Cross-border acquisitions and host country competitiveness

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Abstract:
We investigate the intra-industry competitive effects of cross-border takeovers on targets of cross-border acquisitions and rivals of those targets. We find that following the acquisition, the competitiveness of cross-border targets improves. The results for industry rivals, however, are mixed. Cross-border rivals react to the foreign acquisition in the long-term with improvement in their competitive position, while at the same time, their growth and market share suffer. We also report evidence that cross-border acquisitions enhance host country financial market development and lead to increases in innovation rates in the host country. Overall, our results cast some doubt on the often pessimistic view of foreign takeovers and the fears of their impact on firms' and the host country's competitiveness. Cross-border acquisitions lead to shifting of market share from rivals to targets of cross-border, which is suggestive of increased industry concentration.

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1. INTRODUCTION

Cross-border acquirers are typically multinational enterprises (MNEs) involved in world-scale operations, and their presence in the host country can destabilize the competitive balance and industry dynamics. This may hurt industry counterparts because these acquisitions can enhance the competitive position of the target within the industry. Cross-border acquisitions could have positive effects on the target firms while generating negative effects on the target firm's rivals. An alternative outcome is that technological diffusion resulting from the acquisition or the presence of a more efficient firm with competitive advantages in the industry can spur efficiencies across the industry. From this perspective, cross-border acquisitions may improve intra-industry competitiveness. Existing literature on cross-border acquisitions shows that the market's response to the announcement of the bid, relative to domestic acquisitions, is mixed. Some studies report positive announcement returns (e.g., Block (2005) and Chari et al. (2009)), other studies report negative returns (e.g., Danbolt (1995)), while another group of studies report insignificant abnormal returns (e.g., Campa and Hernando (2004)). Studies investigating the post-acquisition performance also report mixed evidence, with some studies reporting outperformance (e.g., Oldford and Otchere (2016)) and others reporting underperformance (e.g., Gugler, et al. (2003)). The state of the literature on the post-acquisition performance of cross-border acquirers suggests that cross-border acquisitions may yield competitive advantages for the acquirer, but the costs of entering foreign markets via firm acquisition may overshadow those advantages. The literature does not directly speak to this tradeoff, and our study investigates the question of whether cross-border acquisitions hinder or promote firm-level competitiveness in the host country. Even more, little research has been done on the impact of cross-border acquisitions on the host-country's competitiveness.

Canada has experienced an increase in the number and value of both domestic and cross-border acquisitions in Canada from 1985 to 2010 (see Figure 1). High-profile targets of cross-border acquisitions of Canadian firms have included Seagrams, MacMillan Bloedel, Inco, Dofasco, and Stelco, and some of these firms were established over a century ago. The surge in cross-border M&As of Canadian companies is often met with resistance, with opponents arguing that cross-border acquisitions result in a hallowing out of corporate Canada. Others allege further that foreign acquisitions results in harmful effects on competition, with opponents charging that cross-border takeovers are motivated by anti-competitive goals and therefore, harm competition in the host country. For example, Toronto Star (2008) reasons: "picture an economy in which a bunch of small Canadian firms try to compete with more and more foreign titans." Governments of many countries, including Canada, restrict the right of foreign firms to acquire domestic firms, or apply special restrictions to foreign firms in certain industries, with the aim of promoting the competitiveness of 'national champions' (Horn and Persson, 1999). In this paper, we investigate how cross-border takeovers impact the host country's competitive landscape using both and macroeconomic data from Canada.

Existing research on cross-border acquisitions in countries other than Canada indicates that the performance of foreign acquisitions in other countries is similar to that observed in Canada. Andre et al. (2004) report poor performance in the long-run for cross-border acquisitions in Canada, and lackluster post-acquisition performance is also reported for European (Danbolt, 1995), U.S. (Seth et al., 2002), Japanese (Nitsch et al., 1996), and Portugese (Almeida, 2003) cross-border acquisitions. The state of the cross-border literature is such that there is substantial work on the impact of cross-border deals on the target and acquiring firms in different countries receiving

these cross-border acquirers. There is an absence of research, however, on the impact that these deals have on other related parties, and in this study, we focus on the rival firms and target firms. Our study augments existing literature with an examination of the competitive effects of rival and target firms. Given the similar outcomes of cross-border deals for the acquiring firm across target countries (including Canada), we contend that a study of the competitive effects of cross-border deals in Canada will be generalizable to other countries.Using data on M&A data deals from 1980-2010 for Canadian target firms and their industry rivals, we perform a series of empirical analyses designed to ascertain the competitive effects of cross-border takeovers. Unlike previous studies, we provide a comprehensive view of the competitive effects of acquisition by investigating five dimensions of firm competition, namely profitability, growth, productivity, efficiency, and market share, thereby providing an in-depth analysis of firm-level competitive effects of cross-border acquisitions. Our sample of cross-border and domestic targets and their rivals presents an interesting laboratory for examining the performance of two distinct groups of cross-border and domestic acquisition targets operating in the same market, and it increases our understanding of the effects of cross-border acquisitions at the firm and country level. Also, comparisons of the performance of the two sets of targets and their rivals, to a greater extent, helps control for the effects of non-merger related factors. Thus, our approach generates cleaner results.

We test two hypotheses (competitive and information hypotheses) formulated by prior researchers, including Otchere and Ip (2006). Under the *competitive balance hypothesis*, it is argued that rival firms in an industry compete with each other, share similar characteristics, and sometimes work with each other, and therefore, cross-border acquisitions, where the bidder is involved in world-scale production, can alter the competitive balance and industry dynamics (Otchere and Ip, 2006). This development can negatively affect industry counterparts, as these

acquisitions can intensify the competitive position of the target within the industry following acquisition. Alternatively, the *information hypothesis* posits that given the potential for technological diffusion and/or "a kick-in-the-arm effect", cross-border acquisitions could enhance the local rivals' competitiveness. The presence of the foreign bidder and the potential to lose market share to targets of cross-border acquisition would motivate the rivals of targets of cross-border acquisition to be more competitive. In addition, cross-border acquisitions are associated with technology transfer, diffusion, and spillover effects, which can enhance the competitiveness of firms in the industry and promote economic growth and competitiveness of the host country. Both the *competitive balance* and *information hypotheses* suggest that the competitiveness of the bidder is the key determinant of changes in intra-industry competitiveness (i.e., changes in the target and the rivals' competitiveness). We test both the *competitive balance* and *information hypotheses*, which posit that cross-border acquisitions will have positive effects on the target firms, while generating negative competitive effects on the target firms' rivals (*competitive balance hypothesis*) but positive effects on rivals (*information hypothesis*). Changes in a firm's competitiveness can occur in a number of ways (changes in profitability or efficiency, for example), it may be that some aspect of a firm becomes more competitive, while another becomes less. In other words, the competitive balance and information hypotheses may not be mutually exclusive.

Consistent with the *information hypothesis*, we find that cross-border acquisitions enhance the competitiveness of target firms. The improvement in profitability, growth, productivity, efficiency, and market share experienced by targets of cross-border acquisitions are better than those of domestic acquisitions. The impact of cross-border acquisitions on the competitiveness of the rivals, however, is mixed. Rivals of cross-border acquisitions experience significant

improvements in profitability, productivity, and efficiency but a decrease in growth. We attribute this to a redistribution of the intra-industry competitiveness, as the cross-border targets experience higher growth than their industry counterparts. We also find that the market share of the rivals of cross-border targets decreases significantly. These results provide evidence that rivals react to cross-border acquisitions of their industry counterparts with improvements in profitability, productivity, and efficiency, as proposed by the *information hypothesis*, while at the same time, their growth and market share suffer as a result of rebalancing of the competitive landscape, as proposed by the *competitive balance hypothesis*.We also investigate the impact of the bidder's pre-acquisition competitiveness on the post-acquisition performance of the targets and their rivals, and hence, intra-industry competitiveness. The competitiveness of cross-border bidders is positively associated with changes in both target and rival competitiveness following acquisition, but rivals do suffer loss of market share following the entry of the cross-border bidder. We perform additional tests of the market's pricing of the expected competitive effects of cross-border acquisitions (and for comparative purposes, domestic acquisitions) among targets and rivals. We find that both cross-border and domestic acquisition targets earn significantly positive abnormal returns, though the magnitude of returns is higher among cross-border targets. Rivals of targets of cross-border acquisitions earn positive abnormal returns around the acquisition announcement date, whereas domestic rivals earn insignificant abnormal returns. Rivals that experienced positive abnormal returns at announcement date are typically smaller firms with lower market share, suggesting that the market views cross-border acquisition as a threat to larger rival firms with higher market share, consistent with Ferrier et al.'s (1999) dethronement hypothesis.

Finally, we investigate the relationship between aggregate M&A activities and measures of host country competitiveness. We first examine the determinants of mergers and acquisitions

and find that Canada's regulatory quality and education are significant predictors of M&A intensity, suggesting that the country's competitiveness affects the frequency of both cross-border and domestic acquisitions. However, cross-border acquisitions seem to be more sensitive to measures of national competitiveness as the number of transactions is positively associated with measures of infrastructure development, innovation, financial market development, and market size, results which are consistent with those of Navaretti, et al. (2004). We also examine the influence of cross-border acquisition intensity on host nation's competiveness and find that the frequency of cross-border transactions is associated with improvements in financial market development, increases in market size, and improvement in innovation, whereas domestic transactions are associated only with increases in the size of the local market. Overall, our results on host country competitiveness highlight an important effect of cross-border acquisitions that is often lost in the discourse on the impact of foreign acquisitions on local firms' and host country's competitiveness.The remainder of the paper is structured as follows. In Section 2, we provide an overview of the existing literature on the effects of cross-border acquisitions and then develop our testable hypotheses. The sample selection criteria and methodology are discussed in Section 3. Section 4 presents the results of our empirical analysis. Section 5 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

(i) Economic motives for cross-border acquisitions

Our research is related to theories of cross-border acquisitions that explain the economic incentives of this important form of corporate expansion. Some of the more prominent motives include the acquisition of resources and technology, the diversification of cash flows, the entry into foreign markets, and pursuit of efficiency and financial synergies.

One motive developed in the literature is the acquisition of resources and technology as motivating cross-border deals. The argument is that the purchase of a foreign target allows the acquiring firm access to new capabilities and facilitates the acquisition of knowledge and technology (Boateng, et al., 2008). The acquisition of an existing business may permit the acquirer to obtain access to and exploit valuable intangible assets, including patented technologies and highly trained employees and managers. Studies supplying evidence for the acquisition and internalization of resources as a motive of cross-border acquisitions include Seth, et al. (2002), Cheng and Chan (1995), Eun, et al. (1996), Morck and Yeung (1992), and Markides and Ittner (1994). Cash flow diversification has also been widely discussed as a motive of cross-border expansion (Denis, et al., 2002; Markides and Ittner, 1994; Seth, 1990; Shleifer & Vishny, 1992). With international expansion through M&A, the acquiring firm reduces variability of cash flows through geographical market diversification (Logue, 1982; Davis, et al., 1991). The entry into foreign markets can also increase the growth and revenue generation opportunities beyond the domestic market (Martin, et al., 1998). M&A over greenfield investment provides a more rapid entry to foreign markets by allowing for immediate access to local markets, including customers, supply networks, and marketing channels (Barkema and Vermeulen, 1998). A final commonly-cited motive of cross-border acquisitions is the pursuit of efficiency and financial synergies. Cross-border acquisitions may be motivated by synergies. Similar to domestic acquisitions, acquirers may purchase foreign targets in order to capture efficiency synergies that stem from combining operations, achieving economies of scale or scope, leveraging the acquirer's internal capital markets, expanding market power, or by replacing inefficient management. Specific to cross-border acquisitions are the financial synergies that arise from transacting across borders –

differentials in foreign exchange (Kish and Vasconcellos, 1993) and tax (Servaes and Zenner, 1994) rates.

There are new complexities that borders introduce that might make the aforementioned gains difficult to realize. Cross-border acquirers may face information asymmetries in assessing the value of the target's assets, making the deal riskier, and to minimize these risks is costly and increases the cost of the target. Other challenges associated with cross-border deals include disparities in language and culture, organizational managerial complexity, and increased political and economic risks (Hitt and Pisano, 2004). The motives outlined above for cross-border acquisitions suggest that there exists more potential for shareholder gain than in domestic acquisitions, but these possible gains may be offset by the increased complexity of crossing borders. The evidence on the announcement returns of cross-border acquirers is mixed, with some reporting positive abnormal returns (e.g., Block (2005) and Morck and Yeung (1992)), some reporting negative abnormal returns (e.g., Datta and Puia (1995) and Danbolt (1995)), and others reporting no abnormal returns (e.g., Campa and Hernando (2004) and Servaes and Zenner (1994)).

Shimizu et al.'s (2004) review of the cross-border literature concludes that the evidence on post-acquisition performance is equally mixed. Ramirez-Aleson and Espitia-Escuer (2001) reported that increased international diversification was associated with performance improvements. Oldford and Otchere (2016) and Almeida (2003) find that there is a wage premium involved in cross-border acquisitions as foreign bidders typically increase wages after the acquisition. The increase in wages is typically accompanied by an increase in efficiency and productivity levels (Oldford and Otchere, 2016). Studying Canadian acquiring firms, Andre et al. (2004) find the cross-border deals perform poorly in the three years following acquisition, and Black et al. (2001) report similar results for U.S. acquirers. Gugler, et al. (2003) report evidence

that cross-border acquisitions result in a significant decrease in the market value of the acquiring firm over the five years following acquisition. Li and Guisinger (1991) find that cross-border acquisitions underperform other forms of FDI, including greenfield ventures, because acquirers face high transactions costs, especially during merger negotiation and integration phases. Nitsch et al. (1996) reported similar results on Japanese entrants into Europe, and Kang (1993) on Japanese entrants in the U.S.[1] Thus, engaging in cross-border acquisitions may produce advantages for the acquirer, but the costs of entering foreign markets via firm acquisition may trounce those benefits. This paper is related to this line of research as it investigates the possible sources of post-acquisition performance of cross-border deals, thereby contributing to the debate on the benefits versus costs of cross-border takeovers. This study augments current literature with a focus on the intra-industry effect of deals, by considering the competitive effects of rival firms of a targets in cross-border deals, an important outcome of foreign takeovers that has been overlooked in the literature.

ii. Firm-level competitive effects of cross-border acquisitions

Cross-border transactions continue to increase on a year-to-year basis, as observed in Figure 1. Theories of foreign direct investments (FDI) help explain the trend by emphasizing the comparative advantages offered by multinational enterprises (Hymer, 1977; Dunning, 1977; Markusen and Venables, 1998). For one, a firm needs to possess ownership advantages (e.g., a superior product, a strong brand, more efficient production or administrative processes, etc.) in order to become successful in the multinational arena. Upon taking over a domestic target, the

[1] Morderating the post-acquisition performance effects are cultural differences, legal differences, language differences, common language. For a review of this area of the cross-border literature, see Shimizu et al. (2004).

multinational enterprise's advantages may then be exploited in subsidiaries abroad (Caves, 1974; Helpman, 1997; Navaretti et al., 2004).

Theories of FDI (e.g., Caves, 1974) emphasize the role of market imperfections for intangible assets in motivating firms to invest in foreign countries. According to the internalization theory, firms that have intangible assets, such as technical and managerial know-how, tend to invest directly in foreign countries in order to utilize these assets on a large scale, and at the same time avoid the misappropriation that may occur when transacting in foreign markets (Morck and Yeung, 1991). Nachum (1999) and Navaretti et al. (2004) provide empirical evidence that multinationals have distinctive competitive advantage, and they compete in ways that make use of their proprietary assets to their best advantage. This advantage will make the targets of cross-border acquisitions more competitive, as they benefit from the competitiveness of the foreign bidder. The improvements in competitiveness of the cross-border target could impact the competitive position of the rivals and therefore, the competitive balance in the industry. While cross-border acquisitions are likely to increase the competitiveness of the target, the effect on the rivals of the target is not clear. Below, we develop the two hypotheses (*competitive balance hypothesis* and *information hypothesis*) relating to cross-border takeovers. In addition, we investigate how cross-border acquisitions impact dimensions of the competitiveness of the host country, as a whole. We examine whether the competitiveness of the bidder on the nation is a zero-sum game or incremental.

Competitive effects of cross-border acquisitions on targets and their rivals

Cross-border M&As provide an opportunity for bidders to employ intangible assets on a larger scale than would be possible within their domestic operational setting. After the acquisition, many of the technological or marketing characteristics that have been internalized by the foreign bidder

would be incorporated into goods produced by the target. Thus, targets of cross-border acquisitions will be fundamentally different from purely domestic rivals by virtue of their organizational linkages with foreign entities. As part of the multinational entity, the acquired target firms may be well-placed to take advantage of being part of a successful multinational establishment, as these multinationals tend to be efficient firms because success in domestic markets is a precondition for attaining multinational status. For example, multinationals have profitable opportunities for sourcing inputs from other (offshore) subsidiaries at a cheaper cost, and the newly acquired target (now a subsidiary) can switch to sourcing internally from within the MNE set up at a cheaper cost and subsequently absorbing the benefits of lower costs into their profit margins (Otchere and Ip, 2006). The productive advantage of the target will indeed be great.[2] This advantage, together with the increased economies of scale enjoyed by the target, may enable it to reduce costs, undersell its local rivals, increase its market share, and enhance its profitability.[3] The competitive position of the target of cross-border acquisition will therefore be enhanced significantly.

To the extent that rival firms compete with each other and share similar characteristics, acquisitions that impact the operations and structure of one firm can affect the competitive structure of the industry and consequently, the operations and prospects of rival firms. Otchere and Ip (2006) argue that these effects can be more pronounced in the case of cross-border acquisitions where the bidder may enjoy benefits arising from being a multinational firm, including economies of scale. The increased competitiveness of targets of cross-border acquisition could in turn increase pressure on domestic competitors to respond to the competitive threats. Assuming that industries

[2] See Williamson (1986), Caves (1974), and Vernon (1977) for detailed theoretical development of the benefits enjoyed by the target when acquired by a multinational bidder.

[3] Increased market share and profitability could partly explain why firms acquired by cross-border bidders experience higher wealth gains than those that are acquired by local bidders. Harris and Ravenscraft (1991), Swenson (1993), and Markides and Ittner (1994) provide evidence of this phenomenon for the U.S. market.

are not perfectly competitive (i.e., firms in the industry can earn excess profit), targets of cross-border acquisitions could reduce the short-term profits of domestic competitors who choose to protect their long run market share by cutting margins. Dunning (1986) shows that Japanese firms that operate in the United Kingdom forced price reductions in their respective industries partly by making their (British) competitors reduce prices and partly by their attempts to capture a larger share of the UK market.

The *competitive balance hypothesis* therefore posits that because rival firms in an industry compete with each other, share similar characteristics, and sometimes work with each other, cross-border acquisitions, where the bidder may be involved in multinational operations, can alter the competitive balance and industry dynamics by enhancing the competitive position of the target (subsidiary) while negatively affecting the competitive position of industry counterparts (Otchere and Ip, 2006). Cross-border acquisitions will thus have positive effects for the target firms, while generating negative competitive effects for the rivals of target firms

Information effects of cross-border acquisitions on targets and their rivals

Otchere and Ip (2006) describe a number of ways in which cross-border acquisitions can generate positive information and knowledge effects for rivals of targets of cross-border acquisitions. First, cross-border acquisitions can generate significant spillover effects from technology transfer, which could result from the bidder's demonstration effect of the technology in the industry. Diffusion of technology from the bidder through the target firm (subsidiary) to its domestic competitors might occur faster than otherwise, due to the latter's proximity to technology.[4] Thus, the cross-border

[4] The MNC need not serve as a uniquely important conduit (Caves, 1974). Technology is transferred through channels other than the MNC, including the free international movement of non-proprietary knowledge, embodiment of internationally traded goods, especially capital goods, international transaction in consulting services and the international licensing of technology.

target firm may accelerate the transfer of technology and innovation, causing more rapid dissemination among local firms. Dunning (1986) provides evidence that Japanese direct investments in the U.K. were good for the U.K. economy because the advantages commonly ascribed to Japanese firms were successfully transferred to the U.K. corporate culture.

Cross-border acquisitions could also be beneficial to the rivals of the target in other ways. The competitive threat to the rival firms' market share could spur them to become more efficient and competitive, a phenomenon Otchere and Ip (2006) describe as a "kick-in-the-arm" effect. Dunning (1986) provides survey evidence to show that the presence of affiliates of foreign companies was generally beneficial to the performance of UK competitors. For example, the activities of Sony and Matsushita in the UK provided a major stimulus for new approaches to production and quality control by local competitors in the UK. Some local firms responded to the Japanese competition by improving their own product designs, production method and quality control processes. Given the potential for technological diffusion and/or "a kick-in-the-arm effect", we hypothesize that cross-border acquisitions will favorably affect the rival firms' competitiveness. The foregoing suggest that the impact of cross-border acquisition on competitors is an empirical question.

(iii) Cross-border acquisitions and host country competitiveness

Cross-border acquisitions impact not only the industry receiving the bid, but it can also affect the overall competitiveness of the host country. We consider the relationship between cross-border acquisitions and host country competitiveness from two angles, namely host country competitiveness as a determinant of cross-border M&A activity, and the impact of cross-border M&A activity on host country competitiveness. Following the World Economic Forum, we define

national competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of a country" (World Economic Forum, 2014, p.4), and evaluate the impact of measures of national competitiveness, namely, strength of institutions, infrastructure development, innovation, education and training, financial market development, and market size on aggregate mergers and acquisition and vice versa.

Several studies have investigating the macroeconomic determinants of cross-border M&A, have revealed that higher gross domestic product (Becketti, 1986; Ali-Yrkko, 2002) and lower interest rates (Becketti, 1986; Diebold and Lindner, 1996) influence foreign acquisitions. GDP can be viewed as a measure of a country's economic activity and market size, and a country with a large GDP encourages higher M&A activity, since a more active, large market means lower cost of trading and superior monitoring relative to smaller markets (Ali-Yrkko, 2002; Navaretti et al., 2004). Empirical evidence presented by Anand and Kogut (1997) and Globerman and Shapiro (1999) supports the positive impact of host country GDP on the flow of in-bound cross-border acquisitions. Higher interest rates can deter cross-border M&A activity because interest rates impact the cost of financing, and theory (Melicher, et al., 1983) and evidence (Kish and Vasconcellos, 1993) suggest that higher host-country interest rates discourage the inflow of cross-border takeovers. Shimizu, et al.'s (2004) review of the literature on cross-border takeovers identifies other country-level determinants, including culture proximity and strength of institutions as influencing cross-border acquisition. In addition to the aforementioned determinants, we argue that other aspects of national competitiveness (infrastructure, education, innovation, financial market efficiency, and market size) will be positively associated with inbound, cross-border acquisitions since multinationals will look to expand their presence in markets characterized by productive and efficient resource allocation.

A question that has not received much attention in the literature is whether cross-border M&A impact the competitiveness of the host country. Neoclassical models of FDI suggest that cross-border acquisitions promote economic growth by increasing the volume of investment and/or its efficiency, and more recent FDI models assert that cross-border acquisitions are associated with technology transfer, diffusion, and spillover effects, which can promote economic growth and competitiveness of the host country.[5] Through capital accumulation in the host economy, cross-border acquisitions are expected to enhance economic growth and productivity by fostering the incorporation of new capital inputs and technologies in the production process (Neto, et al., 2010). Through knowledge transfers, cross-border acquisitions will augment the existing stock of knowledge in the host country economy through labor training, skill acquisition, and the introduction of sophisticated management and organizational practices (Balasubramanyam, et al., 1996; De Mello, 1999). Bertrand and Zuniga (2006) find that while domestic transactions diminished R&D investment, inbound cross-border acquisitions spur innovation among OECD countries. We therefore expect cross-border transactions to contribute to the competitiveness of the host nation (more than domestic acquisitions).

3. DATA, METRICS, & METHODOLOGY

The M&A transaction data used in this study covers the period 1980 to 2010 and consists of Canadian target firms involved in cross-border acquisitions, their industry counterparts, and a control sample of targets of domestic acquisitions and their rivals. The initial list of firms that received cross-border and domestic takeover bids was obtained from the *Securities Data Corporation* (*SDC*) database. The acquisition dates and transaction details were also extracted

[5] There is a vast literature on the FDI-growth relationship. For a review of this literature, see De Mello (1997 and 1999) for a comprehensive survey.

from the same source. To be included in the final sample of cross-border targets, the firm must satisfy the following criteria: (i) the acquisition enabled the acquirer to obtain at least 51% ownership of the target, (ii) the target firm reported financial statements separate from those of its new owner, and (iii) the target and bidder did not participate in any other acquisition activity five years before and after the acquisition under consideration. The application of these criteria resulted in a sample of 362 firms involved in cross-border acquisitions ("CB"). Similar sample construction criteria were used to form a control sample of 342 targets involved in domestic acquisitions ("D"). The ideal approach to the construction of the cross-border and domestic samples would be a one-to-one match along industry, deal size, and degree of relatedness; however, the large size differences between the two groups limits our ability to make suitable cross-border matches.[6, 7]

To evaluate the intra-industry competitive effects of cross-border acquisitions, we constructed a sample of rivals, with the test sample consisting of rivals' of cross-border targets and a control sample consisting of rivals of domestic targets. To be included in the rival sample, the firm must be publicly-listed on the Toronto Stock Exchange and must share the same 4-digit industry code as the target firm at the time of the acquisition. The rival firm must also not have been acquired in the five years following acquisition in order to have financial statement data available to estimate measures of competitiveness. For data management purposes, we restrict the number of rival firms to two per target firm. In cases where there were more than two rivals satisfying the above criteria, the rivals that had total asset value closest to that of the target firm

[6] We do construct a sample of matched targets, which reduces our sample size to approximately 30%. We performed univariate difference testing (identical to the analysis in Table 4) on the smaller, matched sample, and we find results are similar to those large unmatched sample.

[7] We thank an anonymous reviewer for the suggestion that we employ propensity score matching in the construction of the sample of domestic deals in order decrease to selection bias. We reconstruct the sample of domestic targets using multiple propensity score matching techniques (without replacement, with replacement, and replacement with optimal calipers) and re-estimate several analyses. The results of the re-estimation yields results very similar results, and we conclude that our original matching technique is suitable for this study's analysis.

were chosen.[8] The sample of rivals of cross-border targets ("CBR") consisting of 724 companies were matched to the targets that received cross-border bids, and the sample of rivals of domestic targets ("DR") consisted of 684 companies that were matched to the targets that received bids from Canadian firms.[9] These rivals were not involved in any acquisition activity in the five years before and after their industry counterparts received the bid. Financial data for the sample firms spanning five year before and five years after merger completion date were obtained from *CapitalIQ* and *DataStream*. The distinctive advantage of our data is that it includes post-acquisition data of the target firms separate from that of its parent, which allows us to track the effects of the acquisition on the target firms' post-acquisition performance.

Table 1 provides summary statistics for the test and control samples at the time of acquisition. The cross-border targets are larger, have a larger asset base, and exhibit higher earnings growth than their matched rivals. The sample of domestic acquisition targets also employs more people, pays higher wages per employee, and has a larger asset base than matched rivals. They also have higher cash holdings and exhibit higher asset turnover, higher revenue, and earnings growth than their rivals. Relative to their domestic counterparts, cross-border targets exhibit lower asset turnover ratios and lower revenue growth. There are few hostile takeovers, and cross-border acquisitions were less likely than domestic transactions to involve related acquisitions

[8] Matching targets with rivals based on industry and size is reasonable given the evidence that performance varies by industry and firm size. Barber and Lyon (1997) find that industry-matching is a suitable way to control for industry variances, and they also show that matching sample firms to control firms of similar size yield well specified test. If certain industries experience unusual growth during the sample period, it is expected that industry counterparts of similar size will experience similar growth. Other studies have employed this matching approach, including Fama and French (1995), Denis and Denis (1993), and Otchere and Chan (2003).

[9] While the preferred approach to the construction of the cross-border and domestic samples would be a one-to-one match along industry, deal size, and degree of relatedness, the vast size differences between the two groups limits our ability to make suitable cross-border/domestic matches. We do construct a sample of matched targets, which reduces our sample size by approximately one-third. We perform univariate difference testing (identical to the analysis in Table 3) on the smaller, matched sample, and we find results similar to those when using an unmatched sample.

and all-stock transactions. The acquirers entering the Canadian market are coming from a concentrated number of countries, with 190 acquirers in the sample coming from the U.S., followed by 40 from the U.K., 12 from Australia, 11 from Hong Kong, 10 from China, and 9 from France. In the remaining 90 deals, the acquirers come from a dispersed number of nations. When broken down into geographical areas, 25% of the acquirers originate from Europe, 17% from Africa, 16% from Asia and 2.5% from the Caribbean, with the U.S. again dominating with over 50%.

[INSERT TABLE 1]

Central to our study is the concept of competition among firms. According to Porter and van der Linde (1995), "competitiveness at the industry level arises from superior productivity, either in terms of lower costs or the ability to offer products with superior value that justifies a premium price" (p.98). The concept of competition is difficult to measure because there are a number of determinants involved the 'game' among firms. The firms' behavior, their strategic interaction with rivals, industry demand conditions, and the regulatory environment are just some factors that impact a firm's output and prices. Indeed, prior studies that examine indicators of competitiveness (for example, Cerrato and Depperu (2011)) show that competitiveness is a multidimensional construct. Following extant research, we take a multidimensional approach in measuring competitiveness among firms by focusing on five *firm-level* dimensions of competition, namely profitability, growth, productivity, efficiency, and market share. We take a relational approach to measuring competition, and view the competition among firms as an attribute of the relationship of firm pairs – target firm and its matched rival. To investigate the effect of cross-border takeovers on the competitiveness of the *host country*, we evaluate six World Economic Forum (2014) macro-level dimensions of national competitiveness, namely strength of institutions,

infrastructure, education and training, innovation, financial market development, and market size (see Table 2 for a summary of competition metrics employed in this study).

[INSERT TABLE 2]

The operating performance data used to estimate measures of competitiveness were obtained from the financial statements 5 years before and 5 years after the merger announcement. Consistent with previous studies that use this method (e.g., Megginson et al. (1994) and Otchere and Zhang (2001)), year 0 is excluded from the analysis as it contains both pre- and post-acquisition data. We evaluate the impact of cross-border acquisitions on intra-industry competitiveness by analyzing the competitiveness of targets of cross-border acquisitions and their matched rivals, relative to that of targets of domestic acquisitions and their matched rivals. We then test the significance of the difference in pre- and post-acquisition mean and median competitiveness measures using t-test and the Wilcoxon signed-rank test respectively. We formulate a series of cross-sectional OLS regressions designed to model the relationship between acquisition type (i.e., cross-border versus domestic, delineated by a dummy variable, "*CBDummy*") and the observed changes in competitiveness. The general form of the regression is estimated as:

$$\textit{Change in competitiveness} = f\,(\textit{CB Dummy, Relative size to bidder, LogTA, (LogTA)}^2\textit{, D/E,}$$
$$\textit{Cashratio, CBExperience, SameCountryExperience, Interactions})$$

Our variable of interest in the competitiveness equations is *CBDummy*. The regression is run for both targets and rivals of cross-border acquisitions. The competitiveness equation is estimated for all dimensions of competition (see Panel A of Table 2), controlling for firm specific characteristics, including size (*LogTA*, $(LogTA)^2$), leverage (*D/E*), and liquidity (*Cashratio*) that might account for cross-sectional variability in the sample firms' ability to enact changes in competitiveness

(Bertrand and Zitouna, 2008; Zhu et al., 2011). *LogTA* controls for firm size, which we expect to be positively associated with firm competitiveness, as larger firms have access to the resources necessary to effectively compete; however, but given that there are likely to be diminishing competitive effects from firm size, $(LogTA)^2$ is also included in the models. Short- and long-term liquidity can enable or restrain a firm's flexibility in enacting changes to its competitiveness, so we include *Cashratio* and *D/E* to control for liquidity. We also include two dummy variables that account for the cross-border experience of the acquirer (Doukas and Travlos, 1988). The variable *CBExperience* takes on a value of 1 if the acquirer has previous cross-border experience, and zero otherwise, and *SameCountryExperience* takes on a value of 1 if the acquirer has made a previous acquisition in that same country, and zero otherwise. Other issues that have come up in previous studies of the performance of cross-border acquisitions include cultural differences, legal differences, language differences, common language. In other versions of this model not reported in this paper, we include dummy variables to control for these elements, but a lack of statistical significance led us to drop the dummy variables. All OLS regressions are corrected for heteroscedasticity using White's consistent estimator. All variables employed in this study's analyses are described in Appendix B.

4. EMPIRICAL ANALYSIS

(i) Why do some firms become target of cross-border acquisition?

To provide information on the profile of firms that are targeted for cross-border acquisition, we employ a multinomial logistic regression analysis to compare the pre-acquisition characteristics and performance of the cross-border targets, their rivals, and targets of domestic acquisitions. The multinomial regression analysis permits us to examine the differences in performance among the two test and two control samples while, at the same time, controlling for the effects of other firm

characteristics. We use the targets of cross-border acquisitions as the benchmark sample, so we code the cross-border target firms as 1, domestic target firms as 2, and the rivals of cross-border targets as 3. The parameters of the model are estimated using the maximum likelihood method, and for the first analysis presented in Panel A of Table 3, the estimation procedure provides two sets of parameters: the first set compares the cross-border acquisition targets to domestic acquisition targets and the second compares the cross-border acquisition targets to their rivals. The results are presented in Table 3.

[INSERT TABLE 3]

From Panel A of Table 3, we find that compared to targets of domestic acquisitions, targets of cross-border acquisitions tend to have significantly higher profit margins, Tobin's *q*, higher levels of productivity, and lower financial leverage. Domestic targets are more likely to be smaller than cross-border targets. This suggests that relatively large, better performing firms are more likely to be taken over by foreign acquirers. We also observe from Panel A that the cross-border targets are more profitable, larger, but less productive, less efficient, and have lower market share relative to rivals of cross-border acquisition. Also, target of cross-border acquisitions do not operate as productively as their industry counterparts, thus providing for an opportunity for the foreign bidder to reap synergies from operational improvements in line with industry productivity benchmarks. Panel B provides the results of a binary specification of the probability models, using industry-adjusted data (i.e., the difference between target and rival observations). The binary specification in Panel B provides results consistent with the multinomial results in Panel A.

(ii) Intra-industry competitive effects of cross-border acquisitions

The impact of cross-border acquisitions on the competitiveness of local firms is assessed using both univariate and cross-sectional analyses. Table 4 presents the results of the difference in mean and median tests of competitiveness. Panel A presents the results for the targets of cross-border acquisitions: cross-border targets (CB) and their rivals (CBR). Consistent with the positive information effect, we find that cross-border targets' competitiveness increases markedly following the acquisitions. The targets become more profitable, with the mean profitability (*ROA*) improving, and targets of cross-border acquisitions also exhibit increases in Tobin's *q*, (significant at 5%). There are also improvements in efficiency following acquisitions, which are significant at 1%. Furthermore, we find that targets of cross-border acquisitions gain significant market share (*HHI*), which implies an increase in the sample firms' competitiveness.

For the rivals of targets of cross-border acquisitions, we observe an increase in the measure of profitability (*ROA*) following the acquisition of their industry counterpart's acquisition, with the change being significant at 1%. In addition, the rivals of cross-border targets become more productive and efficient. However, they experience significant decreases in *q* and *HHI*, indicating substantial redistribution of the intra-industry competitive balance in favor of the targets of cross-border acquisitions, as the latter gains market share and *q* at the expense of their industry counterparts. Together, these results provide evidence that rivals reacted to the cross-border acquisition with competitive enhancements, as predicted by the *information hypothesis*, while at the same time, their growth and market share suffer as a result of the cross-border acquisition and the resultant increase in competition, consistent with the *competitive balance hypothesis*.

In the final two columns of Panel A of Table 4, we estimate the post-acquisition industry-adjusted competitive effects of the cross-border merger. We compare the size of the competitive

reactions at the primary impact of the acquisition (the target) and the secondary point of impact (the rivals), which represent the intra-industry competitive impact of a cross-border takeover. We observe that the size of the effect on the target is greater than the effect on rivals in terms of profitability, growth, efficiency, and market share dimensions of competition. It is only in the productivity measure (total revenue by total assets) that the rivals of cross-border target exhibit higher improvements than their industry counterparts acquired by foreign bidders. Therefore, there are significantly higher intra-industry competitive effects for firms receiving foreign takeover bids than their rival.

[INSERT TABLE 4]

To ascertain the relative effect of cross-border acquisitions on the rivals, we also present similar results of targets of domestic acquisitions and their rivals. Panel B of Table 4 displays the changes in intra-industry competitiveness following acquisitions by domestic bidders. The targets of domestic acquisitions exhibit different competitive outcomes following acquisition, relative to cross-border targets. The profitability of domestic targets clearly suffers following acquisition, with profitability decreasing significantly. However, like the cross-border targets, the sample of domestic targets experiences an increase in market share, the change is significant at 0.01%.

Panel C of Table 4 shows the relative impact of the acquisition (Post - Pre) on the sample firms' performance. First, we compare the change in the competition variables for the cross-border targets and domestic targets. The results clearly show that the competitiveness of the targets of cross-border acquisitions is enhanced more than that of the domestic targets: changes in profitability, growth, efficiency and market share observed for the cross-border targets are better than those of domestic targets. Table 4, column "(4-3) - (8-7)" of Panel C shows the test statistics for the difference testing that directly compares changes in competitiveness of the two groups of

rivals. We find that there is a marked difference in the impact of the cross-border acquisition on the rivals of targets and domestic targets, with the former exhibiting higher levels of profitability (*ROA*), efficiency, and market share than the rivals of domestic targets.

(iii) Influence of the competitiveness of the bidder on intra-industry competition

We collect supplementary operating performance data on bidders involved in cross-border and domestic acquisitions from *Datastream* and estimated the same dimensions of competition as those used in the previous analyses.[10] A preliminary analysis of the pre-acquisition operating performance of cross-border bidder is presented in Table 5, which highlights significant differences in four dimensions of competitiveness. We observe that cross-border bidders are more profitable, have higher growth, and higher levels of productivity and efficiency than bidders involved in domestic acquisitions. We conjecture that the competitive effects of cross-border acquisitions will be more pronounced than domestic acquisitions. We directly test this proposition and the *competitive balance* and *information hypotheses* by estimating a series of OLS regressions, regressing a dummy variable (*CBDummy*) on observed changes in the target and rival competiveness measure, while controlling for bidder pre-acquisition competitiveness (captured by the relative size variable, *RelativeSize*) and other firm and transaction characteristics. The results of this analysis are reported in Table 6.

[INSERT TABLE 5]

[10] The criteria used to build the sample of cross-border and domestic targets did not include any specification on the bidder's corporate status (i.e., public or private). Because some bidders in both sub-samples were private companies, we were not able to obtain the data for the measures of competitiveness for all the firms in our sample. As a result, the sample size decreased from 362 to 282 for cross-border bidders and from 342 to 265 for domestic bidders. Both sub-samples are still significantly large to satisfy normality assumptions.

The first set of regressions in Panel A of Table 6 pertains to targets receiving the acquisition bid, and the variables of interest are *CBDummy* and interactions with *CBDummy*. In line with the univariate results in Table 5, the coefficient of the variable of interest (*CBDummy*) indicates statistically significant competitive improvements in profitability, growth expectations, efficiency, and market share. Relative size of the target to bidder (measured as TA_{Bidder}/TA_{Target}), a proxy for bidder competitiveness, is positively associated with changes in market share. The coefficient of the interaction of relative size with *CBDummy* indicates that the competitiveness of the bidder is associated with favorable changes in cross-border acquisition targets' profitability, growth expectations, and market share, which indicates that the competitiveness of cross-border bidders is indeed an important determinant of changes in target competitiveness. The analysis of the link between bidders' pre-acquisition competitiveness and changes in rival competitiveness following an acquisition is presented in Panel B of Table 5. Consistent with the earlier result, the coefficient of the *CBDummy* variable in the profitability (*ROA*), productivity (*TR/TA*), and efficiency (*TC/TA*) regressions provides evidence of operational improvements made by the rival firms following the acquisition in their industry counterparts, However, negative coefficients of the *CBDummy* variable in the *Tobin's q* and *HHI* regressions indicate decline the market's expectations of future growth market share respectively of the rival firms.

[INSERT TABLE 6]

The bidder's pre-acquisition competitiveness is also associated with changes in the rival competitiveness. The competitiveness of the bidders of cross-border acquisitions (*CBDummy***RelativeSize*) is positively associated with changes in several dimensions of the rival operating performance (namely, profitability, productivity and efficiency), suggesting that the rivals are spurred by the bidder to become more competitive. However, we find a negative

relationship between the bidder pre-acquisition competitiveness and the change in rival market share; thus, the presence of a more competitive foreign bidder translates into greater market share losses by rival firms. Together, these findings indicate that while rivals of cross-border targets experience significant improvements in profitability, productivity, and efficiency, they also experience significant decreases in growth and market. Consistent with the earlier findings, the results presented in Table 6 provide evidence for both hypotheses. The finding that rivals of cross-border acquisition targets respond to the acquisition and the presence of a more competitive bidder with significant improvement in their own profitability, productivity, and efficiency is consistent with the *information hypothesis*. However, their loss of market share and growth prospects, which is negatively associated with bidders' pre-acquisition competitiveness, is consistent with the *competitive balance hypothesis*. Therefore, this result suggests that the observations in Table 4 can be explained by bidder competitiveness.

(iv) Market's anticipation of the competitive effects of cross-border acquisitions

The market's anticipation of the competitive effects of the cross-border acquisitions on the target firms could be inferred from the rival firms' stock price reaction following the announcement. If the takeover creates a new competitive environment and incentives for better performance for the target firms, then the operating and financial performance of the target firms, in particular the profitability, will likely improve at the expense of industry rivals. Rival firms could react negatively to the cross-border acquisition announcement. On the other hand, if investors anticipate rivals to benefit from the cross-border acquisition, then they will react positively. In this section, we examine the market reaction to the cross-border merger announcement and relate the short term market reaction to the long-term changes in the rival firms' competitive position.

First, we employ the event study methodology to measure the intra-industry effects of cross-border acquisition announcement on the share price of rivals of the target firms.[11] We then regress the observed abnormal returns on changes in rivals' competitiveness following the acquisition in order to identify the degree to which the market priced in changes in the competitiveness effects at the time of the acquisition announcement.

[INSERT TABLE 7]

The abnormal returns earned by the acquisition targets and their rival during the acquisition proposal announcement period are reported in Panel A of Table 7. Consistent with previous M&A studies (e.g., Asquith (1983), and Bradley, et al. (1988)), both cross-border and domestic targets earn significant and positive abnormal returns in all windows of observation, though the magnitude of the returns is higher for cross-border targets, which is consistent with the literature on premia in foreign takeovers (Harris and Ravenscraft, 1991). Takeover premia in cross-border acquisitions has been found to be influenced by a range of elements: managerial motivations (Amihud and Lev, 1981; Hope, et al., 2011), acquiring and target firms characteristics (Doukas and Travlos, 1988; Denis, et al., 2002; Bris and Cabolis, 2008; Chari et al., 2009), international taxation (Huizinga, et al., 2012), and other deal-specific features (Eckbo, 2009). We observe in Table 3 of our paper that higher premia in cross-border deals are driven by higher profit margin, higher Tobin's *q*, and higher levels of productivity. We therefore contribute an additional determinant of premia: the pre-acquisition competitiveness of the target firm.

The rivals of targets of cross-border acquisitions earned significantly positive abnormal returns around the acquisition announcement date, in line with the improvements in profitability and efficiency (whereas abnormal returns earned by domestic rivals are insignificant). Statistically

[11] The detailed procedure is excluded for the sake of brevity.

significant cumulative abnormal returns are observed for the [-20, 20], [-10, 10], [-5, 5], [-2, 2], and [-1, 1] event windows. The mean 21-day cumulative abnormal return of 9.5% for the rivals of cross-border targets is significant at 1% (*t*-statistic=3.075). Over 50% of the rivals of cross-border target firms earned significantly positive abnormal returns in all event windows. [12] Therefore, the rival firms' positive CARs can be explained by the *information hypothesis*, which attributes positive abnormal returns to the markets optimistic evaluation of the effects of cross-border M&A activity on the rivals resulting from value-enhancing changes (Otchere and Ip, 2006). The abnormal returns earned by rivals of targets of cross-border acquisitions are similar to that reported by Song and Walking (2000) and Otchere and Ip (2006) for the U.S. and Australian markets, respectively. These results provide additional evidence in support of the *information hypothesis*, but not the *competitive balance hypothesis* that predicts negative stock price reactions from rival firms. Unlike the rivals of cross-border acquisitions, we do not observe any significant abnormal returns for rivals of domestic acquisitions following the announcement of the takeover of their industry counterparts. The results in Panel B of Table 7 suggest a lack of confidence among investors that rivals of domestic targets will pursue value-enhancing changes in response to the acquisition.

Panel B of Table 7 provides the results of a series of OLS regressions on the determinants of target and rival firms' CARs using the day [-5, 5] and [-20, 20] windows of observation. The first set of regressions shows that cross-border targets indeed earn larger returns than domestic targets, as per positive and significant *CBDummy* coefficient. When the *CBDummy* is interacted with the bidder's pre-acquisition competitiveness as measured by relative size of the bidder to

[12] In order to obtain avoid event contamination, bidders and targets included in the sample were not involved in acquisition activity for five years before or after the acquisition. As a result, we can reject the acquisition probability hypothesis as an explanation of the positive returns documented in Table 6. The acquisition probability hypothesis contends that rivals that subsequently receive bids two years after the takeover of their industry counterpart realize significant abnormal returns at the time of the announcement of the takeover involving their industry counterparts (Song and Walking, 2000).

target (*CBDummy*RelativeSizetoBidder*), the coefficient is positive and significant, suggesting that the market responds more positively to cross-border acquisitions involving targets that are large relative to the bidder. Similarly, the market reacts positively to cross-border acquisitions involving targets that were competitive prior to acquisition (*CBDummy*preROA* and *CBDummy*preTRTA).* Moreover, we observe that the coefficient of the *CBDummy*RelativeSizetoBidder* is negative and highly significant in the rivals' regression, which indicates that rivals that are larger relative to the cross-border bidder do experience significant competitive effects. This results is contrary to the conjecture that large rivals could withstand the competition better.

[INSERT TABLE 8]

To provide further insight into this finding, we present in Table 8 the characteristics of rivals of cross-border targets that experienced positive and negative CARs ([-5, 5]). We find that rivals earning positive abnormal returns at announcement are typically smaller as measured by both *logTA* and relative size measures. They are also characterized by lower profitability (*ROA*), *Tobin's q*, efficiency levels, and market share at the time of the announcement. The positive market reaction could indicate that the market views the acquisition as a threat to larger rival firms that have large market share than smaller firms, even though the smaller rivals that experienced positive CARs were operationally inferior to the large rivals that experienced negative CARs. This result is consistent with Ferrier et al.'s (1999) dethronement hypothesis, which contends that in the face of a new competitive challenge, industry leaders are more likely to experience market share erosion because it is the larger companies fighting for each other's market share, not firms holding smaller shares of the market. An alternative explanation may be that the market views smaller firms, even those that are operationally inferior, as more agile and therefore better equipped to adapt to the

new competitive landscape, relative to larger rivals who may be slower to adapt (Rogers, 2004; Nadkarni and Narayanan, 2007) due to organizational inertia and bureaucratic tendencies.

(v) Does the short-term reaction predict the long-term competitive effects?

As argued above, the market's anticipation of the competitive effects of the cross-border acquisitions on the target firms could be inferred from the rival firms' stock price effect following the announcement. To test the market's ability to predict the competitive effects of cross-border acquisition, we regress the change in the rival firms' competitiveness measures (ROA, *q*, productivity, efficiency and market concentration of rival firms) on the day [-5, 5] CARs, cross-border dummy variable (*CBRDummy*), and the independent variables that control for firm-level variability (firm size, leverage, and liquidity). Since we have documented that large rivals are more likely to experience negative abnormal returns at the time of the acquisition announcement, we include the relative size of the rival firm (TA_{Bidder}/TA_{Rival}) to control for the effect of the bidder's size and competitiveness. The results are presented in Table 9.

[INSERT TABLE 9]

Consistent with the earlier results, we find that rivals of cross-border acquisitions experience significantly greater improvement in profitability, productivity, and efficiency than rivals of domestic acquisition. While in general, the day [-5, 5] CARs do not relate to the changes in the competitiveness measures, if the acquisition is cross-border, then the day [-5, 5] cumulative abnormal returns positively relate to the observed changes in the performance measures. The *CAR[-5, 5]*CBRdummy* coefficient significantly predicts changes in rivals' ROA, Tobin's *q*, and productivity in all the regressions. The interaction variable, *Relativesizebidder*CBRDummy* indicates that operational improvements (*ΔROA*, *Δq*, *ΔTR/TA*, and *ΔTC/TA*) are positively associated with the bidder competitiveness (as measured using relative size of the bidding firm).

However, echoing previous findings, rivals of cross-border targets lose more market share (*ΔHHI*) when the bidder is more competitive. Though not reported here, we observe similar results when we use CARs over the [-10,10] and [-20,20] windows in the regression. Not only are the rivals of cross-border targets experiencing positive CARs around the time of the acquisition of their industry counterparts, but the CARs are also correlated with observed changes in the rival firms' competitiveness.

(vi) Host country competitiveness and cross-border acquisitions

Neoclassical models of foreign direct investment (FDI) suggest that cross-border acquisitions promote economic growth by increasing the volume of investment in the local economy, and relatively recent FDI models assume that cross-border acquisitions promote technological transfer, diffusion, and spillover effects, which thereby promote economic growth in the host country.[13] Extant literature suggests that the impact of cross-border acquisitions on the host country's economy may occur through two channels. First, through capital accumulation in the host economy, cross-border acquisitions are expected to enhance growth by fostering the incorporation of new capital inputs and technologies in the production process (Neto et al., 2010). Second, through knowledge transfers, cross-border acquisitions will augment the existing stock of knowledge in the host country economy through labor training, skill acquisition, and through the introduction of sophisticated management and organizational practices (Balasubramanyam et al., 1996; De Mello, 1999). However, the realization of these positive impacts of cross-border transactions is conditional upon the absorptive capacity of the local economy. De Mello (1999)

[13] There is a vast literature on the FDI-growth relationship. For a review of this literature, see De Mello (1997 and 1999).

argues that institutional factors, such as existing innovation levels, political stability, and education levels, serve as an impetus or an obstacle to the positive spillover effects of foreign investment.

While it is clear from the previous analyses that cross-border acquisitions significantly impact the target firm and industry rivals, the analyses do not shed light on the relation between cross-border takeovers and host country competitiveness, where the competitiveness of a nation is defined as "the set of institutions, policies, and factors that determine the level of productivity of a country" (World Economic Forum, 2014, p.4). First, extant literature on FDI suggests that a more competitive nation will be associated with higher inflows of cross-border transactions (Navaretti, et al., 2004). From another perspective, cross-border takeovers, which are associated with technology transfer, diffusion, and spillover effects (Findlay, 1978; Wang and Blomström, 1992), are expected to bolster the competitiveness of the host nation. We test these conjectures through two analyses. We first examine the determinants of cross-border acquisitions, and then examine the impact of cross-border merger and acquisition activity on dimensions of national competitiveness using OLS regression.

The measures of national competitiveness we analyze are drawn from the World Economic Forum's *2014 Global Competitiveness* report. We evaluate six dimensions of national competitiveness, namely the institutional environment, extensiveness and efficiency of network infrastructure, higher education and training, innovation, financial market development, and market size. Monthly data for all the dimensions of national competitiveness are collected over the period 1980-2010 from the *World Bank DataBank* (except for financial market development and market size, which are sourced from *Datastream*).

We evaluate six measures of a nation's productivity that impact the competitiveness of a nation. First, the quality of institutions has a strong impact on a nation's competitiveness because

it ensures trust in the national business environment and therefore influences investment decisions and the organization of production. A number of studies, for example Acemoglu et al. (2001, 2003), Hall and Jones (1999), and Sala-i-Martin and Subramanian (2004), have found a significant long-term relationship between the nature of institutions and prosperity, and particular aspects of institutional quality including the rule of law (La Porta et al., 1998), the presence and protection of property rights (De Soto, 2000), governance quality (Kaufmann et al., 2008), and the presence of corruption (Shleifer and Vishny, 1991). We follow the World Economic Forum's *Global Competitiveness Report* and measure the quality of institutions using the World Bank's Regulatory Quality Index. Second, extensive and efficient infrastructure is critical for an economy to function effectively and is therefore an important determinant of where to locate industrial activity. In a developed nation like Canada, extensive telecommunications network allows for rapid transmission of information, which increases the efficiency of economic actors, and we measure infrastructure with the number of internet users (per 100 people) (Chinn and Fairlie, 2006). Third, the quality of education and training is necessary for economies seeking to attract business to operate within their borders, and higher education is important in today's globalized economy where countries cultivate a well-educated labor force. Accordingly this determinant is measured as the percentage of labor force with tertiary education. Fourth, innovation is a crucial determinant of a nation's competitiveness because technological breakthroughs are a sustainable source of productivity for a country, and given that innovation requires investment in research and development (R&D), we use research and development expenditures as a percentage of GDP to capture this dimension of competitiveness. Fifth, a sound and well-functioning financial market facilitates efficient allocation of resources to their most productive use, and is therefore critical for a country's competitiveness. We measure financial market development using the volume of

stocks traded (i.e., turnover ratio) on Canada's primary financial market, the Toronto Stoch Exchange (TSX). Finally, the size of markets affects national productivity because more substantial markets allow firms to exploit economies of scale at lower costs of capital (Navaretti, et al., 2004), and we measure market size as the Log of Market capitalization of companies listed on TSX.

We first examine the determinants of mergers and acquisition (M&A) activities by estimating OLS regressions where the dependent variable is the number of M&A transactions (all transactions, cross-border transactions, and domestic transactions), and the independent variables are the aforementioned measures of national competitiveness and macroeconomic factors (including GDP and exchange rates). Since there is likely to be a delay in the acquirer's response to the changes in the competitiveness of the host country, we lag all independent variables by 12 and 24 months. The results of this analysis are presented in Table 10. Panels A and B provide the results for the 12 and 24 month lag in independent variables, respectively.

[INSERT TABLE 10]

We find evidence that aggregate M&A activity in Canada is indeed influenced by these macroeconomic variables that proxy for national competitiveness, but the effect is stronger in the 24 month lag. More specifically, we find that Canada's regulatory quality and education are significant in all three regressions in Panel B, suggesting that increases in national competitiveness increase the frequency of both cross-border and domestic acquisitions. Cross-border acquisitions are more sensitive to national competitiveness, as the aggregate cross-border mergers and acquisition are positively associated with infrastructure, innovation, financial market development, and market size, while domestic transactions are not. Consistent with expectations, the coefficient of exchange rate is negatively related to cross-border acquisition, implying that a depreciating

currency will make the assets of the host country cheap, which in turn leads to increased in-bound cross-border acquisitions. The negative coefficient of exchange rate in the domestic acquisition regression may appear surprising. However, it is reasonable to surmise that a deteriorating local currency makes it expensive for local firms to acquire firms in other countries, thus reducing the incentives for Canadian firms to undertake out-bound cross-border acquisitions. These firms may turn to the local market for M&A opportunities. Thus, a depreciating local currency would lead to an increase in domestic acquisitions. The negative coefficient of the exchange rate variable in the domestic acquisition regression is consistent with this view. The results presented in Table 10 are in line with existing evidence that the macroeconomic environment is directly related to aggregate acquisition activity.

We next examine whether cross-border mergers and acquisitions affect the host nation's competiveness. We construct a series of OLS regressions of aggregate M&A activities on the competitiveness of the host country. As it takes time for synergies to be realized and to permeate throughout the economy, we expect a delay in the impact that an acquisitions have on aggregate economy activity and national competitiveness. Therefore, the independent variables are lagged 24 months to capture the effect that M&A transactions have on the economy.[14] The results of these analyses are presented in Table 11.

[INSERT TABLE 11]

In Panel A, we see that lagged cross-border transactions are associated with increases in financial market development, increases in market size and innovation, whereas domestic transactions (in Panel B) are associated only with increases in market size. These results offer evidence that mergers and acquisitions, especially cross-border transactions, are associated with

[14] The analysis is repeated with a 12 month lag on the independent variables and the results are similar to those in Table 10.

increased competitiveness of the host nation. The evidence is in support of the hypothesis posited in the FDI literature that cross-border acquisitions promote economic growth through spillover of technological and managerial expertise and thereby promote economic growth in the host country. Altogether, these observations indicate that cross-border transactions not only have positive effects at the firm-level, but also they impact positively on national competitiveness.

6. CONCLUSIONS

We examine whether cross-border acquisitions harm or enhance competitiveness in the host country by analyzing firm-level and country-level competitive effects of inbound cross-border acquisition activity. Using mergers and acquisitions data from 1980-2010 for Canadian targets firms, we perform a series of empirical analyses designed to capture the competitive effects of cross-border takeovers. We test two competing hypotheses postulated in Otchere and Ip (2006). First, the *competitive balance hypothesis* posits that rival firms in an industry compete with each other, share similar characteristics, and sometimes work with each other; therefore, cross-border acquisitions, where the bidder may be involved in multinational operations, can alter the competitive balance in the industry as these acquisitions can intensify competition and enhance the targets' competitive position in the industry, while at the same time negatively impacting the rivals' position. Thus, by the *competitive balance hypothesis* cross-border acquisitions will have positive effects on the target firms while generating negative competitive effects on the target firm's rivals. Second, given the potential for technological diffusion and/or "a kick-in-the-arm effect", the *information hypothesis* contends that cross-border acquisitions will favorably affect the competitiveness of the rivals of the target firms.

We find strong evidence that the cross-border targets' competitiveness improves significantly following acquisition along all dimensions of firm-level competitiveness. The results

for the rivals of cross-border acquisition are however, consistent with both hypotheses. While we find that rivals of cross-border acquisitions react positively to cross-border acquisitions, as posited by the *information hypothesis*, they suffer declines in growth and market share as a result of the changing competitive landscape, as predicted by the *competitive balance hypothesis*. Furthermore, the magnitude of the competitive effects experienced by the targets of cross-border acquisitions is larger than that experienced by rivals of the targets. The positive competitive effects of cross-border acquisitions are anticipated by the market, as rivals of target in cross-border acquisitions, like the cross-border targets, earned significantly positive abnormal returns at the time of the announcement. Interestingly for both targets and rivals, the bidders' pre-acquisition competitiveness is a key determinant of the market's reaction to the acquisition. The bidders' competitiveness is associated with higher abnormal returns for the targets, but lower abnormal returns for large rival firms.

Beyond the firm-level, we present evidence that cross-border acquisitions also affect national competitiveness through increases in innovation, financial market development, and increases in market size. Overall, our results of the impact of cross-border acquisitions on local firms' competitiveness and the host country's competitiveness cast some doubt on the often negative attitude towards foreign takeovers and therefore allay fears of critics of cross-border acquisitions. The important caveat to this conclusion is the industry restructuring evidenced in this study indicates a shifting of growth and market share from rivals to targets of cross-border, which may be suggestive of increased industry concentration.

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Table 1: Summary statistics

This table contains descriptive statistics of the test sample (cross-border targets "CB" and rivals of cross-border targets "CBR") and the control sample (domestic targets "D" and rivals of domestic targets "DR"). The data are from the financial statements in the year of acquisitions (t=0). Columns 1 and 2 display the median and mean statistics for the test sample, and columns 3 and 4 display the median and mean statistics for the control sample. The last four columns, (1-2), (3-4), (1-3) and (2-4) show the test-statistics associated with the difference in median and means tests. See Appendix B for all variable definitions.The symbols ***, ** and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	CB median mean (1)	CBR median mean (2)	D median mean (3)	DR median mean (4)	z-stat t-stat (1-2)	z-stat t-stat (3-4)	z-stat t-stat (1-3)	z-stat t-stat (2-4)
Total Assets (mil$)	63,674.00	49,540.00	40,578.00	20,534.50	1.982**	1.395	1.639*	1.395
	780,974.98	522,487.38	601,427.03	344,604.68	1.645*	3.035***	0.725	3.035***
Market capitalization (mil$)	141.09	38.06	39.74	19.84	7.056***	2.882***	7.208***	2.882**
	979.69	186.74	321.56	163.67	3.501***	1.645*	2.624***	1.645*
No.Employees	1,082.50	203.50	562.50	54.75	2.835***	2.127**	1.041	2.127**
	3,444.88	1,121.85	4,136.95	1,101.93	2.799***	2.173**	-0.263	2.173**
TR/TA	0.769	0.595	0.494	0.388	1.075	1.464	0.809	1.464
	0.805	0.739	1.110	0.594	0.595	2.269**	-1.668*	2.269**
TC/TA	0.491	0.273	0.175	0.284	2.137**	-0.721	2.316**	-0.721
	0.596	0.487	0.478	0.617	1.055	-0.885	0.905	-0.885
Profit Margin	5.030	1.740	3.825	3.825	2.365**	0.585	0.570	0.585
	8.378	-2.861	-5.260	-5.260	3.055***	1.483	0.993	1.483
Revenue Growth	0.036	0.106	0.330	0.183	-1.053	1.660*	-2.288**	1.660*
	0.160	2.489	31.546	0.566	-0.700	2.906***	-0.754	2.906***
Earnings growth	0.232	0.052	0.337	0.183	1.808*	2.080**	-0.141	1.169
	3.880	0.133	38.172	0.321	2.461***	2.186**	-1.076	2.186**
ROA	-0.037	-0.041	-0.016	-0.044	0.106	0.074	-0.075	0.074
	-0.557	-0.185	-0.210	-0.654	-0.981	0.639	-1.176	0.639
ROE	4.410	-0.258	1.460	-1.853	2.597***	0.705	1.294	0.705
	6.373	-8.437	-4.455	-5.194	3.313***	0.190	1.803*	0.190
q	0.002	0.002	0.003	0.002	0.764	0.708	-1.086	0.708
	0.002	0.000	0.012	0.000	0.344	0.642	-1.278	0.642
D/E	47.340	22.763	31.820	13.445	1.309	1.161	1.189	1.161
	47.128	24.365	6.773	29.697	1.030	-0.577	1.214	-0.577
Cash /TA	0.046	0.026	0.131	0.000	0.938	6.938***	-1.362	6.938***
	0.108	0.102	0.195	0.001	0.151	1.091	-1.353	1.091
% hostile	1.92%		0.29%					
% related	33.15%		51.74%					
% all stock purchase	12.43%		30.70%					
% bidders from developed nation	78.50%							
N	362	724	342	684				

Table 2: Measures of firm and host country competitiveness

This table contains a description of the variables employed to measure this study's two key contructs – firm- and economy-level competitiveness. Host country competitiveness variables are based on measures employed in the World Economic Forum's 2014 *Global Competitiveness Report*.

Dimension of competitiveness	**Metric**	
Firm competitiveness		
(i) Profitability	Return on Assets	ROA
(ii) Growth	Tobin's *q*	*q*
(iii) Productivity	Total Revenue / Total Assets	TR/TA
(iv) Efficiency	Total Costs / Total Assets	TC/TA
(v) Market Share	Herfindahl-Hirschman Index	HHI
Host country competitiveness		
(i) Sound and fair institutional environment	Regulatory Quality Index	RegulatoryQuality
(ii) Extensive and efficient infrastructure	Internet users (per 100 people)	Infrastructure
(iii) Higher education and training	Labor force with tertiary education (% of total)	Education
(iv) Innovation	Research and development expenditure (% of GDP)	Innovation
(v) Financial market efficiency	Stocks traded, turnover ratio (%)	MarketEfficiency
(vi) Size of financial market	Log(Market capitalization of listed companies)	MarketSize

Table 3: Multinomial logistic model of pre-acquisition competitiveness

This table presents the results of a multinomial logistic regression that compares the four sub-samples (i.e., targets of cross-border acquisitions, rivals of cross-border target firms, targets of domestic acquisitions, and rivals of domestic target firms). In Panel A, targets of cross-border acquisitions (CB) are used as the benchmark sample (base outcome) to compare with targets of domestic acquisitions and rivals of cross-border targets. Panel B provides the binary logistic regression results (cross-border rivals are coded as 1 and domestic rivals are coded as 0). The dependent variable is the group code for the three samples (control firms are coded as 1, domestic target firms are coded as 2, and cross-border target firms are coded as 3). See Appendix B for all variable definitions. The symbols ***, **, and * represent significance at 1%, 5%, and 10% respectively.

		Panel A: Multinomial regression (base = Cross-border sample)				*Panel B: Binary logistic regression*	
		Domestic targets (relative to cross-border targets)		Rivals of cross-border targets (relative to cross-border targets)		Cross-border targets (1) versus Domestic targets (0), industry-adjusted data	
		β_i	z-stat	β_i	z-stat	β_i	z-stat
ROA		0.468	0.470	-0.609	-2.940***	0.001	0.090
NIM		-0.070	-4.980***	-0.082	-7.140***	0.092	5.040***
q		-0.003	-3.450***	-0.124	-9.680***	0.002	3.710***
TR/TA		-0.214	-0.490	0.866	2.680***	-0.569	-0.680
TR/EMP		-0.007	-4.530***	0.000	0.390	-0.001	-1.430
EBITDA/EMP		-0.004	-1.690*	0.005	2.370**	-0.017	-5.070***
TC/TA		0.196	0.490	-1.195	-3.530***	-0.047	-0.060
TC/Emp		0.003	1.550	0.002	1.640	0.000	0.000
HHI		-0.018	-0.370	0.348	1.700*	0.014	1.650*
D/E		0.007	1.850*	0.000	-1.570	0.004	0.830
ResourceDummy		0.314	0.430	0.001	0.540	0.159	0.210
LogTA		-2.841	-2.230**	3.595	3.330***	1.292	2.300**
$(LogTA)^2$		0.256	1.800*	-0.295	-2.760***	-0.146	-2.320**
Intercept		2.903	0.940	10.196	3.570***	0.682	0.390
Size of Samples							
CB	362		Pseudo R^2	61.28%		Pseudo R^2	77.36%
D	342		Wald χ^2	782.56		Wald χ^2	167.7
CB Rivals	724		p-value	0.000***		p-value	0.000***
D Rivals	684		N	1428		N	704

Table 4: Pre- and Post-Acquisition Difference Testing

This table contains the results of the test of difference in median (mean) measures of competitiveness of the sample (cross-border targets "CB" and rivals of cross-border targets "CBR") and the control sample (domestic targets "D" and rivals of domestic targets "DR"). Panel A presents the results of difference testing of firms in industries receiving cross-border takeover. Panel B presents the results of difference in mean and median test for firms in industries received domestic takeover. Panel C compares the mean and median change in competitiveness between targets of cross-border acquisitions and targets of domestic acquisitions and rivals of cross-border and domestic acquisitions. See Appendix B for the definition of all variables. The symbols ***, ** and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Intra-industry effects of cross-border acquisitions

	CB Pre-M&A Median Mean	CB Post-M&A Median Mean	z stat t stat	CBR Pre-M&A Median Mean	CBR Post-M&A Median Mean	z stat t stat	Intra-Industry effects	z stat t stat
	(1)	(2)	(2-1)	(3)	(4)	(4-3)	(2-1) - (4-3)	
ROA	-0.03	-0.02	0.03	-0.02	0.02	2.11**	-0.04	-1.23
	-0.13	-0.07	1.90*	-0.16	-0.10	2.37**	0.00	-0.21
q	1.14	1.33	1.09	1.31	0.84	-4.93***	0.65	4.08***
	1.28	7.14	2.43**	2.93	1.70	-4.18***	7.09	5.11***
TR/TA	0.71	0.53	-1.25	0.61	0.66	0.54	-0.24	-3.53***
	0.77	0.70	-0.77	0.81	0.85	0.65	-0.11	-2.06**
TC/TA	0.50	0.31	-2.91***	0.31	0.22	0.40	-0.10	-4.02***
	0.64	0.38	-2.55***	0.51	0.49	-0.56	-0.24	-1.78*
HHI	1.24	10.81	1.24	1.19	0.95	-2.06**	9.82	4.52***
	2.12	30.37	2.86***	2.49	2.55	0.12	28.19	1.28

Panel B: Intra-industry effects of domestic acquisitions

	D Pre-M&A Median Mean	D Post-M&A Median Mean	z stat t stat	DR Pre-M&A Median Mean	DR Post-M&A Median Mean	z stat t stat	Intra-Industry effects	z stat t stat
	(5)	(6)	(4-3)	(7)	(8)	(8-7)	(6-5) - (8-7)	
ROA	0.01	-0.09	-3.78***	-0.05	-0.06	-0.81	-0.08	-0.20
	-0.21	-0.37	-1.08	-0.45	-0.42	0.90	-0.19	-2.92***
q	21.05	0.98	-2.49**	1.35	1.02	-3.78***	-19.74	-7.81***
	31.56	2.88	-0.70	4.88	2.87	-1.65*	-26.66	-4.09***
TR/TA	0.39	0.38	0.15	0.44	0.33	-1.83*	0.11	3.42***
	0.70	0.69	-0.10	0.66	0.57	-1.51	0.08	2.15**
TC/TA	0.14	0.21	0.42	0.27	0.12	-3.80***	0.22	2.39**
	0.49	0.43	-0.56	0.48	0.35	-2.79***	0.07	0.86
HHI	0.70	0.92	3.92***	1.18	1.03	0.07	0.38	1.40
	2.83	4.34	0.30	3.96	4.76	0.76	0.71	1.77*

Panel C: Comparison of intra-industry effects of cross-border and domestic acquisitions

	CB Difference Median Mean	D Difference Median Mean	z stat t stat	CBR Difference Median Mean	DR Difference Median Mean	z stat t stat	CB vs D, Intra-industry effects	z stat t stat
	(2-1)	(4-3)	(2-1) - (4-3)	(6-5)	(8-7)	(6-5) - (8-7)	[(2-1) - (6-5)] - [(4-3) - (8-7)]	
ROA	0.00	-0.09	1.01	0.05	-0.01	1.76*	0.04	0.58
	0.06	-0.16	1.30	0.06	0.03	1.87*	0.19	0.70
q	0.19	-20.07	1.68*	-0.46	-0.33	-0.48	20.39	1.28
	5.87	-28.68	0.54	-1.23	-2.01	0.47	33.76	0.42
TR/TA	-0.18	-0.01	-0.21	0.05	-0.11	2.65***	-0.34	-0.42
	-0.07	-0.01	-1.17	0.04	-0.09	0.85	-0.19	-0.74
TC/TA	-0.19	0.07	-3.73***	-0.09	-0.15	1.06	-0.32	-0.99
	-0.26	-0.06	-2.58***	-0.02	-0.13	0.85	-0.31	-1.14
HHI	9.57	0.23	3.90***	-0.25	-0.15	-3.31***	9.44	2.61***
	28.25	1.51	2.77***	0.06	0.80	-1.04	27.48	1.86*

Table 5: Bidder competitiveness

This table contains the measures of competitiveness for the acquiring firms, and difference testing of the bidder median and mean pre-acquisition competitiveness in the year prior to the announcement of the acquisition. Variable definitions are located in Appendix B. The symbols ***, ** and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

		ROA	*q*	TR/TA	TC/TA
CB Bidder	Median	0.039	1.165	0.618	0.319
(N = 362)	Mean	0.020	1.797	0.762	0.433
D Bidder	Median	0.007	1.015	0.288	0.128
(N = 342)	Mean	0.017	1.321	0.454	0.386
(CB Bidder - D Bidder)	*z* stat	4.531***	1.559	5.605***	3.344***
	t stat	2.096**	1.871*	4.287***	0.705

Table 6: Determinants of target and rival firm post-acquisition competitiveness

This table contains the regression results of the changes in competitiveness following the acquisition for target firms (Panel A) and rival firms (Panel B). See Appendix B for variable definitions. The symbols ***, ** and * indicate significance at the 1%, 5%, and 10% level, respectively. The regressions results have been corrected for heteroskedasticity using White's consistent estimator, and post-regression RESET tests are insignificant and reject the null for the presence of omitted variables.

	Panel A: Targets					*Panel B: Rivals of targets*				
	ΔROA	Δ*q*	ΔTR/TA	ΔTC/TA	ΔHHI	ΔROA	Δ*q*	ΔTR/TA	ΔTC/TA	ΔHHI
CBDummy	7.807	-31.173	-1.741	-1.524	6.791	0.358	-7.484	2.951	-2.835	-0.568
	1.728*	-1.855*	-0.927	-1.815*	2.457**	1.645	-1.697*	3.305***	-1.361	-2.062**
LogTA	-1.501	-0.838	0.217	0.212	0.739	0.179	-2.605	-0.284	0.080	-1.710*
	-0.996	-0.316	0.375	0.326	1.894*	2.161**	-2.101**	-1.539	0.927	-0.819
$LogTA^2$	0.082	0.055	-0.029	-0.022	-0.131	-0.024	0.209	0.019	-0.013	0.130
	0.651	0.207	-0.483	-0.326	-0.513	-2.013**	1.776*	1.065	-1.529	0.513
DE	-0.016	0.012	-0.002	-0.001	-0.002	-0.006	-0.047	-0.002	0.005	-0.033
	-2.042**	1.756*	-2.535***	-1.105	-0.454	-0.612	-1.174	-0.109	0.483	-0.552
Cashratio	0.026	0.184	-0.027	-0.033	0.231	-0.004	0.000	0.002	0.001	-0.003
	0.631	0.809	-0.947	-1.046	1.776*	-1.381	-0.059	1.628	0.917	-0.582
RelativeSize	0.034	0.014	0.079	0.059	0.017	0.000	-0.001	0.000	0.000	0.000
	1.638	1.569	3.315***	2.555***	1.361	-5.535***	-8.731***	-1.825*	-3.670***	-2.062**
ResourceDummy	0.616	-0.830	0.001	-0.162	0.106	-0.056	2.018	-0.851	-0.433	0.992
	1.243	-2.259**	0.010	-1.056	0.286	-1.105	1.411	-3.167***	-2.190**	1.381
CBDummyxLogTA	1.790	-11.017	0.663	0.541	3.479	-0.315	-2.060	0.958	0.777	-0.041
	1.794*	-0.819	0.829	0.691	0.552	-0.829	-0.700	2.989***	1.026	-0.020
$CBDummyxLogTA^2$	-0.109	0.910	-0.063	-0.054	-0.369	0.048	0.187	-0.098	-0.055	0.021
	-0.858	0.750	-0.740	-0.651	-0.543	0.917	0.641	-3.137***	-0.809	0.069
CBDummyxDE	0.017	-0.013	0.001	0.000	0.009	0.019	0.002	0.033	0.024	0.018
	2.052**	-1.855*	0.898	-0.266	2.170**	1.480	0.020	1.539	1.184	0.296
CBDummyxCashratio	-0.028	-0.210	0.028	0.034	-0.206	0.005	-0.024	-0.006	0.009	-0.028
	-0.681	-0.917	0.990	1.085	-1.578	1.312	-0.888	-0.641	0.671	-0.937
CBDummyxRelativeSize	0.002	0.105	0.002	0.001	0.049	0.000	0.000	0.000	0.000	0.000
	6.176***	3.384***	1.460	0.996	8.711***	2.940***	3.611***	8.524***	3.058***	2.072**
CBDummyxResourceDummy	-0.602	0.666	-0.089	0.105	-0.289	0.143	-1.792	0.807	0.331	-2.000**
	-1.213	0.868	-0.335	0.503	-0.375	2.091**	-1.194	2.476**	1.371	-1.648
CBExperience	0.534	1.034	0.154	-0.904	0.538					
	1.247	1.632	1.478	-0.853	1.000					
SameCountryExperience	1.021	1.051	0.507	-0.646	1.051					
	1.366	1.667*	0.646	-0.920	1.200					
CashDummy	0.023	0.157	0.304	-0.236	0.491					
	1.660*	0.286	2.900***	-3.690***	1.036					
FriendlyDummy	-1.410	-0.442	0.140	-0.016	-0.772					
	-0.996	-1.263	1.184	-0.158	-1.578					
OfferPremium	0.008	-1.618	-0.067	-0.004	-1.121					
	0.109	-1.934*	-1.006	-0.099	-1.746*					
CBDummyxCBExperience	0.617	1.195	0.178	-1.045	0.622					
	2.116**	2.769***	2.508***	-1.448	1.696*					
CBDummyxSameCountryExperience	1.181	1.216	0.586	-0.747	1.215					
	2.317**	2.828***	1.096	-1.561	2.036**					
CBDummyxCashDummy	0.022	-0.863	-0.094	-0.076	-0.129					
	0.286	-1.125	-0.799	-0.927	-0.237					
CBDummyxFriendlyDummy	1.427	0.242	-0.024	0.093	0.713					
	1.006	0.395	-0.187	0.809	1.223					
CBDummyxOfferPremium	-0.023	1.184	0.129	0.036	0.802					
	-0.296	1.312	1.342	0.552	1.204					
Intercept	7.012	3.118	0.147	-0.016	-0.552	-0.200	7.014	2.218	0.651	5.471
	1.342	0.464	0.109	-0.010	-0.089	-1.470	2.003**	3.857***	1.973**	1.322
R-squared	29.60%	16.20%	18.73%	17.23%	16.24%	9.17%	12.55%	14.40%	12.33%	4.08%
F-stat	118.652	5.229	9.836	27.939	15.430	9.047	9.491	19.129	5.396	4.114
p-value	0.000***	0.000***	0.019**	0.000***	0.000***	0.000***	0.000***	0.000***	0.002***	0.052*
N	704	704	704	704	704	1408	1408	1408	1408	1408

Table 7: Acquisition announcement returns

This table presents the cumulative abnormal returns (CARs) accruing to targets and rivals of target firms in cross-border and domestic acquisitions over the period 1980–2010. Panel A shows the CARs around the event period, and Panel B shows the determinants of target and rival CAR(-5,5) and CAR(-20,20). CAR *t*-statistics in Panel A are in parentheses, and the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix B.The regressions results have been corrected for heteroskedasticity using White's consistent estimator, and post-regression RESET tests are insignificant and reject the null for the presence of omitted variables.

Panel A: Announcement returns

	Target firms				Rival firms			
	Cross-border		Domestic		Rivals of cross-border targets		Rivals of domestic targets	
	CAR_t t-stat	% positive	CAR_t t-stat	% positive	CAR_t t-stat	% positive	CAR_t t-stat	% positive
CAR(-1,1)	0.166	82.266	0.161	60.800	0.036	53.090	-0.006	40.800
	14.393***		2.905***		1.153		-0.080	
CAR(-2,2)	0.168	83.307	0.147	61.569	0.036	53.090	-0.005	40.805
	15.336***		2.771***		1.459		-0.089	
CAR(-5,5)	0.178	86.700	0.147	60.800	0.072	55.880	-0.001	41.600
	17.089***		2.658***		2.346**		-0.145	
CAR(-10,10)	0.182	82.759	0.155	64.800	0.091	59.410	-0.003	46.000
	18.030***		2.803***		2.952***		-0.395	
CAR(-20,20)	0.188	82.759	0.156	60.800	0.095	60.370	-0.007	39.600
	19.349***		2.805***		3.075***		-0.901	

Panel B: Determinants of announcement returns

	Target firms				Rival firms			
	CAR(-5,5)	t-stat	CAR(-20,20)	t-stat	CAR(-5,5)	t-stat	CAR(-20,20)	t-stat
CBDummy	20.969	3.243***	19.880	3.291***	0.039	3.706***	0.203	3.291***
RelativeSize	-0.007	-0.852	-0.030	-3.051***	-0.057	-0.484	0.006	1.492
preROA	0.135	0.848	0.177	0.932	0.002	0.820	0.006	0.774
preTRTA	0.720	1.571	0.729	1.524	-0.002	-0.888	-0.003	-0.243
preTCTA	-0.082	-0.258	-0.564	-1.003	0.006	1.490	-0.004	-2.206**
preHHI	0.009	0.765	0.008	0.783	-0.014	-1.069	-0.006	-0.323
preLogTA	-0.536	-0.680	0.422	0.457	0.084	1.728	0.217	2.513***
preLogTA2	0.042	0.408	-0.075	-0.669	0.200	4.872***	0.501	2.970***
preDE	0.020	0.257	0.042	0.440	1.456	3.162***	0.981	0.587
preCashratio	0.814	0.681	0.301	0.129	0.004	0.351	0.000	-1.018
ResourceDummy	1.795	1.044	2.752	1.071	0.022	2.665***	0.026	0.652
CBDummyxRelativeSize	0.120	6.899***	0.073	4.010***	0.001	0.841	-0.052	-11.528***
CBDummyxpreROA	2.305	2.834***	3.287	3.136***	-0.003	-0.491	-0.006	-1.030
CBDummyxpreTRTA	2.159	1.982**	2.071	1.683*	0.002	0.719	0.002	0.149
CBDummyxpreTCTA	0.077	0.237	0.501	0.894	-0.006	-0.806	0.002	0.938
CBDummyxpreHHI	-0.152	-1.216	-0.044	-0.290	0.012	0.524	-0.001	-1.225
CBDummyxpreLogTA	-4.256	-1.521	-3.424	-1.341	0.033	1.416	0.201	1.428
CBDummyxpreLogTA2	0.469	1.435	0.433	1.346	-0.098	-1.864	0.342	1.256
CBDummyxpreDE	0.103	0.148	-0.155	-0.217	2.978	1.386	10.743	1.193
CBDummyxpreCashratio	-7.337	-1.598	-5.217	-0.789	0.011	1.618	0.001	2.358***
CBDummyxResourceDummy	-2.611	-1.122	-4.389	-1.460	-0.018	-1.807	-0.079	-1.311
CBExperience	1.478	1.652*	1.189	1.304				
SameCountryCBExperience	0.835	0.842	0.835	1.263				
CashDummy	-0.088	-0.232	0.085	0.135				
FriendlyDummy	-0.228	-0.584	-0.307	-0.458				
OfferPremium	1.208	2.355**	2.318	2.509***				
CBDummyxCBExperience	1.807	1.901*	1.368	1.545				
CBDummyxSameCountryCBExperience	0.835	0.908	0.899	1.296				
CBDummyxCashDummy	2.172	3.020***	1.336	1.401				
CBDummyxFriendlyDummy	-1.140	-1.456	-0.768	-0.719				
CBDummyxOfferPremium	-0.592	-0.675	-1.507	-1.166				
Intercept	0.253	0.105	-1.102	-0.328	-0.026	-2.824***	-0.053	-1.294
R-squared	0.377		0.348		0.540		0.482	
F-stat	18.008		26.044		92.583		141.499	
p-value	0.000***		0.000***		0.000***		0.000***	
N	704		704		1408		1408	

Table 8: Comparison of rivals with positive and negative abnormal returns

This table presents the results of difference testing of characteristics of rivals of target firms that earn positive ((+) CAR) and negative ((-) CAR) abnormal returns around the acquisition announcement day. The (+5,5) CARs are used to divide the sample into positive and negative abnormal returns. See Appendix B for a definition of all variables The symbols ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

	(+) CAR	(-) CAR	
	Median	Median	*z*-stat
	Mean	Mean	*t*-stat
logTA	4.137	4.333	-7.439***
	4.492	4.610	-6.638***
Relative Rival Size to Bidder	177.923	400.935	-1.479
	161.632	1206.103	-0.926
Relative Rival Size to Target	116.547	154.731	-17.012***
	91.634	108.500	-8.731***
CurrentRatio	-0.841	-0.033	-10.006***
	-0.690	-0.050	-1.460
D/E	10.806	5.410	9.595***
	9.235	6.173	3.021***
ROA	-16.577	56.513	-8.079***
	12.176	56.458	-3.358***
q	2.604	3.268	-1.715*
	3.023	3.437	-1.713*
TR/TA	0.693	0.678	0.965
	0.679	0.767	-1.110
TC/TA	0.629	0.429	0.082
	0.653	0.497	1.710*
HHI	2.377	1.822	3.913***
	10.540	6.783	2.009**
N	689	719	

Table 9: Regressing change in competitiveness on rival ARs

This table contains the results of OLS regressions of changes in measures of competition (profitability, growth, productivity, efficiency, and market share) on cumulative abnormal returns inobservation window of (-5,5). Measures of change in competitiveness are calculated using a percentage change calculation between the average five pre-acquisition metric and the average five year post-acquisition metric. All variables are defined in Appendix B. The symbols ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively. The regressions results have been corrected for heteroskedasticity using White's consistent estimator, and post-regression RESET tests are insignificant and reject the null for the presence of omitted variables.

	ΔROA	Δq	ΔTR/TA	ΔTC/TA	ΔHHI
	t-stat	t-stat	t-stat	t-stat	t-stat
CBRdummy	0.160	1.416	0.125	-0.178	-1.659
	1.669*	3.530***	2.257**	-1.659	-2.546***
CAR[-5,5]	-0.148	-2.120	-0.056	-0.248	-5.057
	-0.395	-1.138	-0.164	-0.791	-1.003
CAR[-5,5]*CBRdummy	0.139	1.033	0.181	-0.164	-5.792
	2.267**	2.334**	2.344**	-0.318	-1.119
Relative Rival Size to Bidder	0.000	0.000	0.011	0.004	-0.031
	-2.045**	-3.405***	1.283	0.723	-1.514
Relative Rival Size to Bidder *CBRdummy	0.202	1.792	0.158	-0.225	-2.099
	2.087***	4.467***	2.856***	-2.099	-3.222***
preROA	-0.330	-2.065	0.010	-0.121	0.179
	-1.273	-2.199**	0.926	-2.103	1.524
preTR/TA	0.189	-2.251	0.605	0.585	-1.143
	1.051	-1.804*	5.112***	2.353	-1.505
preTC/TA	-0.323	2.772	0.109	-0.097	1.056
	-1.601	1.939*	0.608	-0.289	1.090
preHHI	0.000	-0.013	-0.001	-0.007	-0.634
	2.325**	-1.399	-0.666	-0.984	-4.408***
LogTA	0.028	-3.363	-0.214	0.114	-0.814
	0.222	-2.595***	-1.437	0.453	-0.579
$LogTA^2$	0.004	0.303	0.017	0.000	0.035
	0.203	2.344**	1.167	0.010	0.212
D/E	0.000	0.000	0.000	0.000	0.000
	0.164	-0.675	0.781	1.456	0.993
Cashratio	-0.003	-0.001	0.002	0.002	-0.006
	-1.370	-0.231	1.129	1.447	-0.801
Intercept	-0.313	9.318	0.695	-0.560	6.496
	-1.215	2.884***	1.794*	-0.781	2.026**
R^2	11.16%	18.65%	9.08%	9.16%	11.85%
F-stat	19.80	36.80	64.50	7.39	25.70
p-value	0.022**	0.000***	0.000***	0.000***	0.002***
N	1408	1408	1408	1408	1408

Table 10: Impact of national competitiveness on aggregate M&A

This table contains the results of a series of cross sectional regressions of aggregate mergers and acquisitions transactions on dimensions of host country competitiveness (Regulatory quality, infrastructure, education, innovation, market development, and market size) and macroeconomic control variables (interest rates, exchange rates, GDP). Measures of competition are lagged 12 months in Panel A and 24 months in Panel B. *t*-statistics are in parentheses, and the symbols ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix B. The regressions results have been corrected for heteroskedasticity using White's consistent estimator, and post-regression RESET tests are insignificant and reject the null for the presence of omitted variables.

	Panel A: Independent variables with 12 month lag			*Panel B: Independent variables with 24 month lag*		
	Log(Total #M&As per month) t-statistic	Log(# CB M&As per month) t-statistic	Log(# D M&As per month) t-statistic	Log(Total #M&As per month) t-statistic	Log(# CB M&As per month) t-statistic	Log(# D M&As per month) t-statistic
RegulatoryQuality	0.489	0.358	0.543	0.808	0.592	0.897
	1.590	1.582	1.765*	2.170**	2.160**	2.410**
Infrastructure	0.001	0.007	0.004	0.002	0.011	0.007
	0.212	1.261	0.769	0.290	1.721*	1.050
Education	0.004	0.005	0.004	0.007	0.008	0.007
	1.663*	1.428	1.443	2.270**	1.950*	1.970**
Innovation	0.077	0.911	0.235	0.127	1.505	0.388
	0.212	1.677*	0.615	0.290	2.290**	0.840
MarketEfficiency	0.002	0.005	0.001	0.004	0.008	0.002
	1.883*	2.915***	0.996	2.570***	3.980***	1.360
MarketSize	0.001	0.115	0.041	0.002	0.190	0.067
	0.007	1.223	0.264	0.010	1.670*	0.360
InterestRates	-0.130	-0.635	-0.013	-0.214	-1.049	-0.022
	-0.168	-0.527	-0.015	-0.230	-0.720	-0.020
ExchangeRates	-0.517	-0.508	-0.495	-0.854	-0.839	-0.818
	-2.644***	-1.765*	-2.322**	-3.610***	-2.410**	-3.170***
Log(GDP)	0.373	0.044	0.595	0.616	0.072	0.983
	0.608	0.051	0.872	0.830	0.070	1.190
Intercept	-1.468	2.573	-3.523	-2.424	4.249	-5.819
	-0.359	0.447	-0.806	-0.490	0.610	-1.100
R^2	16.30%	14.75%	14.47%	47.85%	43.30%	42.48%
F-stat	4.937	4.023	4.220	14.810	12.070	12.660
p-value	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Table 11: The impact of M&A transactions on the competitiveness of the host country

This table contains the results of a series of cross sectional OLS regressions aggregate mergers and acquisition activities on measures of host country competition. Economic and national competitiveness measures are lagged 24 months. Panel A and B present the regression results for the cross-border transactions and domestic transactions, respectively. See Appendix B for variables definitions. The symbols ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively. The regressions results have been corrected for heteroskedasticity using White's consistent estimator, and post-regression RESET tests are insignificant and reject the null for the presence of omitted variables.

	Infrastructure	Education	Innovation	MarketEfficiency	RegQuality	MarketSize
	β_i	β_i	β_i	β_i	β_i	β_i
	t-stat	*t*-stat	*t*-stat	*t*-stat	*t*-stat	*t*-stat
Panel A: Cross-border transactions						
Log(# transactions per month)	0.099	0.112	0.021	7.328	0.005	0.042
	1.09	0.40	1.78*	2.11**	0.220	1.73*
Infrastructure$_{-2}$	1.124	0.057	0.020	0.975	0.001	0.006
	8.15***	1.77*	9.43***	1.82*	0.470	1.58
Education$_{-2}$	1.136	0.005	0.011	1.790	0.001	0.004
	27.39***	0.47	8.68***	7.88***	1.470	2.28**
Innovation$_{-2}$	78.015	4.509	1.046	37.029	0.047	1.162
	7.64***	1.80*	5.84***	0.78	0.270	3.58***
MarketEfficiency$_{-2}$	0.231	0.013	0.006	0.522	0.000	0.003
	7.03***	1.37	7.57***	2.99***	0.240	2.24**
RegulatoryQuality$_{-2}$	26.227	5.622	0.503	31.473	0.260	0.302
	2.85***	2.57***	3.47***	0.79	1.900*	1.18
MarketSize $_{-2}$	5.172	1.726	0.095	17.352	0.102	0.056
	1.21	1.69*	1.05	1.02	1.150	0.39
Log(GDP)$_{-2}$	3.020	8.645	2.113	6.866	0.890	1.309
	3.31***	8.54***	8.53***	9.72***	3.220***	3.48***
InterestRates$_{-2}$	8.090	12.355	0.425	14.217	1.016	0.915
	3.40***	2.32**	0.82	1.72*	2.120**	1.49
ExRate$_{-2}$	10.645	1.940	0.027	22.195	0.163	0.060
	2.50***	1.52	0.27	1.09	1.590	0.42
Intercept	50.275	24.588	16.715	68.180	3.390	1.397
	0.47	5.30***	11.21***	7.06***	1.870**	0.51
R-squared	0.9878	0.9842	0.9001	0.8783	0.5311	0.8483
F-stat	1939.77	1423.02	213.01	127.74	46.32	149.63
p-value	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
N	276	276	276	276	276	276
Panel B: Domestic transactions						
Log(# transactions per month)	0.608	0.051	0.002	6.290	0.009	0.079
	1.41	0.13	0.05	0.69	0.28	1.69*
Infrastructure$_{-2}$	1.127	0.056	0.020	1.092	0.001	0.006
	8.22***	1.72*	9.45***	1.90*	0.41	1.53
Education $_{-2}$	1.137	0.006	0.011	1.715	0.001	0.003
	28.58***	0.58	9.03***	7.65***	1.44	1.94*
Innovation$_{-2}$	78.040	4.476	1.070	7.820	0.042	1.103
	7.61***	1.74*	5.71***	0.53	0.23	3.59***
MarketEfficiency$_{-2}$	0.228	0.013	0.006	0.542	0.000	0.003
	6.72***	1.37	7.13***	2.81***	0.31	2.02**
RegulatoryQuality$_{-2}$	26.301	5.600	0.510	29.226	0.263	0.312
	2.85***	2.54***	3.45***	0.71	1.88*	1.26
MarketSize$_{-2}$	4.774	1.783	0.102	16.412	0.095	0.087
	1.10	1.79*	1.16	1.04	1.01	0.60
Log(GDP)$_{-2}$	1.896	9.067	2.184	5.047	0.859	1.358
	3.37***	8.94***	9.69***	10.58***	3.31***	4.17***
InterestRates$_{-2}$	7.771	12.876	0.325	17.682	0.992	0.695
	3.58***	2.61***	0.66	1.44	2.19**	1.17
ExRate$_{-2}$	10.572	1.946	0.032	23.401	0.161	0.056
	2.48**	1.52	0.32	1.12	1.56	0.39
Intercept	43.905	26.890	17.161	86.577	3.209	1.776
	0.42	5.51***	12.52***	7.32***	1.82*	0.73
R-squared	0.9878	0.9842	0.8994	0.877	0.5312	0.8501
F-stat	1967.29	1416.6	212.17	149.29	47.41	144.4
p-value	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
N	276	276	276	276	276	276

Appendix A: Figure 1

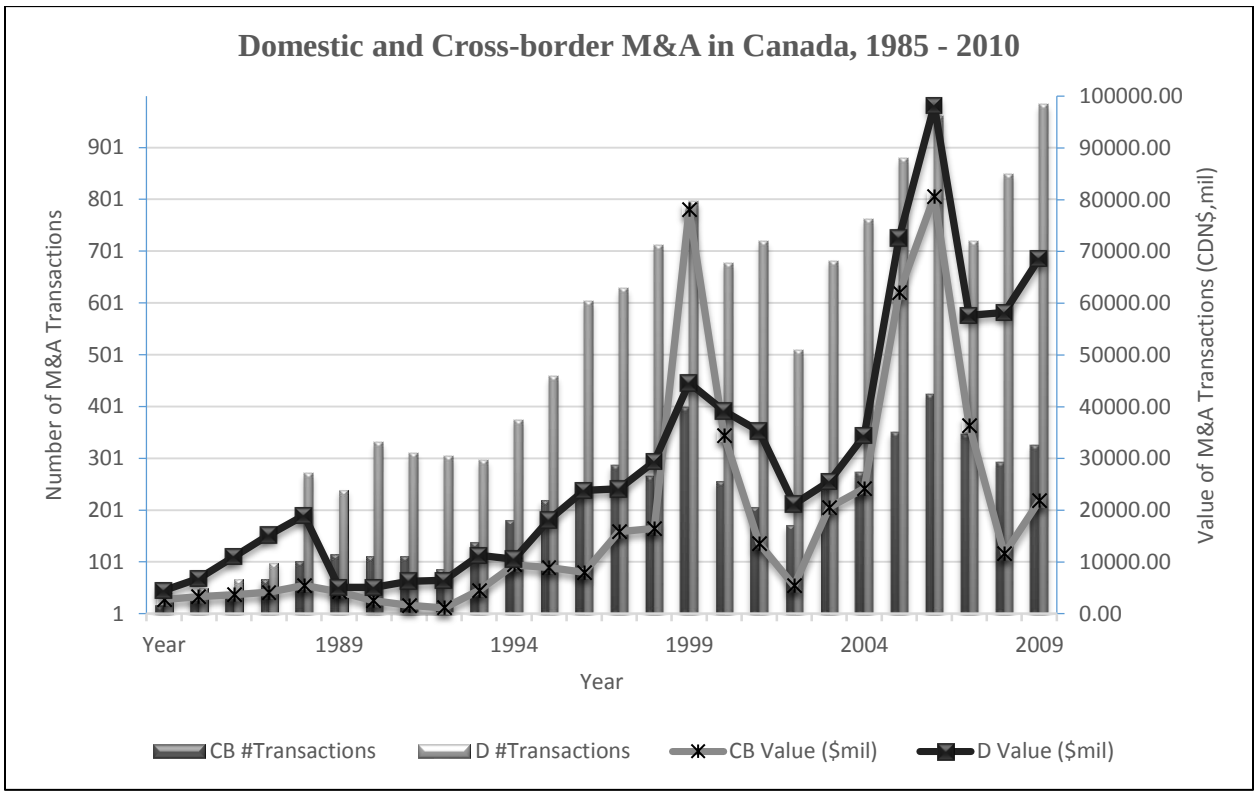

Figure 1: Number and value of M&A transactions in Canada, 1985-2010

Appendix B: Variable descriptions

Variable ID	Description
Cash/TA	Cash holdings / Total assets
CashDummy	Dummy variable that takes on a value of 1 if the deal was 100% cash financed
Cashratio	Cash holdings / Current liabilities
CBDummy	Dummy variable that takes on a value of 1 if the target or rival firm is associated with a cross-border acquisition
CBExperience	Dummy variable that takes on a value of 1 the bidder has completed a previous cross-border acquisition
CurrentRatio	Current ratio (Current assets/Current liabilities)
D/E	Long-term debt to common equity
Education	Labor force with tertiary education (% of total)
FriendlyDummy	Dummy variable that takes on a value of 1 if the deal was friendly in nature
HHI	Herfindahl-Hirschman Index
Infrastructure	Internet users (per 100 people)
Innovation	Research and development expenditure (% of GDP)
Market cap	Market capitalization (mil$)
MarketEfficiency	Stocks traded, turnover ratio (%)
MarketSize	Log(Market capitalization of listed companies)
NIM	Net income margin
No.Employees	Number of employees (thousands)
OfferPremium	The acquisition premium, calculated on the target's stock price 4 weeks prior to announcement
q	Tobin's *q*
RegulatoryQuality	World Bank Regulatory Quality Index
Relative Rival Size to Bidder	Total assets of bidder / Total assets of rival
ResourceDummy	Dummy variable that takes on a value of 1 if the target or rival firm operates in the resource sector
ROA	Return on assets
ROE	Return on equity
SameCountryExperience	Dummy variable that takes on a value of 1 the bidder has completed a previous acquisition in the same local country as the test acquisition under study
TA	Total assets (mil$)
TC/TA	Total costs / Total assets
TR/EMP	Total revenue / Number of employees
TR/TA	Total revenue / Total assets