such as information institutions, may help to further tackle the performance heterogeneity of international acquisitions.

Given the significant growth of international acquisitions in both developed and emerging economies in the past decade, the empirical implications for this study could be multi-faceted: first, it cautions managers as to the risks of dealing with information problems in acquiring targets in low-quality information environments, the difficulties of evaluating the true potential of the target firm and acquisition synergy, and the potential negative reactions from the market. Second, when the information asymmetry is quite high due to the poor information institutions in the host country, choosing a related acquisition instead of an unrelated acquisition, or choosing partial acquisitions instead of full acquisitions, may mitigate the adverse effect of information asymmetry. In addition, prior host country acquisition experience may also help mitigate the information problem rooted in poor information institutions. Finally, for policy makers, our results do suggest that investors significantly discount acquisitions that take place in a low-quality information environment. Therefore, to enhance the valuation of the firms in the global capital market, countries should strive for a more transparent information environment with market-supporting information institutions.

Limitations and Future Directions

Along with the merits described above, this study also has several limitations: First, the measurement of information institutions may not be the most comprehensive one due to data limitations. Information institutions may include aspects such as the credibility of financial reporting and the enforcement of accounting rules, and the level of information dissemination. Future studies may construct a better measure of information institutions. Second, due to the large amount of missing values regarding

the market reaction to the target firm, we were unable to assess the information asymmetry effect on the pricing of the target firms located in low-quality information environments. It would be of interest to investigate how low information institutions affect the combined value creation of international acquisitions as well as the partitioning of synergy values between the acquirer and the target. Future studies may look into these interesting questions if more data is available on the target side. Finally, given that public information institutions change very slowly despite the large demand of the global capital market, more work is needed to further explore whether other information mechanisms exist to deal with information asymmetry resulting from poor information institutions. Such mechanisms may include cross-listing, sequential entry mode choices, and contingency payout etc.

CONCLUSION

This study investigates the information asymmetry problem in international acquisitions resulting from poor information institutions in the host country. In testing two competing hypotheses predicting buying a "lemon" or making a "bargain", we found that the market discounts the value of the acquiring firm when the host country's information institutions are weak and the information asymmetry is high. In addition, the adverse effect of poor information hurts unrelated acquisitions more than related ones and hurts inexperienced acquirers more than those with prior host country experience. To reduce the information asymmetry, choosing a partial acquisition instead of a full acquisition may help mitigate the information asymmetry problem and generate more positive returns. Overall, this study contributes to the literature by shedding light on how information institutions affect the level of information asymmetry in the international takeover market, and what mechanisms may exist to remedy the problem.

Table 1 Country distribution in the sample

Country	N	Country	N
ARGENTINA	40	JAPAN	17
AUSTRALIA	68	MEXICO	40
AUSTRIA	7	NETHERLANDS	39
BELGIUM	20	NEW ZEALAND	15
BRAZIL	46	NORWAY	14
CANADA	264	PAKISTAN	2
CHILE	7	PERU	6
COLOMBIA	6	PORTUGAL	8
DENMARK	22	SINGAPORE	11
FINLAND	13	SOUTH AFRICA	31
FRANCE	119	SPAIN	26
GERMANY	192	SWEDEN	27
HONG KONG	14	SWITZERLAND	33
INDIA	13	THAILAND	3
IRELAND	16	UNITED KINGDOM	380
ISRAEL	19	VENEZUELA	9
ITALY	48	Total	1575

Table 2 Descriptive Statistics and Correlation Matrix

	Mean	Std.	1	2	3	4	5	6	7	8	9	10	11	12	13
1.CAR(3-day)	0.05	0.06	1.00												
2.Relatedness	0.28	0.45	-0.01	1.00											
3.Firm Size	6.97	2.68	-0.08*	0.11*	1.00										
4.Prior performance	0.04	0.11	0.02	0.00*	0.16*	1.00									
5.Internationalization	0.23	0.24	0.01	0.00	0.23*	0.05*	1.00								
6.Int'l acquisition exp	1.62	0.97	-0.05*	0.12*	0.50*	0.01	0.15*	1.00							
7.Host country acq exp	0.33	0.47	0.02	-0.03*	0.03	-0.05*	0.03	0.16*	1.00						
8.Service industry	0.34	0.48	0.03	-0.16	-0.04*	-0.11*	-0.08*	-0.13*	0.02	1.00					
9.Information institutions	81.69	15.97	0.01	0.05	-0.09*	-0.04*	-0.12*	-0.04*	0.01	0.02*	1.00				
10.Financial analysts	18.53	6.95	0.03*	0.10*	-0.09*	0.00	0.03	0.01	-0.03*	-0.03*	0.05*	1.00			
11.Host country growth	0.02	0.02	0.02	-0.04	0.11*	0.02	0.04*	0.02	0.05*	0.02	-0.43*	-0.32*	1.00		
12.Culture distance	0.97	1.08	0.01	-0.08	0.16*	0.07*	0.09*	0.03	0.02	0.00	-0.40*	-0.24*	0.53*	1.00	
13.Political stability	0.77	0.62	0.01	0.03*	-0.14*	-0.03*	-0.07*	0.02	0.02	0.02	0.27*	0.42*	-0.40*	-0.37*	1.00
14. Rule of Law	1.34	0.78	0.00	0.05*	-0.21*	-0.05*	-0.07*	-0.04*	0.02	0.03*	0.24*	0.36*	-0.44*	-0.62*	0.81*

(n =1575. * correlation significant at p<0.05)

Table 3 Market Reaction to Full Acquisitions: Hypotheses 1-3[a]

	I	II	III	IV
Constant	.0142	-.0336	-.0681*	-.0441*
	(.0088)[b]	(.0221)	(.0281)	(.0222)
Firm level control				
Firm size	-.0010	-.0010	-.0010	-.0012
	(.0009)	(.0009)	(.0009)	(.0009)
Prior performance	.0286†	.0286†	.0278†	.0279†
	(.0167)	(.0169)	(.0168)	(.0168)
Relatedness	.0010	.0002	.0520†	.0008
	(.0037)	(.0037)	(.0266)	(.0037)
Int'l acquisition exp	-.0029	-.0027	-.0026	-.0022
	(.0019)	(.0019)	(.0019)	(.0019)
Internationalization	.0141†	.0153†	.0157*	.0151†
	(.0079)	(.0079)	(.0079)	(.0079)
Host country acq exp	-.0057	-.0060	-.0053	.1435**
	(.0061)	(.0061)	(.0061)	(.0475)
Service industry	-.0065†	-.0059	-.0057	-.0068†
	(.0038)	(.0039)	(.0038)	(.0038)
Country level control				
Host country growth	-.2186†	-.1309	-.1377	-.1072
	(.1318)	(.1365)	(.1363)	(.1361)
Culture distance	-.0001	-.0023	-.0024	-.0021
	(.0024)	(.0026)	(.0025)	(.0025)
Political stability	-.0005	-.0042	-.0039	-.0056
	(.0058)	(.0060)	(.0060)	(.0060)
Rule of law	.0000	.0029	.0028	.0037
	(.0051)	(.0052)	(.0052)	(.0052)
Theoretical variable				
Financial analyst		.0005†	.0005†	.0005†
		(.0003)	(.0003)	(.0003)
Information		.0004*	.0008**	.0005**
		(.0002)	(.0003)	(.0002)
(Information × Relatedness)			-.0006*	
			(.0003)	
(Information × Host country exp)				-.0017**
				(.0005)
Overall R^2	.021	.027	.031	.037
Wald Statistics	22*	28**	32**	38***

Table 4 The Choice of Partial Acquisitions over Full Acquisitions[a]

	I	II
Constant	-1.4222**	-.3256
	(.1625)[b]	(.4365)
Firm level control		
Firm size	.0856**	.0847**
	(.0188)	(.0010)
Prior performance	-1.6657**	-1.5808**
	(.3702)	(.3753)
Relatedness	-.1684*	-.1611*
	(.0729)	(.0039)
Int'l acquisition exp	-.0352	-.0038**
	(.0442)	(.0444)
Host country acq exp	-.1133	-.1364
	(.1638)	(.0115)
Service industry	-.0771	-.0597
	(.1232)	(.0041)
Country level control		
Host country growth	4.0110	2.3540
	(3.8008)	(2.8373)
Culture distance	.1784**	.1205*
	(.0657)	(.0477)
Political stability	-.1132	-.0568
	(.1155)	(.0985)
Rule of law	-.1319	-.2410**
	(.0876)	(.0819)
Theoretical variable		
Information		-.0131**
		(.0034)
Financial analyst		.0094
		(.0056)
Pseudo R^2	.089	.103
Wald Statistics	125**	173**
Observations	1575	1575

[a] Probit model of the binary choice

[b](S.E. in parentheses). † significant at 10%; * significant at 5%; ** significant at 1%

Table 5 Market Reaction to Partial Acquisitions[a]

	I	II
Constant	.0202**	.0017†
	(.0061)	(.0009)
Firm size	.0205	.0252
	(.0156)	(.0159)
Prior performance	-.0101	-.0190
	(.0169)	(.0174)
Relatedness	.0041	.0054
	(.0038)	(.0039)
Int'l acquisition exp	-.0039*	-.0037*
	(.0019)	(.0019)
Host country acq exp	-.0090	-.0078
	(.0067)	(.0068)
Service industry	-.0099*	-.0097*
	(.0039)	(.0040)
Partial acquisitions	.0082†	.0288**
	(.0049)	(.0105)
Inverse of Mills Ratio		-.0092**
		.0033
Wald Statistics	30.65**	42.11**
Observations	1575	1575

[a] Market reaction to international acquisitions, controlling the endogeneity of the choice between full and partial acquisitions as specified in model 2, Table 4.

[b](S.E. in parentheses). † significant at 10%; * significant at 5%; ** significant at 1%

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