# The Association between Expected Synergies and Post-Acquisition Performance in Cross-Border Mergers and Acquisitions

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Abstract: We investigate whether the relation between expected synergies and postacquisition performance differs between cross-border M&As and domestic M&As. Managers may, on average, fail to accurately estimate synergies resulting from cross-border M&As because of geographical, cultural, and institutional factors, or because of the greater difficulty to forecast integration costs ex post. Alternatively, managers may engage in cross-border deals only if they perceive that they can realistically estimate synergies. We exploit an accounting rule which requires managers to disclose their estimate of expected synergies. This estimate, referred to as "goodwill", is the excess of the purchase price over the net fair value of acquired assets. Using a sample of M&As completed by US acquirers, we show that, relative to domestic goodwill, cross-border goodwill is positively associated with increasing post-acquisition operating performance, sales growth, stock returns, and Tobin's q. In addition, we find that cross-border acquirers are less likely to impair goodwill in the year following the acquisition. We also document that the ability to accurately forecast synergies in cross-border deals is decreasing in cultural and institutional distance from the US. These results suggest that although managers are able to forecast synergies more accurately for deals in relatively similar countries than for domestic deals, they are not as accurate at forecasting synergies for cross-border deals as for domestic deals when the additional complexities exceed the additional managerial effort.

## Keywords:

Cross-border mergers and acquisitions, synergy, goodwill, post-acquisition performance

#### I. INTRODUCTION

Conceptually, mergers and acquisitions (M&As) are driven by management's expectation of "synergies"; two firms will merge if combining their operations increases value as assessed by acquiring firms' managers. However, synergies are difficult to assess ex ante and managers may engage in M&As for other motives. For example, prior research indicates that managerial hubris (e.g., Roll 1986; Seth et al. 2000; Baker et al. 2007) and managerial private benefits (e.g., Jensen 1986; Harford and Li 2007) are two explanations for value-destroying acquisitions. In this study, we exploit an accounting rule regarding purchase price allocation to examine the relation between management's estimation of synergies and post-acquisition performance related to domestic and cross-border M&As.

FAS 141 (FASB 2001a, 2007), which became effective in 2002, requires management to allocate the purchase price of the target to the net fair value of acquired assets through purchase price allocation after completion of the acquisition.<sup>2</sup> Goodwill, which is the excess of the purchase price over the net fair value of acquired assets, reflects the expected synergies resulting from the transaction. Goodwill is a "plug in" number and mechanically subsumes any overpayment. Consequently, any overestimated synergies lead to a greater proportion of the purchase price being allocated to goodwill. Since 2002, under FAS 142, goodwill is no longer amortized but is instead tested for impairment at least annually (FASB 2001b). Purchase price allocation (PPA) offers an opportunity to directly observe management's expectations of synergies resulting from M&A activity. It is particularly interesting given that management's internal forecasts are typically unavailable (Goodman et al. 2014).

Relative to domestic M&As, cross-border M&As are associated with an additional set of factors that could potentially affect the value created (or destroyed) through the combination. Cultural, institutional, and/or geographical distances increase the cost of due diligence before the combination and make the integration of the target firm more complex after completion of the deal (e.g., Ahern et al. 2015). Institutional, corporate governance, and accounting differences across countries can also impede value creation in cross-border M&As (e.g., the acquisition of Autonomy by HP in 2011 that led HP to recognize a massive write-down of goodwill in 2012,<sup>3</sup> one year after completion of the deal). However, imperfect integration of capital markets (e.g., investors' domestic bias, appreciation of currencies), exchange of

<sup>&</sup>lt;sup>2</sup> FAS 141 eliminated the "pooling of interests" accounting treatment for M&As for which no goodwill was disclosed. FAS 141 is now included in the Accounting Standards Codification (ASC) 805, *Business Combinations*.

<sup>&</sup>lt;sup>3</sup> See http://aswathdamodaran.blogspot.fr/2012/11/hps-deal-from-hell-mark-it-up-and-write.html (Last retrieved: September 29, 2015).

technologies, strong complementarities, and growth potential of foreign economic areas also create opportunities for bidders to purchase targets in different countries at attractive valuation levels.

In this study, we examine whether and how the relation between managers' expectations of synergies and post-acquisition performance differs between domestic and cross-border M&As. Since goodwill captures the amount of expected synergies, we investigate the nature of goodwill resulting from domestic and cross-border M&As. Whether managers are more or less able to forecast synergies from cross-border than from domestic deals is a priori unclear. In order to complete a relatively more complex cross-border transaction, managers may be more likely to (either intentionally or unintentionally) overestimate synergies such that goodwill actually captures overpayment and is negatively related to the future performance of the combined entity. Institutional and cultural distances of the target firm may also prevent managers from accurately forecasting synergies. Conversely, given the increased complexity of cross-border deals, acquirers may engage in cross-border M&As only when they expect to be able to accurately forecast synergies resulting from the combination. The hurdle of probable "expected synergies" needed to engage in M&As may be higher for cross-border business combinations relative to domestic combinations. As explained by Ahern et al. (2015), "mergers that do occur between culturally distant countries are likely to have stronger unobservable fundamentals in order to overcome the burden of additional integration costs." In this case, the amount allocated to goodwill in cross-border deals will be more positively associated with future performance relative to domestic deals. Therefore, the accuracy of expected synergies, and hence the nature of goodwill resulting from cross-border M&As, is a priori unclear and worthy of empirical examination. Accordingly, we address the following research question: Do managers forecast synergies for cross-border M&As more (less) accurately than they do for domestic M&As? We reason that if managers' forecasts are more (less) accurate, then the association between expected synergies and post-acquisition performance should be stronger (weaker) for cross-border M&As than for domestic M&As.

We use a sample of M&As with goodwill disclosure to address this research question. We investigate the association between expected synergies and acquirers' post-acquisition operating performance and assess whether the association between goodwill and future performance differs between domestic and cross-border M&As. A positive (negative) difference in the association between cross-border goodwill vs. domestic goodwill and future operating performance would indicate that the former captures more synergies (overpayment) relative to domestic goodwill. To corroborate our findings, we also examine the relative

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association between cross-border goodwill, and post-acquisition sales growth, stock returns, and Tobin's *q*. Next, we investigate differences in the likelihood of goodwill impairment in the first year following completion of the transaction between domestic and cross-border M&As. Goodwill write-downs booked shortly after completion of an acquisition tend to signal overpayment, i.e., that synergies have been overestimated (e.g., the HP-Autonomy deal above-mentioned or, more recently, the Microsoft-Nokia deal).<sup>4</sup> We also explore whether cultural and institutional distance between the acquirer and target firms is related to the ability of acquirers to forecast expected synergies.

We conduct our analysis on a sample of 2,074 business combinations completed by US acquirers between 2008 and 2013. Our empirical analysis yields the following findings. We document that, relative to domestic goodwill, cross-border goodwill is positively associated with the change in operating performance, measured by the change in industry-adjusted ROA from the year prior to completion of the acquisition (stand-alone entity) to the year after completion of the acquisition (combined entity).<sup>5</sup> We also find a positive association between cross-border goodwill, and the change in sales growth from the year prior to the year following completion of the transaction, post-acquisition stock returns, and post-acquisition Tobin's *q*. Together these results indicate that estimated synergies in cross-border deals are more positively associated with increases in firm performance than estimated synergies in domestic M&As. They suggest that, on average, managers are more accurate in estimating synergies in cross-border deals relative to domestic deals. In addition, we find that cross-border acquirers are less likely to impair goodwill in the year following completion of the acquisition acquirers, corroborating the greater accuracy of estimated synergies in cross-border M&As.

We also assess whether cultural and institutional distance from the target country relates to managers' ability to accurately forecast expected synergies. Even if managers may, on average, better forecast synergies in cross-border deals, managers are likely to be affected by the incremental difficulty of forecasting synergies in some cross-border deals. The accuracy of expected synergies depends on managerial incremental efforts and the additional difficulties for cross-border deals. Drawing on prior literature (e.g., Erel et al. 2012; Ahern et al. 2015; Francis et al. Forthcoming), we perform factor analysis on several cultural and institutional dimensions, including the differences between the US and the target firms' countries in the

<sup>&</sup>lt;sup>4</sup> See http://blogs.wsj.com/cfo/2015/07/09/microsoft-write-down-stokes-valuation-concerns/ (Last retrieved: September 29, 2015).

<sup>&</sup>lt;sup>5</sup> We find similar results using change in performance two years after completion of the transaction.

four dimensions of culture developed by Hofstede (2001),<sup>6</sup> differences between local GAAP and US GAAP, legal origin of the target country (common or code law), language (English or other), economic development (GDP per capita), and level of trust. We find that acquirers that complete cross-border acquisitions in more culturally and institutionally distant countries, exhibit a lower association between cross-border goodwill and post-acquisition performance than acquirers that complete acquisitions in less distant countries. We also document that acquirers of targets in more culturally and institutionally distant countries are more likely to impair goodwill in the year following completion of the transaction. This is consistent with the argument that cultural and institutional differences in some transactions exceed management's additional efforts to accurately forecast expected synergies. Together these findings suggest that managers forecast accuracy follows an "inverted U curve" function of the institutional and cultural distance relative to the US.

We contribute to the literature on M&As and international business in several ways. As noted by Reuer et al. (2004, 21), research on international M&As, while growing, has not been as voluminous as the large body of research on both domestic M&As and international alliances. This is somewhat surprising because M&As have been a major channel for internationalization in recent years. Past studies have investigated the determinants of crossborder transactions (e.g., Chen 2008; Erel et al. 2012; Ahern et al. 2015) or their effects on acquirers' post-acquisition performance (e.g., Lowinski et al. 2004; Nadolska and Barkema 2007; Gubbi et al. 2010). Our study extends that prior research by focusing on the accuracy of management's expected synergies across domestic and cross-border M&As. Ahern et al. (2015) document that investors' expect less synergies for M&As involving firms from culturally distant countries. We extend this line of research by identifying one factor that may explain why investors expect less synergies in more culturally and institutionally distant countries, i.e., because of the difficulty of accurately forecasting synergies by management. Our study also contributes to the literature on management forecasting ability and the quality of capital investment decisions (Hirst et al. 2008; Goodman et al. 2014). In particular Goodman et al. (2014) argue that management draws on similar skills to forecast earnings for market participants as it does to forecast performance in making investment decisions. They document that management's ability to forecast earnings is positively related to good investment decisions such as M&As and capital expenditures. We extend this research by exploring management's ability to forecast synergies in an international setting with a direct measure of management's forecasts. We contribute to the literature examining the quality of

<sup>&</sup>lt;sup>6</sup> The four dimensions are power distance, individualism, masculinity and uncertainty avoidance.

acquisitions and determinants of goodwill impairments (Hayn and Hughes 2006; Gu and Lev 2011; Goodman et al. 2014). We also complement other studies that examine the relevance and information content of disclosures about domestic business combinations and purchase price allocations, in particular Kimbrough (2007), Shalev (2009) and Paugam et al. (2015). These studies investigate the informativeness of purchase price allocations that involve fair value estimation of acquired assets and liabilities after a business combination and other disclosures provided in financial statements about business combinations. We add to this literature by showing how well goodwill, which reflects expected synergies, relates to the change in performance in the context of cross-border M&As.

Finally, we conduct our analyses on a sample of transactions of mostly private target firms, which allows us to obtain a considerably larger sample (2,074 transactions) than those used in previous studies. For example, Shalev et al. (2013), Paugam et al. (2015), and Zhang and Zhang (Forthcoming) conduct analyses on samples of public target firms involving respectively 320, 308 and 137 transactions. One limitation is that our dataset does not include target-specific and deal-specific variables as these variables are generally unavailable for private firms; therefore, we are unable to explicitly control for differences in these variables in our models. However, our dataset allows us to conduct more powerful tests using a much larger sample that is more representative of M&A transactions (Capron and Shen 2007).

The remainder of this paper is organized as follows. We review the related literature in Section 2, develop the hypotheses in Section 3, present our empirical strategy in Section 4, report our findings in Section 5, and conclude the study in Section 6.

#### **II. RELATED RESEARCH**

#### **Determinants of Cross-Border Mergers & Acquisitions**

Prior research shows that several country-specific and firm-specific dimensions affect the likelihood and intensity of cross-border M&As. For example, Erel et al. (2012) find that geographic proximity, quality of accounting disclosure, and bilateral trade activity increase the likelihood of mergers between two countries. Francis et al. (Forthcoming) also present evidence that GAAP proximity between countries is an important factor affecting the frequency and magnitude of cross-border M&As. From a legal point of view, Rossi and Volpin (2004) study the determinants of M&As around the world by focusing on differences in laws and regulation across countries. They find that the volume of M&A activity is significantly larger in countries with better accounting standards and stronger shareholder protection. Ahern et al. (2015) extend past studies by presenting evidence of the importance of

several key dimensions of culture, i.e., trust, hierarchy, and individualism, for merger volume across countries and the effects on synergy gains.

Chen et al. (2009) investigate the effects on the likelihood of cross-border M&As of several firm-specific factors. Using a sample of takeover bids in nine East Asian economies, they find that size, cash holdings, cross-listing on foreign exchanges, development of capital markets, and governance proxies are significantly and positively associated with cross-border M&As relative to domestic M&As. From a governance standpoint, Ferreira et al. (2010) find that foreign institutional ownership is positively associated with the intensity of cross-border M&A activity worldwide. Ferris et al. (2013) examine the role of CEO overconfidence in explaining international mergers and acquisitions during the period 2000–2006. They find that CEO overconfidence is related to a number of critical aspects of international merger activity.

#### **Consequences of Cross-Border Mergers & Acquisitions**

A key issue surrounding cross-border M&As is whether they create value (Reuer et al. 2004, 21). Several studies investigate investors' reactions to cross-border M&A announcements (e.g., Aybar and Ficici 2009; Gubbi et al. 2010; Ahern et al. 2015) or long-term post acquisition performance (e.g., Black et al. 2007; Dutta and Jog 2009).<sup>7</sup> Denis et al. (2002) find that global diversification is associated with a valuation discount equivalent to that applied to industrial diversification. Moeller and Schlingemann (2005) provide corroborative evidence of lower average performance for cross-border acquirers relative to domestic acquirers.

Black et al. (2007) examine the relationship between the quality of the foreign target's accounting disclosures and acquirer long-term abnormal returns. The authors find that US acquirers in cross-border mergers experience significantly lower long-term post-merger abnormal returns than acquirers of domestic targets. Dutta and Jog (2009) investigate the long-term stock return performance of Canadian acquiring firms in the post-acquisition period. Contrary to stylized facts reported in US studies, they neither find negative long-term abnormal stock market returns once they account for methodological discrepancies nor do they find negative long-term operating performance for acquirers in the period following an acquisition. They document that the Canadian market reacts positively to acquisition announcements but corrects for this reaction within a short period of time. Overall they find that Canadian acquisitions do not show value destruction or overpayment.

<sup>&</sup>lt;sup>7</sup> Some studies focus on the value creation to the acquirer of the acquisition of specific cross-border target type. Jory and Ngo (2014) examine the decision of private sector enterprises from developed countries to acquire state-owned enterprises (SOEs) abroad. The authors find that bidders of SOE fare worse than bidders of non-SOE both in terms of stock price and operating performance.

Other studies have focused on the value creation of M&As completed by emerging country acquirers. Aybar and Ficici (2009) document that, on average, cross-border expansions of emerging-market multinationals through acquisitions do not create value; instead, they destroy value for more than half of the transactions studied. Gubbi et al. (2010) investigate acquisitions by Indian firms, and examine whether overseas acquisitions by emerging-economy firms create value for acquirers. The authors predict and find that the magnitude of value created is higher when the target firms are located in advanced economic and institutional environments, i.e., in country markets with higher quality of resources, and therefore, stronger complementarities to the existing capabilities of emerging economy firms.

Another line of research investigates if and how various factors affect the long-term success of cross-border M&As. Capron (1999) examines how post-acquisition asset divestiture and resource redeployment affect the long-term performance of horizontal acquisitions. Overall, the results indicate that both asset divestiture and resource redeployment can contribute to acquisition performance, albeit with a significant risk of damaging acquisition performance when the divested assets and redeployed resources are those of the target. Chakrabarti et al. (2009) analyze the impact of culture on post M&A performance. Using a sample of over 800 cross-border acquisitions during 1991-2004, the authors find that, contrary to general perception, cross-border acquisitions perform better in the long run if the acquirer and the target come from countries that are culturally more disparate. Conversely, Ahern et al. (2015), using an event study around cross-border M&A announcements, find that greater cultural distances in trust and individualism are negatively associated with combined announcement returns. Francis et al. (2014) ask whether managers can learn from observing the actions of other acquiring firms to make better acquisition decisions. They use a sample of cross-border M&As conducted by US acquirers in developing countries and document a positive and significant relationship between an acquirer's performance and its predecessor's acquisition activity.

#### **III. HYPOTHESES**

Managers engaging in cross-border M&As may overestimate the amount of synergies resulting from the transaction for several reasons. First, the costs associated with due diligence are higher ex ante, due to institutional, cultural and geographical distances of the target firm. Purchasing a target in a different cultural and institutional environment is more complex and may lead to managers overlooking several risk factors likely to impede value creation. Second, once the acquisition is completed, the integration of a foreign target is also

likely to be more challenging and more difficult to predict. Managers of the acquiring firm may struggle to control and monitor a foreign subsidiary after completion of the transaction. In this case, expected synergies may not be accurately forecasted by managers. Therefore, goodwill, which captures managers' estimates of expected synergies from cross-border M&As, is likely to be negatively associated with future performance of the combined entity relative to goodwill resulting from domestic M&As. Managers could, on average, overestimate synergies resulting from cross-border deals.

Conversely, it is also possible that managers engage in more visible cross-border deals only if they feel confident in their ability to forecast synergies accurately. Purchasing a foreign company is likely to place the CEO at risk of turnover. Managers may exert stronger efforts to forecast synergies for cross-border M&As than for domestic M&As. This would lead managers to forecast synergies more accurately for cross-border deals relative to domestic deals or to engage only in combinations for which the probability that expected synergies will be realized is high. In other words, conditional on the M&A being completed, expected synergies for cross-border deals could be more accurate than domestic expected synergies. Additionally, if management is able to overcome legal or other institutional factors impeding cross-border M&As, cross-border deals could lead to high potential for value creation. Differences in growth potential of developing countries relative to developed countries and stronger complementarities offer opportunities to create value. If this is the case, goodwill resulting from cross-border transactions will be incrementally positively associated with future performance relative to goodwill resulting from domestic transactions.

The above discussion indicates that there are plausible reasons supporting both a stronger and a weaker positive association between cross-border goodwill and future performance relative to domestic goodwill. Accordingly, we state our hypothesis in the null form as follows:

**H1**: The relation between goodwill resulting from M&A transactions and the change in post-acquisition performance does not differ between cross-border and domestic M&A transactions.

Under US GAAP, goodwill is tested for impairment at least once a year. According to FAS 142 (ASC 350), an impairment loss must be recognized if the reporting unit's total fair value to which goodwill has been allocated is less than its book value (FASB 2001b). Cross-border deals for which management overestimates synergies are more likely to result in recognizing impairment shortly after completion of the transaction. Impairment of goodwill is management's acknowledgement that synergies have been overestimated. If management's

estimation of synergies is relatively more accurate for cross-border deals than for domestic deals, then cross-border acquirers are less likely to impair goodwill post-acquisition. Alternatively, if cross-border acquirers are less accurate in forecasting synergies for cross-border deals, then they are more likely to impair goodwill after the acquisition. Therefore, we test the following hypothesis (stated in the null form):

**H2**: The likelihood of goodwill impairment post-acquisition does not differ between cross-border and domestic acquirers.

The accuracy of expected synergies may be increasing for cross-border deals for which managers' additional efforts exceed the additional difficulties to forecast synergies whereas it is likely to decrease for cross-border deals for which the additional difficulties exceed managers' additional efforts. Past literature documents that cultural and institutional distance are important factors affecting the frequency of cross-border M&As and the synergies created in such transactions (e.g., Erel et al. 2012; Ahern et al. 2015; Francis et al. Forthcoming). We hypothesize that cross-border acquirers' ability to forecast synergies is also likely to be affected by cultural and institutional distance between the acquirer's and the target's countries. We expect that, among cross-border acquirers, management's ability to forecast synergies is lower for targets in more culturally and institutionally distant countries. Therefore, we test the following hypotheses:

**H3a**: The association between goodwill and post-acquisition performance is weaker for cross-border deals of targets in more culturally and institutionally distant countries.

**H3b**: The likelihood of goodwill impairment post-acquisition is greater for M&As involving acquirers and target firms from more culturally and institutionally distant countries.

#### **IV. EMPIRICAL STRATEGY**

#### The Nature of Goodwill and General Empirical Strategy

After 2002, following the completion of a business combination, acquirers must allocate the purchase price to the target's identifiable tangible and intangible assets and liabilities based on their individually estimated fair values (FASB 2001a). The difference between the purchase price and the total fair value of net identifiable assets is then allocated to goodwill. Goodwill is a composite asset that reflects (1) expected synergies between assets within the target firm (internally generated goodwill), which include the performance and growth opportunities of the target as a stand-alone entity, (2) expected synergies between the acquirer and the target firm (Johnson

and Petrone 1998; Henning et al. 2000; Zanoni 2009). We use the amount of goodwill resulting from the purchase price allocation as a proxy for management's expectation of synergies. Any overestimation of expected synergies created through the combination will therefore inflate goodwill and weaken its association with post-acquisition performance.

Our general empirical strategy is presented in Figure 1. We examine the consequences of estimated synergies (goodwill) on the change in performance from year t-1, i.e., the performance of the acquirer prior to completion of the transaction, to year t+1, i.e., the performance of the combined entity after completion of the transaction. We explore multiple dimensions of performance: change in industry-adjusted ROA, change in sales growth, post-acquisition stock returns, post-acquisition acquirer Tobin's q (H1), and likelihood of goodwill impairment (H2).

[Insert Figure 1 About Here]

# Association Between Goodwill Resulting from Cross-Border Mergers & Acquisitions and Post-acquisition Performance

First, we examine differences in the association between expected synergies resulting from cross-border versus domestic deals and future changes in operating performance using the OLS model (1):

$$\Delta ROA_{t-1; t+1} \text{ or } \Delta ROA_{t-1; t+2} = b_0 + b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t-1} + b_6 \Delta SALE_{t;t+1} \text{ or } t+1; t+2 + b_7 RET_t + b_8 RET_{t+1} + b_9 MTB\_Ac_{t-1} + b_{10} LEV_{t-1} + b_{11} ROA_{t-1} + b_{12} \Delta ROA_{t-2; t-1} + b_{13} GDWL\_Ac_{t-1} + b_{14} ln(Frequent)_t + b_{15} \Delta GDP_{t-1;t} + b_{16} TAX + b_{17} UNEMP_t + Year fixed effects + Industry fixed effects +  $\varepsilon_t$  (1)$$

where (*t* is the acquisition year):

 $\Delta ROA_{t-1; t+1}$  = industry-mean-adjusted ROA (EBITDA divided by lagged total assets) one year after completion of the transaction minus industry-mean-adjusted ROA one year before completion of the transaction (COMPUSTAT). Industry is defined as 2-digit SIC code;<sup>8</sup>

 $\Delta ROA_{t-1; t+2}$  = industry-mean-adjusted ROA (EBITDA divided by lagged total assets) two years after completion of the transaction minus industry-mean-adjusted ROA one year before completion of the transaction (COMPUSTAT). Industry is defined as 2-digit SIC code;

<sup>&</sup>lt;sup>8</sup> Past studies usually measure ROA in *t*-1 using the asset-weighted ROA of the acquirer and target firms. Since in our sample most target firms are private, we do not have information on target firms' ROA and therefore focus on the change in ROA for the acquirer.

- $GDWL_PPA_t$  = goodwill resulting from the transaction divided by purchase price (ppanalyser.com);
- *CrossBorder* = 1 if the target firm's home country is different from the acquirer's home country, and 0 otherwise (ppanalyser.com);
- $Materiality_t$  = Purchase price divided by the acquirer's total assets in t-1 (ppanalyser.com and COMPUSTAT);
- $SIZE_{t-1}$  = natural logarithm of the acquirer's total assets at the end of the fiscal year prior to completion of the transaction (COMPUSTAT);
- $\Delta SALE_{t;t+1 \text{ or } t+1, t+2}$  = change in acquirer's sales one year after completion of the transaction (from *t* to *t*+1). Alternatively, we use the average change in sales in the two years following completion of the transaction if  $\Delta ROA_{t-1; t+2}$  is used as the dependent variable (COMPUSTAT).
- $RET_t$  = acquirer's stock return in the fiscal year after completion of the transaction. (we also include  $RET_{t+1}$  if  $\Delta ROA_{t-1; t+2}$  is used as the dependent variable) (COMPUSTAT);
- $MTB\_Ac_{t-1}$  = acquirer's year-end market-to-book ratio of equity in the year prior to completion of the transaction;
- $LEV_{t-1}$  = acquirer's long-term debt plus current portion of long-term debt in the fiscal year prior to completion of the transactions divided by lagged total assets (COMPUSTAT);
- ROA<sub>t-1</sub> = industry-mean-adjusted ROA (EBITDA divided by lagged total assets) one year before completion of the transaction (COMPUSTAT). Industry is defined as 2-digit SIC code;
- $GDWL\_Ac_{t-1}$  = goodwill in the acquirer's balance sheet in the year prior to completion of the transaction divided by lagged total assets (COMPUSTSAT);
- $ln(Frequent)_{t-1}$  = natural logarithm of number of acquisitions completed by the acquirer between the beginning of the sample period and t-1 (ppanalyser.com);

 $\Delta GDP_{t-1,t}$  = GDP growth rate of the target country in year t (World Bank);

- TAX = Corporate income tax rate of the target country measured in 2011 (from KPMG corporate tax rate table or E&Y 2013 Corporate Tax Worldwide Corporate Tax Guide);
- $UNEMP_t$  = Unemployment rate of the target country expressed as a percentage of the total labor force according to the definition of the international labor organization (World Bank).

The main coefficient of interest is b<sub>3</sub>, which measures the incremental association of cross-border goodwill over domestic goodwill with the change of operating performance from pre- to post-acquisition. A positive b<sub>3</sub> estimate indicates that, relative to domestic goodwill, cross-border goodwill is more synergistic and is incrementally positively associated with increasing future performance of the combined entity. Coefficient b<sub>1</sub> measures the association of domestic goodwill with the change in operating performance from pre- to post-acquisition. Coefficient b<sub>2</sub> estimates the difference in operating performance between cross-border and domestic deals when goodwill is zero.<sup>9</sup> We also conduct a similar analysis for the change in operating performance between year *t*-1 and year *t*+2 ( $\Delta ROA_{t-1; t+2}$ ) (two years after completion of the acquisition) because synergies can take time to be realized (e.g., Goodman et al. 2014).

We control for several factors that are likely to affect the acquirer's change in performance: relative size of the transaction (*Materiality*<sub>t</sub>), firm size (*SIZE*<sub>t-1</sub>), change in sales ( $\Delta SALE_{t+1}$ ), news affecting firm value over t (and t+1 for  $\Delta ROA_{t-1; t+2}$ ) (*RET*<sub>t</sub>, *RET*<sub>t+1</sub>),<sup>10</sup> market-to-book ratio of equity (*MTB\_Ac*<sub>t-1</sub>), leverage (*LEV*<sub>t-1</sub>), level of industry-adjusted ROA in year t-1 (*ROA*<sub>t-1</sub>), change in industry adjusted ROA prior to the transaction ( $\Delta ROA_{t-2; t+1}$ ), amount of goodwill in the acquirer's balance sheet at t-1 (*GDWL\_Ac*<sub>t-1</sub>), and the natural logarithm of the number of acquisitions completed by the acquirer between the beginning of the sample period and year t (ln(*Frequent*<sub>t</sub>)). We also include GDP growth ( $\Delta GDP$ ), corporate income tax rate (*TAX*), and unemployment rate (*UNEMP*<sub>t</sub>) of the target country to control for major macroeconomic differences of the target country, as well as year and industry fixed effects. In all our models we cluster standard errors by acquirers since the same acquirer can complete several M&As.

Second, we investigate the differences in the association between expected synergies resulting from cross-border versus domestic deals and change in sales growth using the OLS model (2):

<sup>&</sup>lt;sup>9</sup> As goodwill is generally different from 0 in our sample, coefficient  $b_2$  cannot be directly interpreted. Therefore we do not draw empirical conclusions from  $b_2$  in models including interactions between *GDWL\_PPA* and *CrossBorder*. Our main coefficient of interest is  $b_3$ , i.e., the incremental accuracy of cross-border goodwill.

<sup>&</sup>lt;sup>10</sup> Because stock returns capture news faster than earnings we include a lag between stock returns and change in ROA.

(2)

 $\Delta SALE_{t-1:t+1}$  or  $\Delta SALE_{t-1:t+2} = b_0 + b_1 GDWL_PPA_t + b_2 CrossBorder_t$ 

 $+ b_3 GDWL_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t-1}$ 

 $+ b_6 RET_t + b_7 RET_{t+1} + b_8 MTB_A c_{t-1} + b_9 LEV_{t-1} + b_{10} ROA_{t-1}$ 

+  $b_{11}\Delta SALE_{t-2; t-1}$  +  $b_{12}GDWL\_Ac_{t-1}$  +  $b_{13}ln(Frequent)_t$ 

- $+ b_{14}\Delta GDP_{t-1;t} + b_{15}TAX + b_{16}UNEMP_t$
- + Year fixed effects + Industry fixed effects +  $\varepsilon_t$

where (*t* is the acquisition year):

 $\Delta SALE_{t-1; t+1}$  = sales in the year following completion of the transaction minus sales in the year prior to completion of the transaction scaled by lagged total assets (COMPUSTAT);

 $\Delta SALE_{t-1; t+2}$  = sales two years following completion of the transaction minus sales in the year prior to completion of the transaction scaled by lagged total assets (COMPUSTAT);

$$\Delta SALE_{t-2; t-1}$$
 = sales one year prior to completion of the transaction minus sales two years  
prior to completion of the transaction scaled by lagged total assets  
(COMPUSTAT).

The other variables are as previously defined.

The main coefficient of interest is  $b_3$ , which measures the incremental association of cross-border goodwill over domestic goodwill with future sales growth following completion of the transaction. A positive estimated coefficient  $b_3$  indicates that, relative to domestic goodwill, cross-border goodwill is incrementally associated with future sales growth (revenue enhancement synergies). In addition to controlling for the same factors as above that are likely to affect sales growth, we also control for past sales growth (acquirer sales growth before the transaction).

Third, we investigate the differences in the association between expected synergies resulting from cross-border versus domestic deals and future stock returns using the OLS model (3):

 $RET_{t+1} \text{ or } ARET_{t+1} = b_0 + b_1 GDWL\_PPA_t + b_2 CrossBorder_t$   $+ b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t+1}$   $+ b_6 MTB\_Ac_{t+1} + b_7 LEV_{t+1} + b_8 ROA_{t+1} + b_9 \Delta ROA_{t;t+1}$   $+ b_{10} ln(Frequent)_t + b_{11} \Delta GDP_{t-1;t} + b_{12} TAX + b_{13} UNEMP_{t+1}$   $+ Year \text{ fixed effects + Industry fixed effects + } \epsilon_t$  (3)

where (*t* is the acquisition year):

$$RET_{t+1}$$
 = acquirer stock return one year after completion of the transaction (COMPUSTAT);

- $ARET_{t+1}$  = acquirer stock return one year after completion of the transaction minus average stock return of COMPUSTAT firms for the same year (COMPUSTAT);
- $\Delta ROA_{t;t+1}$  = acquirer change in ROA (EBITDA divided by lagged total assets) in year t+1 (COMPUSTAT).

The other variables are as previously defined.

The main coefficient of interest is  $b_3$ , which measures the incremental association of cross-border goodwill over domestic goodwill with future stock returns during the year following completion of the transaction. A positive estimated coefficient  $b_3$  indicates that, relative to domestic goodwill, cross-border goodwill is associated with realized synergies that positively affect firm value.

We control for several factors that could affect stock returns such as the materiality of the transaction (*Materiality*), firm size (*SIZE*), market-to-book (*MTB\_Ac*), leverage (*LEV*), operating performance (*ROA*), change in operating performance ( $\Delta ROA$ ), as well as the number of acquisitions completed by the acquirer (ln(*Frequent*)), target firm countries' macroeconomic variables ( $\Delta GDP$ , *TAX*, *UNEMP*), and year and industry fixed effects.

Fourth, we investigate the difference in the association between expected synergies resulting from cross-border versus domestic deals and post-acquisition acquirer Tobin's q using the OLS model (4):

$$TQ_{t+1} = b_0 + b_1GDWL\_PPA_t + b_2CrossBorder_t + b_3GDWL\_PPA_t * CrossBorder_t$$
(4)  
+  $b_4Materiality_t + b_5SIZE_{t+1} + b_6\Delta SALE_{t;t+1} + b_7LEV_{t+1} + b_8ROA_{t+1}$   
+  $b_9CAPEX_{t+1} + b_{10}GDWL\_Ac_{t-1} + b_{11}TQ_{t-1} + b_{12}ln(Frequent) + b_{13}\Delta GDP_{t-1;t}$   
+  $b_{14}TAX + b_{15}UNEMP_{t+1}$  + Year fixed effects + Industry fixed effects +  $\varepsilon_t$ 

where (*t* is the acquisition year):

 $TQ_{t+1}$  = acquirer Tobin's *q* one year after completion of the transaction, measured as market value of equity + book value of short and long-term debt scaled by total assets (COMPUSTAT);

*CAPEX* = acquirer capital expenditures divided by lagged total assets (COMPUSTAT). The other variables are as previously defined.

The main coefficient of interest is  $b_3$ , which measures the incremental association of cross-border goodwill over domestic goodwill with the acquirer Tobin's q one year following completion of the transaction. A positive estimated coefficient  $b_3$  indicates that, relative to domestic goodwill, cross-border goodwill is associated with realized synergies that positively affect Tobin's q.

We control for the relative size of the transaction (*Materiality*), which may negatively affect Tobin's q since a larger purchase price will increase the denominator of Tobin's q. We

also control for acquirer size (*SIZE*<sub>t+1</sub>), sales growth ( $\Delta SALE_{t+1}$ ), leverage (*LEV*<sub>t+1</sub>), capital expenditures (*CAPEX*<sub>t+1</sub>), booked goodwill before the transaction (*GDWL\_Ac*<sub>t-1</sub>), Tobin's *q* before the transaction (*TQ*<sub>t-1</sub>), number of deals completed (*ln*(*Frequent*)), GDP growth ( $\Delta GDP$ ), tax rate (*TAX*) and unemployment rate (*Unemp*). We also include year and industry fixed effects.

# Association between Goodwill Resulting from Cross-Border Acquisitions and Future Goodwill Impairment

If management overestimates the amount of synergies in cross-border M&As, goodwill is more likely to be impaired in subsequent years (H2). Therefore, we examine the association between cross-border goodwill relative to domestic goodwill and the probability of future goodwill impairment. We estimate model (5) using the logit procedure as the dependent variable is dichotomous:

$$Pr(DIMP_{t+1} = I) = b_0 + b_1CrossBorder_t + b_2GDWL\_PPA_t + b_3Materiality_t + b_4ImpPc_{t-1} + b_5SIZE_{t+1} + b_6RET_{t+1} + b_7LEV_{t+1} + b_8ROA_{t+1} + b_9\Delta ROA_{t;t+1} + b_{10}\Delta SALE_{t;t+1} + b_{11}MTB_{t+1} + b_{12}MTB_{t+1} < I + b_{13}GDWL\_Ac_{t-1} + b_{14}\Delta GDP_{t-1;t} + b_{15}TAX + b_{16}UNEMP_t + Year fixed effects + Industry fixed effects +  $\varepsilon$ 
(5)$$

where (*t* is the acquisition year):

- $DIMP_{t+1} = 1$  if the acquirer books goodwill impairment in year t+1 and 0 otherwise (COMPUSTAT);
- $ImpPc_{t-1}$  = amount of goodwill impairment in year t-1 divided by lagged goodwill (COMPUSTAT);
- $MTB_{t+1} < l = 1$  if the acquirer's market-to-book ratio in year t+1 is below one, and 0 otherwise (COMPUSTAT).

The other variables are as previously defined.

The main coefficient of interest is  $b_1$ , which measures the association between crossborder M&As and the likelihood of future goodwill impairment during the year following completion of the transaction.<sup>11</sup> A positive estimated coefficient  $b_1$  would indicate that, relative to domestic acquirers, cross-border acquirers are more likely to impair goodwill in the year following completion of the transaction.

<sup>&</sup>lt;sup>11</sup> We use the firm-level amount of goodwill impairment as the allocation of goodwill to reporting units is not systematically disclosed and often considered arbitrary (Watts 2003; Roychowdhury and Watts 2007; Ramanna 2008). After completion of a transaction, it is hard to distinguish newly recognized goodwill from previously acquired goodwill. Watts (2003) explains that "if there are any synergies at all among the units, then there is no meaningful way to allocate future cash flows, value, and goodwill among units."

We control for known factors affecting the likelihood and magnitude of impairment, such as the magnitude of goodwill resulting from the transaction ( $GDWL\_PPA_t$ ), the materiality of the transaction ( $Materiality_t$ ), firm performance ( $ROA_{t+1}$ ,  $ARET_{t+1}$ ,  $MTB_{t+1}$ ,  $MTB_{t+1} < 1$ ), firm size ( $SIZE_{t+1}$ ), past impairment ( $ImPc_{t-1}$ ), and the amount of goodwill on the acquirer's balance sheet before completion of the deal ( $GDWL\_Ac_{t-1}$ ) (e.g., Beatty and Weber 2006; Hayn and Hughes 2006; Ramanna and Watts 2012; Lobo et al. 2015). Higher firm performance is negatively associated with the likelihood of impairment, larger firms are less likely to impair goodwill, and the amount of goodwill on the balance sheet prior to completion of the deal is positively associated with the likelihood and size of future impairment. We include a dummy variable for market-to-book less than 1 because it is a strong indicator of economically impaired goodwill (e.g., Ramanna and Watts 2012; Filip et al. 2015). We control for leverage (*LEV*), as creditors could discipline managers and ensure assets are written-down in a timely manner. We also include target firm countries' macroeconomic variables ( $\Delta GDP$ , *TAX*, *UNEMP*), year and industry fixed effects.

# Association Between Expected Synergies and Post-acquisition Performance for Culturally and Institutionally Distant Countries

Cultural and institutional differences across countries are multidimensional and past literature on cross-border M&As indicates that variation in levels of trust, hierarchy and individualism, and differences in legal origin, GAAP, and other institutional dimensions affect the likelihood and consequences of cross-border M&As (e.g., Erel et al. 2012; Ahern et al. 2015; Francis et al. Forthcoming). Using an individual indicator of cultural or institutional differences or a naïve summation of differences can result in measurement error and incorrect regression coefficients. Factor analysis provides a parsimonious way to represent the latent cultural and institutional differences in the data. Factor analysis extracts the common variance in the observable structural measures in order to identify institutional and cultural dimensions with less measurement error than the observable structural measures. Therefore, we employ traditional factor analysis to identify one or several factors capturing differences in culture and institutions (Harris et al. 2015, 584).

For each country we measure the following differences with US cultural and institutional dimensions: the four Hofstede (2001) dimensions of culture (power distance, individualism, masculinity, and uncertainty avoidance), and differences in trust levels. We measure a country's level of societal trust by its citizens' average response to the following question in World Values Surveys (WVS): "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" (e.g., Nanda and Wysocki

2013; Bae et al. 2015; Pevzner et al. 2015). To measure differences between US accounting standards and local GAAP, we adopt the approach of Bae et al. (2008), which focuses on 21 important accounting rules based on their review of the past literature and a survey of GAAP differences in 2001. Specifically, following Francis et al. (Forthcoming) we use these 21 accounting rules to derive a GAAP differences index measuring the extent of difference between US GAAP and local GAAP. We also form the following dichotomous variables for each country: whether English is the national language, and whether the origin of law is common law or code law. To capture economic differences between the US GDP per capita.

Next, we estimate model (6) on the sub-sample of cross-border acquirers to test whether the accuracy of expected synergies is related to cultural and institutional distance.

 $\Delta ROA_{t-1; t+1} \text{ or } \Delta ROA_{t-1; t+2} = b_0 + b_1 GDWL\_PPA_t + b_2 High\_Diff_t$  $+ b_3 GDWL\_PPA_t * High\_Diff_t + b_4 Materiality_t + b_5 SIZE_{t-1}$  $+ b_6 \Delta SALE_{t;t+1 or t+1, t+2} + b_7 RET_t + b_8 RET_{t+1} + b_9 MTB\_Ac_{t-1}$  $+ b_{10} LEV_{t-1} + b_{11} ROA_{t-1} + b_{12} \Delta ROA_{t-2; t-1} + b_{13} GDWL\_Ac_{t-1}$  $+ b_{14} ln(Frequent)_t + b_{15} \Delta GDP_{t-1;t} + b_{16} TAX + b_{17} UNEMP_t$  $+ Year fixed effects + Industry fixed effects + <math>\varepsilon_t$  (6)

where (*t* is the acquisition year):

 $High\_Diff_t$  = 1 if the target country is in a culturally and institutionally distant country from the US, defined as a country with an above the median value of the first factor from the factor analysis of structural cultural and institutional dimensions, and 0 otherwise.

The other variables are as previously defined.

We include the same control variables as in model (1).

The main coefficient of interest is  $b_3$ , which estimates the incremental association between cross-border goodwill and future performance for acquirers of targets in more culturally and institutionally distant countries over acquirers of targets in less culturally and institutionally distant countries (H3a). If management has more difficulty forecasting synergies in more culturally and institutionally distant countries, we expect the coefficient  $b_3$ to be negative.

We also estimate model (7) on the sub-sample of cross-border acquirers to test whether the likelihood of future goodwill impairment is related to cultural and institutional distance.

$$Pr(DIMP_{t+1} = I) = b_0 + b_1Group2_t + b_2Group3_t + b_3Group4_t + b_4GDWL\_PPA_t$$
(7)  
+ b\_5Materiality\_t + b\_6ImpPc\_{t-1} + b\_7SIZE\_{t+1} + b\_8RET\_{t+1} + b\_9LEV\_{t+1}  
+ b\_{10}ROA\_{t+1} + b\_{11}\Delta ROA\_{t;t+1} + b\_{12}\Delta SALE\_{t;t+1} + b\_{13}MTB\_{t+1} + b\_{14}MTB\_{t+1} < I  
+ b\_{15}GDWL\\_Ac\_{t-1} + b\_{16}\Delta GDP\_{t-1;t} + b\_{17}TAX + b\_{18}UNEMP\_t

+ Year fixed effects + Industry fixed effects +  $\varepsilon_t$ 

where (*t* is the acquisition year):

 $Group_{it(i=1,2,3,4)}$ = dummy variables based on the distribution of the first factor from the factor analysis of structural cultural and institutional dimensions. Group1 (Group2, Group3, Group4) = 1 for acquirers of a target in the fourth (third, second, first) quartile of culturally and institutionally distant countries, and 0 otherwise.

The other variables are as previously defined.

We include the same control variables as in model (4).

Acquisitions of a target in the least culturally and institutionally distant countries (Group1) are used as a benchmark. The main coefficients of interest are  $b_1$  to  $b_3$ , which estimate the incremental likelihood of future goodwill impairment for acquirers of targets in progressively more culturally and institutionally distant countries over acquirers of targets in the least culturally and institutionally distant countries, i.e., *Group1* (H3b). If management has more difficulty forecasting synergies in more culturally and institutionally distant countries, i.e., *Group1* (H3b). If management may have to revise expected synergies downward after completion of these acquisitions.

#### V. EMPIRICAL FINDINGS

#### **Sample Selection**

FAS 141 requires firms to disclose their finalized purchase price allocation within one year of completion of M&As. In most cases, US listed firms disclose purchase price allocations in forms 10-Q or 10-K. We obtain data on 5,786 purchase price allocations from ppanalyser.com, a private data provider that collects information about transactions from regulatory filings, including detailed purchase price allocations, names and countries of acquirers and target firms. Acquirers' may be non-US firms and most target firms in the database are private firms. We merge this transaction dataset with COMPUSTAT North America using the acquirers' tickers. We delete transactions not matched, with no information on the country of the acquirer or target firm, or with missing data in COMPUSTAT. We also exclude non-US acquirers listed in the US as well as acquirers from the financial sector. The final sample comprises 2,074 business combinations completed between 2008 and 2013. By comparison, an extract from Thomson One Banker (formerly SDC) of transactions involving US public acquirers in the financial industry leads to a total of 5,515 transactions. We

obtain fewer transactions from ppanalyser.com because only transactions with disclosed purchase price allocations are included in ppanalyser.com and because we require available data in COMPUSTAT.<sup>12</sup> Panel A of Table 1 summarizes the sample selection process.

#### [Insert Table 1 About Here]

Panel B of Table 1 presents the list and frequency of target firms' countries. Most target firms are domestic US firms (73.3%). The next most represented countries are the United Kingdom (5.6% of transactions), Canada (4.0% of transactions) and Germany (2.2% of transactions). Panel C of Table 1 shows the number of deals completed each year between 2008 and 2013; it indicates that 2011 (2010) is the most (least) active year by number of completed transactions, with 24.7% (4.1%) of the total number of transactions. Panel D of Table 1 presents the list of industries according to the GICS classification of acquirers. The transactions are clustered in the Information Technology and Industrials sectors.

Table 2 presents descriptive statistics for the full sample (Panel A), and separately for domestic and cross-border deals (Panel B). We winsorize each continuous variable at its first and ninety-ninth percentiles. Panel A shows that the mean (median) purchase price is USD 353.8 million (43.1 million). The transactions are economically significant as the mean (median) materiality of transactions is 13.9% (4.8%) of the acquirer's lagged total assets. This is consistent with the fact that material M&As are more likely to result in the disclosure of purchase price allocations. Roughly 27% of the transactions are cross-border deals (553 transactions = 2,074 - 1,521) (see Table 1, Panel B).

By comparison, the mean (median) deal value in Thomson One Banker for transactions involving non-financial US public acquirers for deals completed between 2008 and 2013 is USD 291 (40 million) and includes 22% of cross-border transactions (untabulated). This suggests that our sample obtained from ppanalyser.com is fairly representative of transactions completed over the 2008-2013 period, although our sample tends to include larger deals that are more likely to result in the disclosure of PPAs.

The mean (median) amount of the purchase price allocated to goodwill is 47.4% (47.6%). This is our measure for the average synergies expected by management.<sup>13</sup> The mean (median) change in industry-adjusted ROA from the year prior to completion of the transaction to the year following completion of the deal is -168 basis points (-134 basis points). The mean (median) change in sales growth from the year prior to completion of the transaction to the

<sup>&</sup>lt;sup>12</sup> Following general accounting principles, purchase price allocation disclosure is subject to the materiality threshold.

<sup>&</sup>lt;sup>13</sup> The magnitude of goodwill is comparable, although lower, to that documented in other studies. Henning et al. (2000), Shalev (2009) and Shalev et al. (2013) respectively report goodwill to be 57%, 59% and 59% of the purchase price on average.

year following completion of the deal is 25.9% (14.3%). In the year following completion of the transaction, the mean (median) stock return is 29.4% (15.8%), the mean (median) marketadjusted return is -1.4% (-9.3%), and the mean (median) Tobin's q is 1.58 (1.28). The average likelihood of booking goodwill impairment in the year following completion of the transaction is 14.2%.

Univariate statistics presented in Panel B show that cross-border deals involve smaller purchase prices (median difference of  $Purchase_Price_t$  is significantly negative), acquirers that tend to exhibit relatively better change in operating performance post-acquisition than domestic acquirers (median difference in  $\Delta ROA_{t+1}$  is positive and significant), better postacquisition adjusted stock returns (median difference of  $ARET_{t+1}$  is larger for cross-border acquirers), higher Tobin's q (mean and median difference are positive and significant), lower likelihood of booking goodwill impairment one year after completion of the transaction (mean and median differences of  $DIMP_{t+1}$  are negative and significant), lower sales growth prior to completion of the acquisition (mean difference of  $Av\Delta SALE_{t-2;t-1}$  are negative and significant), have higher market-to-book ratio (mean and median differences of  $MTB_{t-1}$  positive and significant), lower leverage (mean difference of  $LEV_{t-1}$  is negative and significant). Acquirers of cross-border deals also tend to hold more cash (median difference of  $CASH_{t-1}$  is positive and significant) and complete deals more frequently (mean difference of *ln(Frequent)* is positive and significant). Target firms' countries for cross-border deals exhibit higher GDP growth, lower tax rates, and lower unemployment rates (mean and median are significantly different).

# Expected Synergies Resulting from Cross-Border M&As and Post-acquisition Performance

The estimation results of model (1), which focuses on the association between expected synergies and future performance, are presented in Table 3.

#### [Insert Table 3 about Here]

The results in Table 3 indicate that goodwill resulting from cross-border transactions is more positively associated with change in ROA from the year prior to the acquisition to the year following the acquisition ( $\Delta ROA_{t-I,t+1}$ ) than goodwill resulting from domestic acquisitions (b<sub>3</sub> is positive and significant at less than 5%, two-sided). This indicates that expected synergies resulting from cross-border deals are associated with a greater increase in operating performance relative to expected synergies resulting from domestic transactions. This result indicates that managers forecast synergies more accurately in cross-border transactions than in domestic transactions. The analysis of the change in operating performance between *t*-1 and *t*+2 ( $\Delta ROA_{t-1;t+2}$ ) on a reduced sample of 1,496 transactions (observations in 2013 are lost due to missing data for fiscal year 2015) yields a similar conclusion; b<sub>3</sub>, which measures the association between expected synergies and post-acquisition performance, is positive and significant at less than 5% (two-sided).

Stock returns are positively associated with the change in ROA (significant at less than 10% or better, two-sided). The change in industry-adjusted ROA prior to completion of the transaction ( $\Delta ROA_{t-2;t-1}$ ) is positively associated with the subsequent change in performance (significant at less than 10% or better, two-sided). Sales growth is positively associated with the change in post-acquisition performance (significant at less than 10% or better, two-sided) and leverage is negatively associated with the change in industry-adjusted ROA (significant at less than 10% or better, two-sided).

We use model (2) to examine the association between cross-border goodwill and future sales growth. The estimation results are presented in Table 4.

#### [Insert Table 4 about Here]

Table 4 shows that goodwill resulting from cross-border transactions is more positively associated with the change in sales growth measured as the difference between sales growth in the year after the acquisition and the year prior to completion of the acquisition ( $\Delta SALE_{t-1;t+1}$ ) than goodwill resulting from domestic acquisitions (b<sub>3</sub> is positive and significant at less than 5%, two-sided). The analysis of the change in sales growth measured two years after completion of the transaction ( $\Delta SALE_{t-1;t+2}$ ) yields similar findings (b<sub>3</sub> is positive and significant at less than 10%, two-sided). To the extent that synergies are positively associated with increasing sales through revenue enhancement, this result indicates that managers are better able to forecast synergies in cross-border M&As than in domestic M&As. The relative size of the transaction (*Materiality<sub>t</sub>*) and past sales growth ( $\Delta SALE_{t-2;t-1}$ ) are positively associated with future sales growth (significant at less than 5% or better, two-sided).

We use models (3) and (4) to corroborate the findings of the post-acquisition operating performance analysis with the analysis of acquirer firm value post-acquisition. We present the estimation results of models (3) and (4) in Table 5.

#### [Insert Table 5 about Here]

Panel A of Table 5 shows that goodwill resulting from cross-border transactions is more positively associated with stock returns and adjusted stock returns in the year following completion of the acquisition than goodwill from domestic acquisitions ( $b_3$  is positive and significant at less than 5%, two-sided). This result confirms previous findings from the analysis of post-acquisition operating performance, i.e., expected synergies from cross-border deals are more positively associated with value creation for acquirers relative to expected synergies from domestic deals. The change in ROA is positively associated with stock returns (significant at less than 1%, two-sided) and the local tax rate of the acquired firm is negatively associated with acquirers post acquisition returns (significant at less than 10%, two sided).

Panel B of Table 5 shows that goodwill resulting from cross-border acquisitions is positively associated with acquirers' Tobin's q post acquisition, which corroborates previously reported evidence of more accurate expected synergies in cross-border deals than in domestic deals.

As expected the relative size of the transaction (*Materiality*) is negatively associated with Tobin's q (significant at less than 1%, two-sided). The acquirer's Tobin's q before the transaction is positively correlated with the Tobin's q post acquisition (significant at less than 1%, two-sided). We find a positive association between the Tobin's q and unemployment rate in target firms' countries and a positive association with sales growth.

# Expected Synergies Resulting from Cross-Border M&As and Likelihood of Future Goodwill Impairment

Table 6 reports the estimation results of model (5) that facilitates comparison of the likelihood of post-acquisition goodwill impairment between domestic and cross-border acquirers.

### [Insert Table 6 about Here]

The results indicate that cross-border acquirers are less likely to impair goodwill in the year following completion of the acquisition than domestic acquirers. Coefficient  $b_1$ , which measures the difference in the likelihood of goodwill impairment in t+1 between cross-border and domestic goodwill, is negative and significant at 10% (two-sided). This indicates that for cross-border M&As, management is less likely to overestimate expected synergies and as a result tends to impair goodwill less often. This result holds after controlling for the magnitude of goodwill resulting from the transaction (*GDWL\_PPA<sub>t</sub>*), goodwill resulting from past transactions (*GDWL\_Ac<sub>t-1</sub>*), size of past impairment (*ImpPc<sub>t-1</sub>*), firm leverage (*LEV<sub>t+1</sub>*), size of the acquirer (*SIZE<sub>t+1</sub>*), and post-acquisition performance (*ROA<sub>t+1</sub>*,  $\Delta ROA_{t+1}$ ,  $\Delta SALE_{t+1}$ , *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>*, *MTB<sub>t+1</sub>, <i>MTB<sub>t+*</sub>

We find that *ROA* is negatively associated with the probability and magnitude of goodwill impairment while *MTB*  $_{t+1}<1$ , *ImPc* $_{t-1}$ , and *GDWL\_Ac* $_{t-1}$  are positively associated with the likelihood of goodwill impairment in t+1.

# Expected Synergies and Post-acquisition Performance for Culturally and Institutionally Distant Countries

We next examine whether the ability of acquirers of foreign targets to forecast expected synergies is related to cultural and institutional distance. Table 7, Panel A presents the results of the factor analysis of several dimensions of culture and institutions: the four Hofstede dimensions of culture, GAAP difference, difference in level of trust, law origin, language, and economic development.

#### [Insert Table 7 About Here]

We identify one factor with an eigenvalue greater than 1 that explains 86.7% of the variance in the raw data. We also note that the results from the factor analysis are consistent with expectations, in that related structural measures load together in an intuitively reasonable manner. The underlying variables, which measure differences relative to the US, load positively with Factor 1 (see, e.g., GAAP difference), whereas variables that are similar to the US load negatively (see Common law and English language). Increasing values or Factor 1 indicate more distant countries. Table 7, Panel B lists the countries classified as more distant and less distant from the US based on the median value of factor 1.

Table 7, Panel C presents the results of model (6) estimated on the subsample of crossborder M&As. It indicates that, for performance measured over the period t-1 to t+2, crossborder M&As in more culturally and institutionally distant countries result in a lower association between goodwill and change in industry-adjusted ROA than for goodwill of less culturally and institutionally distant countries (coefficient b<sub>3</sub> is negative and significant at the 5% level, two-sided). For  $\Delta ROA_{t-l:t+1}$ , b<sub>3</sub> is statistically insignificant at conventional levels.

Panel D and Panel E of Table 7 present the estimation results of model (1), which facilitates direct comparison of domestic transactions with cross-border transactions in relatively less distant countries (Panel D) and relatively more distant countries (Panel E). The results suggest that management's ability to forecast synergies more accurately in cross-border transactions relative to domestic transactions is mainly driven by M&As in less institutionally and culturally distant countries (b<sub>3</sub> is positive and significant at 10% or better in Panel D of Table 7). In more institutionally and culturally distant countries, we do not find evidence of management's superior ability to forecast synergies in cross-border deals relative to domestic deals (b<sub>3</sub> is not reliably different from zero).

Panel F of Table 7 documents that acquirers of targets in the most culturally and institutionally distant countries (*Group4*) are more likely to impair goodwill in the year following completion of the transaction than acquirers of targets in the least distant countries

(*Group1*) ( $b_3$  is positive and significant at the 5% level, two-sided). These results are consistent with managers' ability to forecast synergies being lower in more culturally and institutionally distant countries.

#### VI. ADDITIONAL ROBUSTNESS TESTS

#### **Matched Samples**

One potential concern is that, although we control for a number of factors, the underlying characteristics of cross-border acquirers and domestic acquirers differ. Therefore the observed differences in post-acquisition performance may be attributable to differences in the underlying characteristics of the acquirers that make the M&As decisions. To address this potential endogeneity concern, we create a propensity-score-matched sample (referred to hereafter as the matched sample) and repeat our main test using the matched sample to test our core hypothesis (H1).

We use the following logit model to estimate the determinants of cross-border M&As in year t (the transaction completion year):

$$Pr(CrossBorder_{t} = 1) = b_{0} + b_{1}SIZE_{t-1} + b_{2}\Delta SALE_{t-2;t-1} + b_{3}RET_{t-1} + b_{4}ROA_{t-1}$$

$$+ b_{5}MTB_{t-1} + b_{6}LEV_{t-1} + b_{7}GDWL\_Ac_{t-1} + b_{8}CASH_{t-1} + b_{9}DIMP_{t-2 \text{ or } t-1}$$

$$+ b_{10}LOSS_{t-1} + b_{11}ln(Frequent)_{t-1} + b_{12}\Delta GDP_{t-2;t-1} + b_{13}UNEMP_{t-1}$$

$$+ Year fixed effects + Industry fixed effects + \varepsilon_{t}$$

$$(6)$$

where:

- $CASH_{t-1}$  = acquirer's cash divided by lagged total assets in the year prior to completion of the transaction;
- $DIMP_{t-2 \text{ or } t-1} = 1$  if the acquirer has booked goodwill impairment one year or two years before completion of the transaction, and 0 otherwise;
- $LOSS_{t-1} = 1$  if the acquirer's net income is negative in the fiscal year prior to completion of the transaction, and 0 otherwise;

The other variables are as previously defined.

We expect that larger firms are more likely to engage in foreign acquisitions, because such acquisitions are more complex than domestic acquisitions. Size (*SIZE*) is a proxy for the resources available to perform acquisitions. More mature firms, i.e., firms with lower organic growth are more likely to consider cross-border targets to expand their operations. Therefore, we predict a negative association between sales growth ( $\Delta SALE_{t-2,t-1}$ ) and the likelihood of cross-border deals. Firm performance is likely to positively influence the probability of crossborder transactions. Therefore, we predict that  $ROA_{t-1}$  and  $RET_{t-1}$  are positively associated, and  $LOSS_{t-1}$  is negatively associated with the likelihood of cross-border deals. We also expect that less financially constrained firms are more likely to purchase foreign targets because cross-border deals are likely to require more financial flexibility relative to domestic transactions (Chen et al. 2009). Therefore, we expect  $LEV_{t-1}$  and  $CASH_{t-1}$  to be, respectively, negatively and positively associated with the likelihood of cross-border deals. As in Erel et al. (2012), we include the market-to-book ratio of equity ( $MTB_{t-1}$ ). In addition, firms with significant past external growth ( $GDWL\_Ac_{t-1}$ ) or impaired goodwill ( $DIMP_{t-2 \text{ or } t-1}$ ) are less likely to engage in risky cross-border transactions. Past transactions may limit the ability of management to integrate a complex foreign target. Therefore, we expect  $GDWL\_Ac_{t-1}$  and  $DIMP_{t-1 \text{ or } t-2}$  to be negatively associated with cross-border deals. We expect that frequent acquirers ( $\ln(Frequency)$ ) are more likely to purchase international targets as they could benefit from their greater experience and higher capacity to perform complex M&As. We predict that GDP growth ( $\Delta GDP$ ) in the target country is positively associated with crossborder acquisitions (Erel et al. 2012), while unemployment rate (UNEMP) is negatively associated with cross-border deals. We also control for year and industry fixed effects.

The estimation results are presented in Table 8, Panel A. The prediction accuracy of the model is 84.7%.

#### [Insert Table 8 About Here]

We use the predicted probabilities computed from the cross-border determinant model to match each cross-border acquirer with a domestic acquirer. We use matching with replacement due to the relatively small sample size,<sup>14</sup> and impose an 8% maximum distance in the propensity score in order to exclude cross-border acquirers that do not have a reasonable match among the domestic acquirers. The matched sample includes 802 transactions for  $\Delta ROA_{t-1;t+1}$  and 569 transactions for  $\Delta ROA_{t-1;t+2}$ . We present a comparison of differences for the main variables between domestic and cross-border acquirers in Panel B of Table 8. The matching is relatively successful as the samples present little imbalance between the main variables of domestic and cross-border acquirers.

The estimation of model (1), which focuses on the association between expected synergies and future performance, is presented in Table 8, Panel C. The results indicate that our core finding of a stronger positive association between goodwill resulting from cross-border M&As and future change in operating performance relative to domestic goodwill is

<sup>&</sup>lt;sup>14</sup> Dehejia and Wahba (2002) indicate that matching with replacement is better than matching without replacement when there are few relevant comparison units to match with the treatment group. We obtain qualitatively similar results when we repeat the tests using matching without replacement.

qualitatively unchanged (although the significance is lower, probably due to the smaller sample size).

#### **Effect of Earnings Management Post-Acquisition**

Bens et al. (2012) document that lower than expected synergies could lead to greater incentives to manipulate short-term performance to avoid or delay CEO turnover. It is possible that such incentives could be even greater for more visible cross-border M&As. Further, audit quality and enforcement are likely to be lower in foreign countries, leading to greater opportunities to manage earnings for acquirers that recently purchased firms in foreign countries. For instance, some studies document that geographic proximity to the SEC affects audit quality (e.g., DeFond et al. 2011) or that multinational firms tend to manipulate earnings in foreign subsidiaries (Dyreng et al. 2012). If this is the case, the documented larger association between expected synergies and post-acquisition performance for cross-border acquirers could be the result of greater income-increasing earnings management in crossborder acquirers than in domestic acquirers. To rule out this alternative explanation, we estimate model (1) after controlling for the change in discretionary accruals between the year prior to completion of the acquisition and the year following completion of the acquisition  $(\Delta DACC_{t-1:t+1})$ . Following Dechow et al. (1995), we measure discretionary accruals as the residuals from the following model,<sup>15</sup> estimated for each two-digit industry-year group with at least 10 observations:

 $TACC_{t}/AT_{t-1} = a_1 1/AT_{t-1} + a_2(\Delta SALES_t - \Delta REC_t)/AT_{t-1} + a_3 PPE_t/AT_{t-1} + \varepsilon_t$ (8) where:

 $TACC_t$  = Income before extraordinary items minus operating cash flow;

 $AT_t$  = Total assets;

 $SALES_t$  = Total sales;

 $REC_t$  = Accounts receivable;

 $PPE_t$  = Gross property, plant and equipment.

Estimated results are provided in Table 9.<sup>16</sup>

## [Insert Table 9 About Here]

The results are qualitatively unchanged after controlling for the change in discretionary accruals post-acquisition; goodwill resulting from cross-border transactions is more positively associated with change in ROA from the year prior to the acquisition to one year or two years

<sup>&</sup>lt;sup>15</sup> The results are qualitatively similar if we use the performance-adjusted version of the modified Jones model (Kothari et al. 2005).

<sup>&</sup>lt;sup>16</sup> We lose 28 observations due to the further data constraints of estimating discretionary accruals.

following the acquisition than goodwill resulting from domestic acquisitions ( $b_3$  is positive and significant at less than 5%, two-sided).

#### **Excluding Target Firms in Specific Countries**

One other potential concern is that our results may be driven by acquisitions of target firms in countries which would be overrepresented in our sample of cross-border transactions, such as the United Kingdom (116 transactions) or Canada (83 transactions). To alleviate this concern, we estimate model (1) after excluding transactions involving a British or a Canadian target firm. Untabulated results are qualitatively unchanged after excluding these transactions.

#### VII. CONCLUSION

In this study, we explore the differences between the accuracy of expected synergies in crossborder and domestic M&As. We exploit accounting standards that require management to allocate the purchase price to the net fair value of acquired assets (FAS 141) and goodwill. We measure expected synergies resulting from the transaction with "goodwill", i.e., the excess of the purchase price over the net fair value of acquired assets. Although management's internal forecasts used in capital allocation decisions are usually not observable, goodwill resulting from M&As offers an opportunity to directly observe management's expectations of synergies for these critical capital investment allocation decisions. We find that expected synergies from cross-border deals are more positively associated with post-acquisition ROA, sales growth, acquirer stock returns, and acquirer Tobin's q than with domestic expected synergies. Consistent with these results, we find that cross-border acquirers are less likely to impair goodwill after completion of the acquisition than are domestic acquirers. We also find that acquirers that complete cross-border acquisitions in more culturally and institutionally distant countries exhibit a lower association between cross-border goodwill and post-acquisition performance and are more likely to impair goodwill than are acquirers that complete acquisitions in less distant countries. This result indicates that management's ability to forecast synergies in adversely affected by cultural and institutional distance and is relevant in explaining why investors expect lower synergies in cross-border deals involving culturally distant acquirer and target firms (Ahern et al. 2015).

Our study contributes to the literature on M&As and international business at several levels. First, we extend the literature on cross-border M&As (e.g., Lowinski et al. 2004; Nadolska and Barkema 2007; Gubbi et al. 2010; Ahern et al. 2015) by focusing on the accuracy of management's expected synergies across domestic and cross-border M&As.

Second, we contribute to studies examining management's ability to accurately forecast future performance (Hirst et al. 2008; Goodman et al. 2014), and extend it to strategic capital allocation decisions such as cross-border M&As. Third, our study adds to the line of research investigating the determinants of goodwill impairments (e.g., Hayn and Hughes 2006; Gu and Lev 2011; Goodman et al. 2014) and informativeness of purchase price allocations (e.g., Kimbrough 2007; Shalev 2009; Paugam et al. 2015).

Our primary analyses are subject to the caveat that we focus only on one country for acquirers. Future research could examine whether our results hold for a sample of non-US acquirers.

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# Appendix A

Variable Definitions

Name	Definition	Source
Purchase Price,	Purchase price in million USD	ppanalyser.com
$Materiality_t$	Purchase price divided by acquirer's lagged total assets	ppanalyser.com and COMPUSTAT
CrossBorder <sub>t</sub>	1 if the country of the target firm is different from the acquirer's country, and 0 otherwise.	ppanalyser.com
$\Delta ROA_{t-1; t+1}$	Industry-mean-adjusted ROA (EBITDA divided by	COMPUSTAT
	lagged total assets) one year after completion of the	
	transaction minus industry-mean-adjusted ROA one	
	year before completion of the transaction. Industry is	
	defined by 2-digit SIC codes.	
$\Delta ROA_{t-1; t+2}$	Industry-mean-adjusted ROA (EBITDA divided by	COMPUSTAT
	lagged total assets) two years after completion of the	
	transaction minus industry-mean-adjusted ROA one	
	defined by 2 digit SIC codes	
ASALE	sales in the year following completion of the transaction	COMPLISTAT
$\Delta SALE_{t-1; t+1}$	minus sales in the year prior to completion of the	COMPUSIAI
	transaction scaled by lagged total assets.	
$\Delta SALE_{t-1:t+2}$	Sales two years following completion of the transaction	COMPUSTAT
<i>i=1, i+2</i>	minus sales in the year prior to completion of the	
	transaction scaled by lagged total assets.	
$RET_{t+1}$	Acquirer stock return in the fiscal year after completion	COMPUSTAT
	of the transaction.	
$ARET_{t+1}$	Acquirer stock return in the fiscal year after completion	COMPUSTAT
	of the transaction minus average stock return of	
	COMPUSTAT firms over the same period.	
$RET_{t-1}$	acquirer stock return in the fiscal year prior to	COMPUSTAT
TO	completion of the transaction	COMPLICTAT
$IQ_{t+1}$	Acquirer 1 obin s q one year after completion of the transaction management as market value of equity + book	COMPUSIAI
	value of short and long term debt divided by year-end	
	total assets.	
$CAPEX_{t+1}$	Acquirer capital expenditures divided by lagged total	COMPUSTAT
	assets.	
$DIMP_{t+1}$	1 if the acquirer books goodwill impairment one year	COMPUSTAT
	after completion of the transaction, and 0 otherwise.	
$DIMP_{t-1,t-2}$	1 if the acquirer has booked goodwill impairment one	COMPUSTAT
	year or two year before completion of the transaction,	
<b>x</b> . D	and 0 otherwise.	
$ImpPc_{t+1}$	Goodwill impairment (if any) one year after completion	COMPUSTAT
CDWI DDA	of the transaction divided by lagged goodwill.	nnonalyzar aom
$GDWL\_FFA_t$	purchase price	ppanaryser.com
SIZE	Natural logarithm of total assets in the fiscal year prior	COMPUSTAT
51221-1	to completion of the transaction.	
$Av\Delta SALE_{t-1,t-2}$	Average change in sales in the two years prior to	COMPUSTAT
,	completion of the transaction.	
$ROA_{t-1}$	EBITDA divided by lagged total assets in the fiscal year	COMPUSTAT
	prior to completion of the transaction.	
$\Delta ROA_{t-2; t-1}$	Industry-mean-adjusted ROA (EBITDA divided by	COMPUSTAT
	lagged total assets) one year prior to completion of the	
	transaction minus industry-mean-adjusted ROA two	
	years prior to completion of the transaction. Industry is	
MTR >1	1 if market to book ratio is below one and 0 otherwise	COMPLISTAT
1111111111	T T THAT NOT TO THE TATE IS DELOW ONE. AND U OTHERWISE.	

LEV <sub>t-1</sub>	Long-term debt plus current portion of long term debt in	COMPUSTAT
	the fiscal year prior to completion of the transactions	
	divided by lagged total assets.	
$GDWL\_Ac_{t-1}$	Goodwill in the acquirer balance sheet in the year prior	COMPUSTAT
	to completion of the transaction divided by lagged total	
	assets.	
$CASH_{t-1}$	Cash divided by lagged total assets in the year prior to	COMPUSTAT
	completion of the transaction.	
$LOSS_{t-1}$	1 if net income is negative in the fiscal year prior to	COMPUSTAT
	completion of the transaction, and 0 otherwise.	
Ln(Frequent) <sub>t</sub>	Natural logarithm of number of acquisitions completed	ppanalyser.com
	by the acquirers over the sample period.	
$GDP_{t-1}$	GDP growth rate of the target country in t-1.	World Bank
TAX	Corporate income tax rate of the target country	KPMG <sup>17</sup> and E&Y
	measured in 2011.	(Worldwide
		corporate tax guide,
		$(2013)^{18}$
$UNEMP_{t-1}$	Unemployment rate of the target country expressed as a	World Bank
	percentage of the total labor force according to the	
	definition of the international labor organization.	
High_Diff <sub>t</sub>	1 if the target country is a culturally and institutionally	Bae et al. (2008)
	distant country, and 0 otherwise. We measure cultural	Francis et al.
	and institutional distance using factor analysis of several	(Forthcoming)
	dimensions: the four Hofstede dimensions of culture,	World Value Survey
	differences in levels of trust, differences with US	Hofstede (2001)
	GAAP, legal origin, language of the target country and	World Bank
	GDP per capita expressed in percentage of US GDP per	
	capita.	
<i>Groupi</i> <sub>t(i =1,2,3,4)</sub>	Dummy variables based on the distribution of the first	Bae et al. (2008)
	factor from the factor analysis of structural cultural and	Francis et al.
	institutional dimensions. Group1 1 for acquirers of	(Forthcoming)
	target in the less culturally and institutionally distant	World Value Survey
	countries, and 0 otherwise. Group4 1 for acquirers of	Hofstede (2001)
	target in the most culturally and institutionally distant	World Bank
	countries, and 0 otherwise.	
$\Delta DACC_{t-1,t+1}$	Change in discretionary accruals between the year prior	COMPUSTAT
	to completion of the acquisition and the year following	
	completion of the acquisition. Discretionary accruals are	
	measured as the residuals of the following model	
	estimated for each two-digit industry-year group with at	
	least 10 observations: $TACC_t/AT_{t-1} = a_{11}/AT_{t-1} + a_{11}/AT_{t-1}$	
	$a_2(\Delta SALES_t - \Delta REC_t)/AT_{t-1} + a_3PPE_t/AT_{t-1} + \varepsilon$ where:	
	TACC <sub>t</sub> Income before extraordinary items minus	
	operating cash flow; $AT_t$ Total assets; $SALES_t$ Total	
	sales; <i>REC</i> <sub>t</sub> Accounts receivable; <i>PPE</i> <sub>t</sub> Gross property,	
	plant and equipment.	

Available at: https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html
 Available at: http://www.ey.com/GL/en/Services/Tax/Worldwide-Corporate-Tax-Guide----Country-list. 

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# Figure 1

Empirical strategy



PPA = Purchase Price Allocation This figure summarizes our empirical strategy.

Sample selection and composition of the sample of deals

Panel A – Sample selection

Proprietary data from ppanalyser.com		5,786
- Observations not matched with COMPUSTAT		(1,948)
	=	3,838
- Observations with missing variables		(1,495)
	=	2,343
- Non-US acquirers		(118)
	=	2,225
- Transactions in the financial sector		(151)
Final sample of transactions	=	2,074

Country	No.	%	Country	No.	%
Argentina	3	0.1%	Japan	7	0.3%
Australia	28	1.4%	Luxembourg	2	0.1%
Austria	2	0.1%	Malaysia	1	0.0%
Belgium	4	0.2%	Mexico	11	0.5%
Brazil	15	0.7%	Netherlands	21	1.0%
Bulgaria	1	0.0%	New Zealand	3	0.1%
Canada	83	4.0%	Norway	6	0.3%
Chile	5	0.2%	Panama	1	0.0%
China	22	1.1%	Peru	1	0.0%
Colombia	2	0.1%	Philippines	1	0.0%
Cyprus	1	0.0%	Poland	6	0.3%
Czech Republic	1	0.0%	Romania	1	0.0%
Denmark	7	0.3%	Russian Federation	3	0.1%
Egypt	3	0.1%	Singapore	4	0.2%
Estonia	1	0.0%	South Korea	1	0.0%
Finland	3	0.1%	Spain	9	0.4%
France	29	1.4%	Sweden	17	0.8%
Germany	45	2.2%	Switzerland	10	0.5%
Honduras	1	0.0%	Taiwan	6	0.3%
Hong Kong	4	0.2%	Turkey	1	0.0%
Iceland	1	0.0%	United Arab Emirates	3	0.1%
India	12	0.6%	United Kingdom	116	5.6%
Ireland	11	0.5%	United States	1,521	73.3%
Israel	18	0.9%	Uruguay	1	0.0%
Italy	18	0.9%	Venezuela	1	0.0%
			Total	2,074	100.0%

Panel B – Target firms' countries

Panel C – Distribution of deals per year of completion

Year	No.	%
2008	310	14.9%
2009	234	11.3%
2010	86	4.1%
2011	512	24.7%
2012	468	22.6%
2013	464	22.4%
Total	2,074	100.0%

Panel D – Distribution of deals per industry of the acquirers (Global Industry Classification Standards)

GICS	No.	%
Energy	139	6.7%
Materials	112	5.4%
Industrials	525	25.3%
Consumer Discretionary	180	8.7%
Consumer Staples	91	4.4%
Health Care	350	16.9%
Information Technology	631	30.4%
<b>Telecommunication Services</b>	34	1.6%
Utilities	12	0.6%
Total	2,074	100.0%

Univariate statistics

# Panel A – Full sample

	N	Mean	St. Dev	p25	Median	p75
Purchase_Price <sub>t</sub>	2,074	353.7600	1,749.1058	11.5000	43.0535	171.7660
$Materiality_t$	2,074	0.1387	0.2991	0.0183	0.0483	0.1410
CrossBorder <sub>t</sub>	2,074	0.2666	0.4423	0.0000	0.0000	1.0000
$\Delta ROA_{t-1; t+1}$	2,074	-0.0168	0.1976	-0.0521	-0.0134	0.0167
$\Delta SALE_{t-1; t+1}$	2,074	0.2588	0.5777	0.0178	0.1431	0.3417
$RET_{t+1}$	2,074	0.2946	0.8421	-0.0761	0.1576	0.4426
$ARET_{t+1}$	2,074	-0.0140	0.7995	-0.3601	-0.0925	0.1253
$TQ_{t+1}$	2,074	1.5854	1.1983	0.9234	1.2804	1.9056
$DIMP_{t+1}$	2,074	0.1422	0.3494	0.0000	0.0000	0.0000
$ImpPc_{t+1}$	2,074	0.0398	0.1498	0.0000	0.0000	0.0000
$GDWL\_PPA_t$	2,074	0.4741	0.3126	0.2677	0.4755	0.6610
$SIZE_{t-1}$	2,074	6.8441	1.6705	5.7419	6.7721	7.8635
$Av\Delta SALE_{t-2; t-1}$	2,074	0.1054	0.1811	0.0209	0.0832	0.1696
$RET_{t-1}$	2,074	0.1508	0.7124	-0.1649	0.0785	0.3226
$ROA_{t-1}$	2,074	0.1264	0.3619	0.0917	0.1418	0.1871
$\Delta ROA_{t-2; t-1}$	2,074	0.0122	0.2081	-0.0273	0.0035	0.0288
$MTB_{t-1}$	2,074	2.6325	4.8785	1.2966	1.9939	3.1749
$LEV_{t-1}$	2,074	0.2814	0.3453	0.0410	0.2010	0.3895
$GDWL\_Ac_{t-1}$	2,074	0.2606	0.2212	0.0776	0.2119	0.3962
$CASH_{t-1}$	2,074	0.2023	0.3018	0.0422	0.1192	0.2810
$DIMP_{t-1}$	2,074	0.0921	0.2892	0.0000	0.0000	0.0000
$LOSS_{t-1}$	2,074	0.1837	0.3873	0.0000	0.0000	0.0000
$Ln(Frequent)_t$	2,074	1.2804	0.7619	0.6931	1.0986	1.7918
$GDP_{t-1}$	2,074	1.8722	1.9571	1.6020	1.8046	2.5277
TAX	2,074	0.3271	0.0469	0.3333	0.3500	0.3500
UNEMP <sub>t-1</sub>	2,074	7.6956	2.0760	5.9000	8.2000	9.0000

*t* is the year of completion of the transaction. See Appendix A for variable definitions.

	Do	Domestic transactions			oss-Border trans	actions	Mean diff.	Median diff.
-	Ν	Mean	Median	Ν	Mean	Median		
$Purchase_Price_t$	1,521	379.7129	47.7520	553	282.3777	30.3980	-97.3352	-17.3540 ***
$Materiality_t$	1,521	0.1407	0.0563	553	0.1331	0.0338	-0.0075	-0.0225
$\Delta ROA_{t-1; t+1}$	1,521	-0.0165	-0.0148	553	-0.0178	-0.0087	-0.0013	0.0062 **
$\Delta SALE_{t-1; t+1}$	1,521	0.2725	0.1432	553	0.2209	0.1358	-0.0516 *	-0.0075
$RET_{t+1}$	1,521	0.3111	0.1532	553	0.2490	0.1648	-0.0621	0.0115
$ARET_{t+1}$	1,521	-0.0014	-0.1091	553	-0.0486	-0.0613	-0.0472	0.0478 ***
$TQ_{t+1}$	1,521	1.5573	1.2468	553	1.6629	1.4295	0.1056 *	0.1827 ***
$DIMP_{t+1}$	1,521	0.1525	0.0000	553	0.1139	0.0000	-0.0386 **	0.0000 **
$ImpPc_{t+1}$	1,521	0.0413	0.0000	553	0.0359	0.0000	-0.0053	0.0000 **
$GDWL\_PPA_t$	1,521	0.4671	0.4675	553	0.4932	0.4895	0.0261 *	0.0220
$SIZE_{t-1}$	1,521	6.8339	6.7687	553	6.8721	6.7851	0.0381	0.0164
$Av\Delta SALE_{t-2,t-1}$	1,521	0.1125	0.0842	553	0.0858	0.0783	-0.0266 ***	-0.0058
$RET_{t-1}$	1,521	0.1452	0.0680	553	0.1665	0.0978	0.0213	0.0298
$ROA_{t-1}$	1,521	0.1260	0.1419	553	0.1275	0.1416	0.0015	-0.0003
$\Delta ROA_{t-2; t-1}$	1,521	0.0113	0.0024	553	0.0146	0.0056	0.0034	0.0032
$MTB_{t-1}$	1,521	2.5055	1.9183	553	2.9816	2.1044	0.4761 **	0.1861 ***
$LEV_{t-1}$	1,521	0.3039	0.2218	553	0.2193	0.1739	-0.0846 ***	-0.0479 ***
$GDWL\_Ac_{t-1}$	1,521	0.2620	0.2111	553	0.2567	0.2144	-0.0053	0.0034
$CASH_{t-1}$	1,521	0.1976	0.1118	553	0.2152	0.1419	0.0176	0.0300 ***
$DIMP_{t-1}$	1,521	0.0966	0.0000	553	0.0796	0.0000	-0.0171	0.0000
$LOSS_{t-1}$	1,521	0.1847	0.0000	553	0.1808	0.0000	-0.0039	0.0000
Ln(Frequent)	1,521	1.2539	1.0986	553	1.3532	1.3863	0.0993 ***	0.2877
$GDP_{t-1}$	1,521	1.6261	1.7733	553	2.5490	2.0083	0.9229 ***	0.2350 ***
TAX	1,521	0.3500	0.3500	553	0.2640	0.2600	-0.0860 ***	-0.0900 ***
$UNEMP_{t-1}$	1,521	7.9900	9.0000	553	6.8859	7.2000	-1.1041 ***	-1.8000 ***

**Panel B** – Domestic and cross-border deals

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test. *t* is the year of completion of the transaction. See Appendix A for variable definitions.

Goodwill resulting from cross-border deals and post-acquisition operating performance

 $\Delta ROA_{t-1; t+1} \text{ or } \Delta ROA_{t-1; t+2} = b_0 + b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t-1} + b_6 \Delta SALE_{t+1/t+1, t+2} + b_7 RET_t + b_8 CORRECT_t + b_8 COR$ 

 $+ b_{8}RET_{t+1} + b_{9}MTB\_Ac_{t-1} + b_{10}LEV_{t-1} + b_{11}ROA_{t-1} + b_{12}\Delta ROA_{t-2; t-1} + b_{13}GDWL\_Ac_{t-1} + b_{14}ln(Frequent)_{t} + b_{15}\Delta GDP_{t} + b_{16}TAX$ 

+  $b_{17}$ *UNEMP*<sub>t</sub> +Year fixed effects + Industry fixed effects +  $\epsilon$ 

	$\Delta ROA_{t-1; t+1}$			$\Delta ROA_{t-1; t+2}$		
	Coef.	t-stat	p-value	Coef.	t-stat	p-value
$GDWL_PPA_t$	-0.023	-1.31	0.190	-0.043 **	-2.05	0.040
$CrossBorder_t$	-0.043	-1.35	0.177	-0.040	-0.95	0.341
$GDWL\_PPA_t * CrossBorder_t$	0.071 **	2.00	0.046	0.082 **	2.01	0.045
<i>Materiality</i> <sub>t</sub>	-0.029	-1.43	0.152	-0.035	-1.15	0.249
SIZE <sub>t-1</sub>	0.001	0.38	0.701	0.003	0.70	0.487
$\Delta SALE_{t+1/t+1; t+2}$	0.062 **	2.09	0.037	0.077 *	2.06	0.040
$RET_t$	0.020 *	1.75	0.080	0.021 **	2.44	0.015
$RET_{t+1}$				0.032 ***	3.05	0.002
$MTB_{t-1}$	-0.001	-0.77	0.439	-0.002	-0.91	0.363
$LEV_{t-1}$	-0.113 *	-1.76	0.079	-0.148 **	-2.04	0.042
$ROA_{t-1}$	-0.002	-1.38	0.167	-0.001	-0.50	0.619
$\Delta ROA_{t-2; t-1}$	0.565 *	1.81	0.071	0.629 **	2.15	0.032
$GDWL\_Ac_{t-1}$	-0.028	-0.88	0.378	-0.043	-1.10	0.272
<i>ln(Frequent)</i>	0.005	0.86	0.391	0.010	1.34	0.181
$\Delta GDP_t$	0.003	1.50	0.134	0.003	0.93	0.351
TAX	0.000	0.00	0.999	0.040	0.36	0.722
$UNEMP_t$	0.003 *	1.91	0.056	0.004	1.51	0.131
Year fixed effects		Yes			Yes	
Industry fixed effects		Yes			Yes	
Constant	0.026	0.44	0.660	0.02	0.26	0.793
N		2,074			1,496	
Adjusted R <sup>2</sup>		0 390			0 459	

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

t is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Goodwill resulting from cross-border deals and future sales growth

$\Delta SALE_{t-1; t+1}$ o	$br \Delta SALE_{t-1; t+2} = b_0 + b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t-1} + b_6 RET_t$
	$+ b_7 RET_{t+1} + b_8 MTB\_Ac_{t-1} + b_9 LEV_{t-1} + b_{10} ROA_{t-1} + b_{11} \Delta SALE_{t-2; t-1} + b_{12} GDWL\_Ac_{t-1} + b_{13} ln(Frequent)_t + b_{14} \Delta GDP_t + b_{15} TAX_{t-1} + b_{12} GDWL\_Ac_{t-1} + b_{13} ln(Frequent)_t + b_{14} \Delta GDP_t + b_{15} TAX_{t-1} + b_{14} \Delta GDP_t + b_{15} TAX_{t-1} + b_{14} \Delta GDP_t + b_{15} TAX_{t-1} + b_{16} ROA_{t-1} + b_{16} ROA_{t-1}$
	h UNEMD Voor Ered offeste Ludwater fined offeste Le

+  $b_{16}UNEMP_t$  +Year fixed effects + Industry fixed effects +  $\varepsilon$ 

	$\Delta SALE_{t-1; t+1}$			$\Delta SALE_{t-1; t+2}$		
	Coef.	t-stat	p-value	Coef.	t-stat	p-value
$GDWL_PPA_t$	-0.056	-1.03	0.304	0.004	0.04	0.967
$CrossBorder_t$	-0.097	-1.14	0.256	-0.110	-0.69	0.490
$GDWL\_PPA_t * CrossBorder_t$	0.250 **	2.52	0.012	0.444 *	1.92	0.056
$Materiality_t$	0.366 ***	2.88	0.004	0.351 **	2.19	0.029
SIZE <sub>t-1</sub>	-0.083 ***	-4.92	0.000	-0.118 ***	-3.64	0.000
$RET_t$	0.174 ***	3.23	0.001	0.271 ***	2.77	0.006
$RET_{t+1}$				0.101 ***	4.38	0.000
$MTB_{t-1}$	0.001	0.30	0.765	0.002	0.55	0.584
$LEV_{t-1}$	0.000	0.00	0.999	-0.036	-0.59	0.555
$ROA_{t-1}$	0.023	0.51	0.611	0.035	0.60	0.549
$\Delta SALE_{t-2: t-1}$	0.661 ***	3.75	0.000	0.994 ***	4.12	0.000
$GDWL\_Ac_{t-1}$	0.066	0.63	0.528	0.072	0.47	0.639
$ln(Frequent)_t$	-0.006	-0.26	0.794	0.031	0.80	0.422
$\Delta GDP_t$	0.008	1.21	0.225	0.009	0.92	0.356
TAX	0.220	0.97	0.330	0.520	1.49	0.137
$UNEMP_t$	-0.009	-1.30	0.194	-0.003	-0.32	0.752
Year fixed effects		Yes			Yes	
Industry fixed effects		Yes			Yes	
Constant	0.648 ***	2.58	0.010	0.702 *	1.69	0.092
N		2,074			1,498	
Adjusted R <sup>2</sup>		0.245			0.223	

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test. *t* is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Goodwill resulting from cross-border deals and firm value post-acquisition

## Panel A – Future stock returns

$RET_{t+1} \text{ or } ARET_{t+1} = b_0 + b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t+1} + b_6 MTB\_Ac_{t+1} + b_7 LEV_{t+1} = b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t+1} + b_6 MTB\_Ac_{t+1} + b_7 LEV_{t+1} = b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t+1} + b_6 MTB\_Ac_{t+1} + b_7 LEV_{t+1} = b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t+1} + b_6 MTB\_Ac_{t+1} + b_7 LEV_{t+1} = b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t+1} + b_6 MTB\_Ac_{t+1} + b_7 LEV_{t+1} = b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t+1} + b_6 MTB\_Ac_{t+1} + b_7 LEV_{t+1} = b_1 GDWL\_PPA_t + b_7 LEV_{t+1} = $
+ $b_8ROA_{t+1}$ + $b_9\Delta ROA_{t+1}$ + $b_{10}ln(Frequent)_t$ + $b_{11}\Delta GDP_{t+1}$ + $b_{12}TAX$ + $b_{13}UNEMP_{t+1}$ + Year fixed effects + Industry fixed effects + $\varepsilon$

	$RET_{t+1}$		$ARET_{t+1}$			
_	Coef.	t-stat	p-value	Coef.	t-stat	p-value
$GDWL_PPA_t$	-0.099	-1.36	0.174	-0.099	-1.36	0.175
$CrossBorder_t$	-0.403 ***	-2.70	0.007	-0.404 ***	-2.71	0.007
$GDWL\_PPA_t * CrossBorder_t$	0.270 **	2.44	0.015	0.269 **	2.44	0.015
$Materiality_t$	0.118	1.06	0.292	0.118	1.05	0.292
$SIZE_{t+1}$	-0.019	-0.69	0.492	-0.019	-0.69	0.489
$MTB\_Ac_{t+1}$	0.011	1.55	0.121	0.011	1.55	0.121
$LEV_{t+1}$	0.305	1.40	0.162	0.305	1.40	0.163
$ROA_{t+1}$	0.132	0.33	0.739	0.132	0.33	0.739
$\Delta ROA_{t+1}$	2.100 ***	2.79	0.005	2.096 ***	2.79	0.005
$ln(Frequent)_t$	-0.021	-0.72	0.473	-0.021	-0.72	0.473
$\Delta GDP_t$	-0.014	-0.91	0.366	-0.014	-0.90	0.370
TAX	-0.790 *	-1.93	0.054	-0.792 *	-1.93	0.053
$UNEMP_t$	-0.017	-1.26	0.209	-0.017	-1.25	0.210
Year fixed effects		Yes			Yes	
Industry fixed effects		Yes			Yes	
Constant	1.556 ***	3.38	0.001	0.883 *	1.92	0.055
N		2,074			2,074	
Adjusted R <sup>2</sup>		0.164			0.073	

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test. *t* is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Panel B – Tobin's q post-acquisition

 $TQ_{t+1} = b_0 + b_1GDWL\_PPA_t + b_2CrossBorder_t + b_3GDWL\_PPA_t * CrossBorder_t + b_4Materiality_t + b_5SIZE_{t+1} + b_6\Delta SALE_{t+1} + b_7LEV_{t+1} + b_8ROA_{t+1} + b_9CAPEX_{t+1} + b_{10}GDWL\_Ac_{t-1} + b_{11}TQ_{t-1} + b_{12}ln(Frequent) + b_{13}\Delta GDP_{t+1} + b_{14}TAX + b_{15}UNEMP_{t+1} + Year fixed effects + Industry fixed effects + \varepsilon$ 

	Coef.	t-stat	p-value
$GDWL_PPA_t$	-0.019	-0.25	0.804
$CrossBorder_t$	-0.198 **	-2.05	0.040
$GDWL_PPA_t * CrossBorder_t$	0.269 **	2.27	0.023
$Materiality_t$	-0.432 ***	-3.96	0.000
$SIZE_{t+1}$	-0.028	-1.20	0.231
$\Delta SALE_{t+1}$	0.255 *	1.93	0.054
$LEV_{t+1}$	-0.011	-0.07	0.941
$ROA_{t+1}$	0.004	1.25	0.211
$CAPEX_{t+1}$	0.643	0.77	0.440
$GDWL\_Ac_{t-1}$	-0.042	-0.34	0.732
$TQ_{t-1}$	0.580 ***	6.61	0.000
ln_Serial	0.017	0.40	0.687
$\Delta GDP$	-0.020	-1.05	0.292
TAX	0.019	0.03	0.979
Unemp	-0.026 **	-1.98	0.048
Year fixed effects		Yes	
Industry fixed effects		Yes	
Constant	0.479	1.50	0.135
N		2,074	
Adjusted R <sup>2</sup>		0.468	

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test. *t* is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Goodwill resulting from cross-border deals and probability of future goodwill impairment

$$Pr(DIMP_{t+1} = 1) = b_0 + b_1CrossBorder_t + b_2GDWL\_PPA_t + b_3Materiality_t + b_4ImpPc_{t-1} + b_5SIZE_{t+1} + b_6RET_{t+1} + b_7LEV_{t+1} + b_8ROA_{t+1} + b_9\Delta ROA_{t+1} + b_{10}\Delta SALE_{t+1} + b_{11}MTB_{t+1}$$

$$+ b_{12}MTB_{t+1} < 1 + b_{13}GDWL Ac_{t-1} + b_{14}\Delta GDP_t + b_{15}TAX$$

+  $b_{16}UNEMP_t$  +Year fixed effects + Industry fixed effects +  $\epsilon$ 

		$DIMP_{t+1}$				
	Coef.	t-stat	p-value			
$CrossBorder_t$	-0.634 *	-1.77	0.077			
$GDWL\_PPA_t$	-0.066	-0.25	0.800			
$Materiality_t$	-0.262	-0.87	0.385			
$ImpPc_{t-1}$	1.252 *	* 2.38	0.017			
$SIZE_{t+1}$	0.052	0.72	0.474			
$RET_{t+1}$	-0.253	-0.91	0.361			
$LEV_{t+1}$	0.529	1.26	0.207			
$ROA_{t+1}$	-2.960 *	** -2.97	0.003			
$\Delta ROA_{t+1}$	-1.145	-0.65	0.518			
$\Delta SALE_{t+1}$	-0.200	-0.64	0.521			
$MTB\_Ac_{t+1}$	-0.034	-1.42	0.154			
$MTB_{t+1} < 1$	0.694 *	* 2.38	0.017			
$GDWL\_Ac_{t-1}$	0.985 *	1.88	0.061			
$\Delta GDP_t$	-0.055	-0.84	0.400			
TAX	-3.184	-1.07	0.283			
$UNEMP_t$	-0.061	-1.12	0.265			
Year fixed effects		Yes				
Industry fixed effects		Yes				
Constant	-0.386	-0.28	0.783			
N		2,074				
Pseudo R <sup>2</sup>		0.113				

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

t is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Expected synergies and post-acquisition performance for culturally and institutionally distant countries

	Factor 1
Absolute difference in Power distance index	0.8634
Absolute difference in Individualism	0.8979
Absolute difference in Masculinity	0.5764
Absolute difference in Uncertainty avoidance	0.8720
Absolute difference in Trust	0.8280
GAAP difference	0.9039
English	-0.9518
Common	-0.9368
Code	0.8563
GDP per capita (expressed as a % of US GDP)	-0.7884
Factor 1 Eigenvalue	7.2853
Variance explained	0.8674

Panel A – Factor analysis: Instrument for cultural and institutional differences (Rotated factor loadings)

The structural measures are defined in Appendix A. We use principal factor analysis and identify factor(s) with eigenvalue(s) greater than 1. We identify one factor.

Panel B – Classification of countries into more distant and less distant from the US based on factor analysis	
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More distant countries	(Factor 1 above median)	Less distant countries (Factor 1 below median)
Argentina	Japan	Australia
Austria	Luxembourg	Canada
Belgium	Malaysia	Hong Kong
Brazil	Mexico	Netherlands
Bulgaria	Netherlands	New Zealand
Chile	Norway	Singapore
China	Panama	United Kingdom
Colombia	Peru	
Cyprus	Philippines	
Czech Republic	Poland	
Denmark	Romania	
Egypt	<b>Russian Federation</b>	
Estonia	South Korea	
Finland	Spain	
France	Sweden	
Germany	Switzerland	
Honduras	Taiwan	
Iceland	Turkey	
India	United Arab Emirates	
Ireland	Uruguay	
Israel	Venezuela	
Italy		

Panel B presents the classification of target firm countries based on a factor analysis of differences in institutional and cultural dimensions from the US.

**Panel C** – Goodwill resulting from cross-border deals and post-acquisition operating performance for high vs. low cultural and institutional differences with the US (sub sample of cross-border transactions)

 $\Delta ROA_{t-1; t+1} \text{ or } \Delta ROA_{t-1; t+2} = b_0 + b_1 GDWL\_PPA_t + b_2 High\_Diff_t + b_3 GDWL\_PPA_t * High\_Diff_t + b_4 Materiality_t + b_5 SIZE_{t-1} + b_6 \Delta SALE_{t+1/t+1, t+2} + b_7 RET_t + b_8 RET_{t+1} + b_9 MTB\_Ac_{t-1} + b_{10} LEV_{t-1} + b_{11} ROA_{t-1} + b_{12} \Delta ROA_{t-2; t-1} + b_{13} GDWL\_Ac_{t-1} + b_{14} ln(Frequent)_t + b_{15} \Delta GDP_t + b_{16} TAX$ 

+  $b_{17}UNEMP_t$  +Year fixed effects + Industry fixed effects +  $\epsilon$ 

	$\Delta l$	$ROA_{t-1;t+1}$		Δ	$\Delta ROA_{\text{t-1; t+2}}$		
	Coef.	t-stat	p-value	Coef.	t-stat	p-value	
$GDWL\_PPA_t$	0.042	1.47	0.142	0.038	1.28	0.200	
$High\_Diff_t$	0.037 *	1.66	0.098	0.054 **	2.23	0.027	
$GDWL\_PPA_t * High\_Diff_t$	-0.043	-1.26	0.208	-0.077 **	-2.09	0.038	
<i>Materiality</i> <sub>t</sub>	-0.028 *	-1.75	0.082	0.000	0.03	0.972	
$SIZE_{t-1}$	-0.002	-0.35	0.727	-0.003	-0.61	0.543	
$Av\Delta SALE_{t+1/t+1, t+2}$	-0.034	-0.4	0.687	-0.127	-1.07	0.284	
$RET_t$	0.040 **	2.59	0.010	0.049 **	2.57	0.011	
$RET_{t+1}$				0.048 ***	2.89	0.004	
$MTB_{t-1}$	-0.001	-0.79	0.433	-0.002 *	-1.79	0.075	
$LEV_{t-1}$	-0.014	-0.36	0.722	-0.005	-0.18	0.860	
$ROA_{t-1}$	0.000	0.2	0.838	0.000	-0.08	0.938	
$\Delta ROA_{t-2; t-1}$	0.108 ***	2.9	0.004	0.166 ***	4.27	0.000	
$GDWL\_Ac_{t-1}$	0.020	0.59	0.557	0.037	1.06	0.290	
$ln(Frequent)_t$	0.008	1.22	0.223	0.018 **	2.03	0.043	
$\Delta GDP_t$	0.001	0.63	0.528	0.000	0.12	0.903	
TAX	-0.034	-0.58	0.564	-0.039	-0.51	0.609	
$UNEMP_t$	0.001	0.93	0.351	0.004	1.46	0.146	
Year fixed effects		Yes			Yes		
Industry fixed effects		Yes			Yes		
Constant	-0.018	-0.36	0.721	-0.041	-0.77	0.441	
N		553			408		
Adjusted R <sup>2</sup>		0.090			0.217		

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

t is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Panel D – Goodwill resulting from cross-border deals in institutionally and culturally similar foreign countries vs. domestic goodwill (excluding most distant target countries)

	$\Delta F$	$ROA_{t-1; t+1}$		Δ	$ROA_{t-1; t+2}$	
	Coef.	t-stat	p-value	Coef.	t-stat	p-value
$GDWL\_PPA_t$	-0.017	-0.95	0.340	-0.030	-1.46	0.144
$CrossBorder_t$	-0.104 **	-2.33	0.020	-0.107 *	-1.95	0.052
$GDWL\_PPA_t * CrossBorder_t$	0.093 **	2.02	0.044	0.089 *	1.88	0.060
$Materiality_t$	-0.003	-0.18	0.855	0.005	0.21	0.830
$SIZE_{t-1}$	-0.004	-1.04	0.301	-0.007	-1.21	0.225
$Av\Delta SALE_{t+1/t+1, t+2}$	0.098 ***	2.96	0.003	0.053	0.98	0.329
$RET_t$	0.014	1.20	0.231	0.006	0.36	0.717
$RET_{t+1}$				0.030 ***	3.05	0.002
$MTB_{t-1}$	-0.001	-0.47	0.637	-0.001	-0.51	0.612
$LEV_{t-1}$	-0.128 *	-1.76	0.079	-0.159 **	-2	0.046
$ROA_{t-1}$	-0.002	-1.48	0.139	-0.001	-0.67	0.503
$\Delta ROA_{t-2; t-1}$	0.713 **	2.31	0.021	0.740 **	2.59	0.010
$GDWL\_Ac_{t-1}$	-0.034	-0.99	0.323	-0.053	-1.32	0.187
$ln(Frequent)_t$	0.008	1.41	0.158	0.015 *	1.84	0.066
$\Delta GDP_t$	0.009	1.58	0.114	-0.001	-0.15	0.885
TAX	-0.483 **	-2.24	0.025	-0.438	-1.33	0.186
$UNEMP_t$	0.003	0.58	0.565	-0.003	-0.52	0.606
Year fixed effects		Yes			Yes	
Industry fixed effects		Yes			Yes	
Constant	0.236 **	2.27	0.024	0.299 **	2.07	0.038
N		1,769			1,276	
Adjusted R <sup>2</sup>		0.487			0.522	

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test. *t* is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Panel E – Goodwill resulting from cross-border deals in institutionally and culturally distant foreign countries vs. domestic goodwill (excluding less distant target countries)

		$\Delta ROA_{t-1; t+1}$		Δ	$ROA_{t-1; t+2}$	
	Coef.	t-stat	p-value	Coef.	t-stat	p-value
$GDWL\_PPA_t$	-0.011	-0.68	0.498	-0.022	-1.14	0.255
CrossBorder <sub>t</sub>	-0.029	-1.06	0.288	-0.026	-0.76	0.447
$GDWL\_PPA_t * CrossBorder_t$	0.050	1.21	0.227	0.058	1.21	0.226
Materiality <sub>t</sub>	0.001	0.04	0.965	0.011	0.57	0.568
$SIZE_{t-1}$	-0.009	-1.59	0.111	-0.013 *	-1.83	0.068
$Av \varDelta SALE_{t+1/t+1, t+2}$	0.044	1.08	0.281	-0.051	-0.71	0.480
$RET_t$	0.018	1.46	0.144	0.010	0.58	0.559
$RET_{t+1}$				0.028 ***	3.18	0.002
$MTB_{t-1}$	-0.001	-0.68	0.497	-0.001	-0.53	0.599
$LEV_{t-1}$	-0.122 *	-1.81	0.070	-0.154 **	-2.19	0.029
$ROA_{t-1}$	-0.002	-1.48	0.139	-0.002	-0.88	0.378
$\Delta ROA_{t-2; t-1}$	0.576 *	1.91	0.057	0.600 **	2.11	0.035
$GDWL\_Ac_{t-1}$	-0.034	-0.99	0.324	-0.047	-1.15	0.249
$ln(Frequent)_t$	0.007	1.08	0.281	0.020 **	2.12	0.035
$\Delta GDP_t$	0.003	1.22	0.224	0.004	1.23	0.220
TAX	0.040	0.45	0.653	0.113	0.98	0.326
$UNEMP_t$	0.003	1.63	0.104	0.005 *	1.7	0.090
Year fixed effects		Yes			Yes	
Industry fixed effects		Yes			Yes	
Constant	0.062	0.94	0.348	0.059	0.82	0.415
N		1,823			1,307	
Adjusted R <sup>2</sup>		0.430			0.466	

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test. *t* is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Panel F – Cultural and institutional differences and probability of future impairment

 $Pr(DIMP_{t+1} = I) = b_0 + b_1Group2_t + b_2Group3_t + b_3Group4_t + b_4GDWL\_PPA_t + b_5Materiality_t + b_6ImpPc_{t-1} + b_7SIZE_{t+1} + b_8RET_{t+1} + b_9LEV_{t+1} + b_{10}ROA_{t+1} + b_{11}\Delta ROA_{t+1} + b_{12}\Delta SALE_{t+1} + b_{13}MTB_{t+1} + b_{14}MTB_{t+1} < I + b_{15}GDWL\_Ac_{t-1} + b_{16}\Delta GDP_t + b_{17}TAX + b_{10}UNEMP_t + Year fixed effects + Industry fixed effects + s$ 

$+ 0_{18} UNEMP_t + 1 ear$	fixed effects $+$	maustry fixed	effects + $\varepsilon$

	DIMPt+1					
	Coef.	t-stat	p-value			
$Group2_t$	0.438	0.82	0.411			
$Group3_t$	-0.002	0.00	0.997			
$Group4_t$	1.006 *	* 2.36	0.018			
$GDWL_PPA_t$	0.722	1.38	0.167			
$Materiality_t$	0.204	0.55	0.581			
$ImpPc_{t-1}$	1.773	1.51	0.132			
$SIZE_{t+1}$	0.099	0.68	0.494			
$RET_{t+1}$	-1.153 *	-1.71	0.087			
$LEV_{t+1}$	1.652 *	* 2.33	0.020			
$ROA_{t+1}$	-2.003	-1.13	0.259			
$\Delta ROA_{t+1}$	-8.488 *	* -2.19	0.029			
$\Delta SALE_{t+1}$	-1.490 *	-1.81	0.071			
$MTB\_Ac_{t+1}$	0.004	0.07	0.944			
$MTB_{t+1} < 1$	0.413	0.74	0.459			
$GDWL\_Ac_{t-1}$	0.745	0.71	0.481			
$\Delta GDP_t$	-0.065	-0.96	0.335			
TAX	-3.061	-1.02	0.306			
$UNEMP_t$	-0.082	-1.22	0.222			
Year fixed effects		Yes				
Industry fixed effects		Yes				
Constant	-18.071 *	** -9.86	0.000			
N		553				
Pseudo R <sup>2</sup>		0.223				

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

t is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Robustness test: Propensity matched samples

Panel A – Determinants of cross-border deals

$$Pr(CrossBorder = 1) = b_0 + b_1SIZE_{t-1} + b_2Av\Delta SALE_{t-1,t-2} + b_3RET_{t-1} + b_4ROA_{t-1} + b_5\Delta ROA_{t-1} + b_5\Delta ROA$$

+  $b_{10}LOSS_{t-1}$  +  $b_{11}ln(Frequent)_{t-1}$  +  $b_{12}\Delta GDP_{t-1}$  +  $b_{13}UNEMP_{t-1}$ 

+ Year fixed effects + Industry fixed effects +  $\epsilon$ 

	Coef.		t-stat	p-value
SIZE <sub>t-1</sub>	0.063		1.46	0.145
$Av\Delta SALE_{t-1,t-2}$	-0.810	**	-2.22	0.026
$RET_{t-1}$	0.011		0.16	0.875
$ROA_{t-1}$	0.268		1.27	0.205
$\Delta ROA_{t-1}$	0.237		0.53	0.599
$MTB_{t-1}$	0.016		1.43	0.152
$LEV_{t-1}$	-1.110	***	-3.59	0.000
$GDWL\_Ac_{t-1}$	0.176		0.50	0.618
$CASH_{t-1}$	0.285		1.27	0.203
$DIMP_{t-1, t-2}$	-0.251		-1.61	0.108
$LOSS_{t-1}$	0.252		1.32	0.187
$ln(Serial)_t$	0.171	**	1.96	0.050
$\Delta GDP_{t-1}$	0.351	***	3.46	0.001
UNEMP <sub>t-1</sub>	-0.721	***	-4.51	0.000
Year fixed effects		Y	es	
Industry fixed effects		Y	es	
Constant	0.901		1.03	0.302
N			2,074	
Pseudo R <sup>2</sup>			0.19	
Classification accuracy			84.72%	

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

*t* is the year of completion of the transaction. See Appendix A for variable definitions. z-stats are clustered by acquirers.

**Panel B** – Descriptive statistics of matched samples (main variables)

	Matched domestic transactions			Cro	Mean diff.		
	Ν	Mean	Median	Ν	Mean	Median	
$SIZE_{t-1}$	401	6.9062	6.7192	401	6.8486	6.7721	-0.0575
$Av\Delta SALE_{t-2,t-1}$	401	0.0829	0.0910	401	0.0936	0.0792	0.0107
$ROA_{t-1}$	401	0.0702	0.1296	401	0.1312	0.1453	0.0609
$\Delta ROA_{t-2; t-1}$	401	0.0260	-0.0063	401	0.0141	0.0066	-0.0119
$MTB_{t-1}$	401	3.1811	2.0112	401	2.7015	2.0338	-0.4796
$LEV_{t-1}$	401	0.2091	0.0961	401	0.2046	0.1624	-0.0045
$ln(Frequent)_t$	401	1.4343	1.0986	401	1.3221	1.3863	-0.1123 *

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

Panel C – Goodwill resulting from cross-border deals and post-acquisition operating performance (matched samples)

 $\Delta ROA_{t-1; t+1} \text{ or } \Delta ROA_{t-1; t+2} = b_0 + b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t-1} + b_6 \Delta SALE_{t+1/t+1, t+2} + b_7 RET_t + b_8 RET_{t+1} + b_9 MTB\_Ac_{t-1} + b_{10} LEV_{t-1} + b_{11} ROA_{t-1} + b_{12} \Delta ROA_{t-2; t-1} + b_{13} GDWL\_Ac_{t-1} + b_{14} ln(Frequent)_t + b_{15} \Delta GDP_t + b_{16} TAX$ 

	$\Delta ROA_{t-1; t+1}$			$\Delta ROA_{t-1; t+2}$			
	Coef.	t-stat	p-value	Coef.	t-stat	p-value	
$GDWL\_PPA_t$	-0.057	-1.41	0.160	-0.083	-1.56	0.121	
CrossBorder <sub>t</sub>	-0.079 *	-1.75	0.082	-0.079	-1.44	0.150	
$GDWL\_PPA_t * CrossBorder_t$	0.123 *	1.77	0.078	0.141 *	1.71	0.088	
<i>Materiality</i> <sub>t</sub>	-0.032	-0.96	0.338	-0.046	-0.93	0.351	
$SIZE_{t-1}$	0.001	0.13	0.897	0.006	0.71	0.476	
$Av \varDelta SALE_{t+1/t+1, t+2}$	0.035	1.00	0.316	0.096 ***	2.91	0.004	
$RET_t$	0.016	1.15	0.250	0.024 *	1.75	0.081	
$RET_{t+1}$				0.078 ***	2.92	0.004	
$MTB_{t-1}$	-0.003	-0.94	0.348	-0.004	-1.05	0.293	
$LEV_{t-1}$	-0.115 *	-1.90	0.058	-0.138 *	-1.85	0.066	
$ROA_{t-1}$	-0.004	-1.08	0.282	-0.010	-1.37	0.172	
$\Delta ROA_{t-2; t-1}$	0.751 **	2.46	0.014	0.763 ***	2.82	0.005	
$GDWL\_Ac_{t-1}$	-0.065	-1.26	0.208	-0.042	-0.70	0.488	
ln(Serial) <sub>t</sub>	0.015	1.28	0.203	0.013	0.81	0.417	
$\Delta GDP_t$	0.010	1.55	0.122	0.011	1.20	0.229	
TAX	-0.032	-0.24	0.809	0.027	0.15	0.880	
$UNEMP_t$	0.005 **	2.53	0.012	0.009 **	2.20	0.029	
Year fixed effects		Yes			Yes		
Industry fixed effects		Yes			Yes		
Constant	0.051	0.86	0.392	-0.046	-0.50	0.621	
N		802			569		
Adjusted R <sup>2</sup>		0.597			0.661		

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

*t* is the year of completion of the transaction. Panel A shows the estimation results of a logit model used to compute propensity scores of the probability to complete a crossborder acquisition. Panel B provides the variable mean comparisons across cross-border and domestic acquirers for the matched sample. Firms completing cross-border deals are propensity-score-matched with firms that completed a domestic acquisition. We use one-to-one matching with replacement within a maximum caliper distance of 8%. The matched sample include 401 firm-year observations that completed a cross border deal and 401 firm-year observations that completed a domestic acquisition. See Appendix A for variable definitions. t-stats are clustered by acquirers.

Robustness test: Controlling for changes in earnings management post-acquisition

 $\Delta ROA_{t-1; t+1} \text{ or } \Delta ROA_{t-1; t+2} = b_0 + b_1 GDWL\_PPA_t + b_2 CrossBorder_t + b_3 GDWL\_PPA_t * CrossBorder_t + b_4 Materiality_t + b_5 SIZE_{t-1} + b_6 \Delta SALE_{t+1/t+1, t+2} + b_7 RET_t + b_8 RET_{t+1} + b_9 MTB\_Ac_{t-1} + b_{10} LEV_{t-1} + b_{11} ROA_{t-1} + b_{12} \Delta ROA_{t-2; t-1} + b_{13} GDWL\_Ac_{t-1} + b_{14} ln(Frequent)_t + b_{15} \Delta DACC_{t-1, t+1} + b_{16} \Delta GDP_t + b_{16} TAX + b_{17} UNEMP_t + Year fixed effects + Industry fixed effects + \varepsilon$ 

	$\Delta ROA_{t-1; t+1}$			$\Delta ROA_{t-1; t+2}$			
	Coef.	t-stat	p-value	Coef.	t-stat	p-value	
$GDWL_PPA_t$	-0.024	-1.38	0.167	-0.044 **	-2.08	0.038	
CrossBorder <sub>t</sub>	-0.045 *	-1.79	0.074	-0.047	-1.52	0.128	
$GDWL_PPA_t * CrossBorder_t$	0.073 **	2.04	0.042	0.079 **	1.97	0.050	
$Materiality_t$	-0.042 *	-1.72	0.086	-0.04	-1.24	0.217	
$SIZE_{t-1}$	0.001	0.47	0.637	0.003	0.75	0.456	
$Av\Delta SALE_{t+1/t+1, t+2}$	0.063 **	2.09	0.037	0.073 **	1.95	0.052	
$RET_t$	0.021 *	1.84	0.066	0.021 **	2.51	0.012	
$RET_{t+1}$				0.047 ***	3.83	0.000	
$MTB_{t-1}$	-0.001	-0.71	0.480	-0.002	-0.85	0.395	
$LEV_{t-1}$	-0.117 *	-1.78	0.075	-0.146 **	-1.99	0.047	
$ROA_{t-1}$	-0.002	-1.32	0.188	-0.001	-0.43	0.665	
$\Delta ROA_{t-2; t-1}$	0.568 *	1.82	0.069	0.631 **	2.16	0.031	
$GDWL\_Ac_{t-1}$	-0.029	-0.91	0.365	-0.030	-0.80	0.423	
$ln(Frequent)_t$	0.003	0.63	0.531	0.009	1.21	0.226	
$\Delta DACC_{t-1,t+1}$	0.000	0.71	0.481	0.001	1.59	0.113	
$\Delta GDP_t$	0.003	1.48	0.140	0.002	0.85	0.394	
TAX	-0.023	-0.29	0.768	0.022	0.19	0.850	
UNEMP <sub>t</sub>	0.003 **	2.01	0.045	0.005	1.63	0.104	
Year fixed effects	Yes		Yes				
Industry fixed effects	Yes		Yes				
Constant	0.035	0.69	0.491	0.02	0.33	0.742	
N		2,046			1,482		
Adjusted R <sup>2</sup>		0.393			0.465		

\*\*\*, \*\*, \* Denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using a two-tailed test.

t is the year of completion of the transaction. See Appendix A for variable definitions. t-stats are clustered by acquirers.