The role of earnout financing on the valuation effects of global diversification

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Abstract

This paper examines the impact of earnout financing on the value of acquiring firms engaged in Cross-Border Acquisitions (CBAs), using a dataset of UK, US, Canadian and Australian firms from 1992 to 2012. The results show that firms initiating international business operations via earnout-financed CBAs enhance their value more than acquirers in (a) domestic acquisitions and (b) remaining CBAs by established Multinational Corporations (MNCs). Our findings demonstrate the superiority of earnout financing in CBAs announced by acquirers that have no prior international business experience. The results are robust to the firms' endogenous choice to diversify globally and to the use of earnout financing. We contend that earnouts contribute to the reduction of valuation risk faced by firms acquiring a foreign target firm for the first time. Our empirical findings contribute to the existing debate on the merit of international expansion through CBAs and the role of earnout contingent payment.

Keywords: cross-border acquisitions (CBAs); First-Time CBAs (FTCBAs); Multinational Corporations (MNCs) and Enterprises (MNEs); contingent earnouts; event study.

JEL Classifications: G34, F23, F21, G15.

INTRODUCTION

While international expansion through Cross-Border Acquisitions (CBAs) may provide companies with valuable benefits of international diversification and access to new markets, such transactions also expose acquirers to significant merger-valuation risks. In this paper, we explore the extent to which the use of contingent payment in the form of earnout financing may help alleviate these risks, leading to higher acquiring-firm value. Earnouts constitute a contingent payment device whereby payment is made to the seller of the acquired firm in at least two stages: an up-front payment, and one or more future (deferred) payment(s) conditional upon the acquired firm achieving pre-agreed performance goals within a pre-determined time period.

The international operations of firms originating in developed economies have increased rapidly in recent decades, with CBAs serving as the dominant mode. CBAs as a proportion of Mergers and Acquisitions (M&As) activity have risen from below 15% of total M&A volume in 1992 to over 32% in 2012, and in 2007 the value of CBAs worldwide reached $1,197bn, compared to only $39bn in 1987 (UNCTAD, 2009). Reflecting the importance of CBAs in shaping modern Multinational Corporations (MNCs) and Enterprises (MNEs), a substantial literature has emerged investigating whether CBAs affect the value of the acquiring firm.[1] However, despite the popularity of such deals, the vast majority of studies show that acquirers engaged in CBAs create lower value relative to their domestic counterparts.[2]

The wealth effects of CBAs are, however, likely to vary according to the prior international business experience or extent of global diversification of the acquiring firm (Errunza & Senbet, 1981; Errunza & Senbet, 1984; Shimizu et al., 2004; Gande et al., 2009). Along these lines, the seminal contribution of Doukas & Travlos (1988) reveals that firms initiating their international business operations by entering a foreign country for the first time in their business history via a CBA (First-Time CBAs, or FTCBAs), or enlarging their existing international business activities via CBAs (Not-First-Time CBAs, or NFTCBAs) in a new country, regardless of their existing transnational presence, increase firm value. The authors attribute this to the enhancement of a firm's multinational network, which augments its global diversification, enhances its cost savings from joint production in marketing and manufacturing, and perhaps offers more favourable tax schemes and growth opportunities which are unique to those new countries. Given their lack of international business experience in evaluating and acquiring targets beyond their national borders, FTCBAs are, however, exposed to higher merger valuation challenges than remaining CBAs by established MNCs. (Doukas & Travlos, 1988). Aybar & Ficici (2009) further argue that FTCBAs lack local knowledge to even identify investment opportunities in the host country.

More recently, studies show that the acquiring firm's exposure to merger-valuation risk, primarily originating from information asymmetry, can be effectively mitigated, if not solved, via earnout financing. This financing mechanism, relative to single up-front payments in cash or stock, should more effectively help merging firms in integration-challenging CBAs to secure higher

synergies as: (a) it addresses adverse selection during the merger negotiation period, and (b) it enhances managerial commitment in the post-acquisition or integration period (Kohers & Ang, 2000). The designated properties of earnouts seem to be more suitable in CBAs, perhaps even more so in FTCBAs, than in domestic M&As, given the larger degree of valuation uncertainties embedded in the former groups. There is, however, limited evidence regarding the valuation effects of earnout financing for international investment in general, and in particular for FTCBAs and NFTCBAs separately.[3] It therefore remains an open question as to whether the benefits of initiating or expanding existing international business operations are shaped by the deal payment being contingent upon the target's future performance through earnout financing. This paper fills this gap.

The analysis is based on 31,848 domestic and foreign target M&A announcements between 1992 and 2012 (inclusive) by acquirers from four countries with extensive use of earnout financing: the UK, the US, Canada and Australia. We employ standard event-study methodology to measure the impact of each announcement on firm value. Methodological issues pertinent to self-selection bias concerns regarding the firm's endogenous decision to diversify internationally (or not) and the decision to use earnout financing (or not) are addressed using the Heckman two-stage procedure and the Propensity Score Matching (PSM) technique augmented with the Rosenbaum-bounds sensitivity method.

Our findings strongly indicate that earnout-financed CBAs have a significant positive impact on firm value only when the acquirers have no previous international business experience. FTCBAs financed with earnouts create more value than domestic deals financed either with earnouts or single up-front payments in cash or stock. Within the CBA context alone, FTCBAs using earnouts enhance firm value more than (a) FTCBAs financed with cash, (b) existing MNCs acquiring into new markets (NFTCBA_NEW), irrespective of the choice of the single up-front payment, and (c) existing MNCs acquiring in markets where they already have foreign operations (NFTCBA_SAME), again irrespective of the choice of the single up-front payment. Our findings from the univariate analysis, and the multivariate analysis on a cross-sectional sample of firms derived after controlling for potential self-selection bias concerns, offer evidence of the superiority of earnout in CBAs announced by acquirers without any prior international business experience. We find that the benefits to FTCBAs of using earnout financing are higher in four circumstances: (i) where the target firm is unlisted, (ii) where the cultural or geographical distance between the acquiring and the target firm's domicile is large, (iii) when acquiring in countries where the regulatory quality is high, or (iv) when expanding internationally into emerging markets – arguably the category of CBAs with the highest level of inherent risks.[4] Having controlled for the earnout effect this extends earlier studies, such as Chari et al. (2010), that suggest that acquirers based in developed markets enhance value through CBAs only when they acquire targets in emerging markets.

We also examine the impact of other factors likely to influence firm value in the multivariate analysis. Our results are also robust to acquirer-country fixed effects, target-industry fixed effects and year fixed effects. Likewise, they are robust to the firm's endogenous choice to diversify

internationally (CBAs in general, FTCBAs, NFTCBAs and sub-groups) and to employ earnout.

We make several contributions to the literature. First, we add to evidence suggesting that the costs and benefits of international business expansion are not uniform across all CBAs. We find that they depend not only on the extent of the acquiring firm's level of global diversification, but also on whether earnout financing is used. Second, while prior earnout studies have focused on acquisitions by either US or UK acquirers, this is the first paper to analyse the role of earnout in Australia or Canada. Third, our analysis builds on the findings of Reuer et al. (2004) that suggest that firms lacking international M&A experience turn to contingent pay-outs, particularly when purchasing targets in intangible-rich sectors.

Finally, we add to the understanding of the determinants of firm value in the context of domestic vs. foreign target M&As, and in particular the role of earnout. Moeller & Schlingemann (2005) illustrate that deals leading to an increase in global diversification are associated with lower firm value relative to their domestic counterparts. Denis et al. (2002) find a significant discount for globally diversified firms, which are (often) associated with agency problems and free-cash-flow considerations (Jensen, 1986). Mantecon (2009) shows that the use of earnouts benefits predominately domestic acquirers rather than those that acquire foreign targets. In this paper, we show that these results are specific to earnout-financed NFTCBAs in a new foreign market (NFTCBA_NEW), or in a country where they already have prior operations (NFTCBA_SAME), where earnouts contribute less to the acquiring firm's value. This is due to two possible factors: (a) the earnout's limited impact in reducing merger-valuation risk when the acquirer has prior foreign target acquisition experience, an argument that is stronger in NFTCBA_SAME given the acquirers' local market knowledge, and (b) the limited enhancement of global diversification, as the acquiring firm is exposed to no further (the case of NFTCBA_SAME) or limited (the case of NFTCBA_NEW) global diversification. However, in the case of FTCBAs, where neither (a) nor (b) holds, the impact of earnout is much stronger. There appears to be no prior literature on whether the role of earnout in CBAs varies with the extent of the acquirer's global diversification.

Overall, our results show that firms, particularly when acquiring abroad for the first time, tend to benefit significantly from using the earnout payment mechanism. Thus, they have important practical implications for managers of companies contemplating expanding internationally.

The paper proceeds as follows. The next section reviews the salient literature and presents the theoretical considerations of international expansion, earnout financing and firm value. The subsequent sections set out the testable hypotheses, outline the methods used to conduct the empirical analysis, provide a description of the data employed, and discuss our main findings. The final section concludes.

INTERNATIONAL EXPANSION, EARNOUT FINANCING AND FIRM VALUE: THEORETICAL CONSIDERATIONS

The main argument in this paper builds on simple theoretical predictions. International business initiations that are announced by firms without any prior international experience (i.e., FTCBAs), or those announced by established MNCs not operating in the target firm's domicile (i.e., NFTCBA_NEW), expose the acquiring firm to significant target-valuation risk (Doukas & Travlos, 1988). This risk is often associated with asymmetric information between the merging firms, which takes two main forms: first, one or both merging firms may hold private knowledge on their valuation which is not ex-ante transparent to the other – a case of *adverse selection* or hidden knowledge; second, one or both merging firms can take an action ex-post that may harm the other – a case of *moral hazard* or hidden action. Accordingly, information asymmetry, concerning predominantly the financial position and performance of the target firm, gives rise to the adverse selection problem, whereas future uncertainty about the commitment of the target firm's management to delivering the expected merger payoffs gives rise to the moral hazard problem.[5] While all acquirers are likely to face these risks, firms that initiate transnational business operations are both more exposed, and also potentially more sensitive, to them.

Studies have shown that the adverse selection risk in M&As can be reduced by the judicious choice of payment method (Hansen, 1987; Eckbo et al., 1990; Huang et al., 2016). For the acquirer engaged in a cash-financed deal, and for both the acquirer and target engaged in a stock-exchange deal, information asymmetry creates valuation uncertainty, and leads them to demand a discount to the apparent value of the acquiring or the target firm (Travlos, 1987; Eckbo et al., 1990). Firm value is therefore expected to be significantly higher in cash-financed than in stock-financed deals, for both the acquirer and the target (Chang, 1998; Fuller et al., 2002; Faccio et al., 2006). In theory, a cash offer is made by acquirers who attach a high value to the target firm under their control, and by so doing signal their confidence that the target will be of high value during the post-merger period (Fishman, 1989). Less confident acquirers, however, prefer stock financing.

Neither cash nor stock single up-front payment can factor the post-acquisition performance of the target into the deal value,[6] while the earnout payment mechanism does.[7] Extant evidence suggests that the demand for earnout financing is the outcome of significant disagreements between the merging firms over the payoff of the merger. As a result, we predict that the impact of earnout in merger outcomes to vary considerably across M&As given this demand, which is likely to be shaped by the acquirer's experience in undertaking CBAs (Reuer et al., 2004) or with the acquirer's existing level of global diversification. Rationality would suggest that smaller and younger acquiring firms, those involved in industry-diversifying deals, those that merge with targets operating in highly intangible-rich sectors, those that enjoy extreme growth potential, and perhaps those that are expanding into emerging markets, are more likely to welcome the earnout financing (Kohers & Ang, 2000; Cain et al., 2011). These characteristics are common among CBAs announced by firms acquiring a foreign target

for the first time in their business history. Thus, whether earnouts in FTCBAs affect firm value, or, perhaps more precisely, whether they enhance firm value more than in cases in which single up-front payments in cash or stock are employed, remains an important issue to address.

In an earnout-financed deal, payment is made in at least two stages: an up-front payment to the target firm of a large fraction of the deal value at the time of the deal announcement, and a relatively smaller payment (i.e., the earnout payment), the settlement of which is contingent upon the post-merger performance of the target firm. Therefore, earnouts should mitigate the moral hazard problem by incentivising the target firm's management to commit to successfully running the target firm in the post-acquisition period. The first-stage payment can be in the form of cash, stock or a mixture of these and other securities. The second- or subsequent-stage payment(s) (as noted by Faccio & Masulis (2005) and Barbopoulos et al. (2017), often made in cash) is made over the earnout period and upon the target reaching pre-agreed milestones. The contingent form of consideration seeks to avoid both the adverse selection problem (i.e., ex-ante overvaluation of the target firm due to the target firm's managers hiding 'bad' information regarding the 'intrinsic' value of the firm), and the ex-post moral hazard problem (i.e., contract failure due to a party shirking or inability to enforce contract compliance and performance delivery), thus contributing to the reduction in merger-valuation risk.[8]

Evidence relating to the impact of earnout on the acquiring firm's value is limited. The seminal paper of Kohers & Ang (2000) shows that earnout-financed deals yield positive short and long run value gains for acquiring firms. These gains are superior to those realised in deals financed with single up-front payments in cash or stock. Datar et al. (2001) show that foreign-target acquirers use earnout less frequently than domestic-target ones. They argue that the managers of foreign targets appear to be unwilling to accept deferred payments, owing to possible future conflicts arising from the discrepancies in calculations of the payment amount and performance goals, and differences in accounting practices and other corporate governance mechanisms. Mantecon (2009) shows that the use of earnouts benefits predominately domestic rather than foreign target acquirers. Cain et al. (2011) examine the determinants of earnout use in deals involving US firms, and show that the size and length of the earnout contract are greater when the uncertainty surrounding the value of the target is higher. Barbopoulos & Sudarsanam (2012) show that UK acquirers using earnouts enjoy higher short and long run value gains compared to single up-front payments. Cadman et al. (2014) document variations in initial earnout fair-value estimates and earnout fair-value adjustments that correspond with motivations to resolve moral hazard and adverse selection problems, bridge valuation gaps and retain target-firm managers. Earnouts often stipulate the retention of the target firm's managers during the post-acquisition period, and Cadman et al. (2014) provide evidence that target managers stay longer with the firm after the acquisition when earnouts are included primarily to retain them. As such, the retention of valuable human capital can reduce problems associated with integrating the merged entities in the post-acquisition period. This is perhaps more relevant in FTCBAs in which the acquirer has no experience in acquiring a foreign target firm. Lastly, Barbopoulos et al. (2017) show that the

gains of US acquirers in earnout-financed M&As are sensitive to the method of payment (i.e., cash, stock, combo, or mixed) employed in the initial and deferred payment stages.

Overall, CBAs announced by FTCBAs are exposed to significantly higher merger-valuation-risk than existing MNCs. This is somewhat compared to those with some prior local market knowledge (NFTCBA_SAME), and arguably closer to those with prior CBA experience entering new markets (NFTCBA_NEW). While earnouts may not be suitable in all circumstances (such as when the target's standalone performance cannot be measured or when there is influence by the acquirer on that performance such as when there is significant structural integration between the merging firms), earnout financing seems to offer a well-calibrated solution for FTCBAs by reducing valuation risks through the elimination of both adverse selection and moral hazard issues.

HYPOTHESES DEVELOPMENT

In addition to analysing the impact of earnout financing on acquirer value and how it varies according to the acquiring firm's degree of global diversification, we examine several specific factors that prior international business literature suggests are likely to influence the acquiring firm's value in CBAs (for reviews, see Gande et al., 2009; Aybar and Ficici, 2009). These are grouped in two main classes: 'Deal- and Firm-Specific Factors', and 'Target-Country-Specific Factors'.

Deal- and Firm-Specific Factors and Firm Value

The *earnout-financed first-time CBA* hypothesis follows from our discussion presented in the Theoretical Considerations section. FTCBAs lack the necessary international business experience and knowledge that is specific to the host country, resulting in adverse selection and moral hazard problems. These problems are likely to be aggravated if there are legal and regulatory differences, lack of comparable accounting information about the target firm, language, cultural or organisational differences in the merging firms' countries, or lack of (or unfamiliarity with) infrastructure to carry out extensive due diligence, which are perhaps exacerbated when the distance between the merging firms' countries is large. Additionally, FTCBAs are often small or young firms that are likely to merge with targets operating in highly intangible-rich sectors, and thus are likely to be more sensitive to merger-valuation errors than NFTCBAs. Nevertheless, FTCBAs are likely to enjoy significant value gains from the enhancement of the acquiring firm's global diversification, higher cost savings from joint production in marketing and manufacturing, and perhaps more favourable tax schemes and growth opportunities. Markides & Ittner (1994) and Doukas (1995) argue that these benefits are greater when the firm expands into a less developed country.

As noted in the Theoretical Considerations section, earnout financing can contribute to the reduction of the FTCBA's exposure to the abovementioned valuation risks. This is due to the increase of information sharing between the merging firms and the higher likelihood of retaining the target firm's management team in the post-acquisition period. Being familiar with the business environment

of the target firm's country and committed to maximising performance to ultimately receive the deferred payment, the target management team is incentivised to boost the merger payoff. Hence, we develop the following hypotheses:

> **Hypothesis 1a:** Earnout-financed cross-border acquisitions (CBAs) announced by first-time CBAs (FTCBAs) outperform domestic M&As financed with either earnout or single up-front payments.
>
> **Hypothesis 1b:** Earnout-financed FTCBAs outperform other CBAs (i.e., not-first-time CBAs or NFTCBAs) whether entering new markets (NFTCBA_NEW) or acquiring in a foreign market where they have previously acquired a target (NFTCBA_SAME) financed with either earnout or single up-front payments.

The *type of target firm's ownership structure* (i.e., unlisted vs. listed) has received significant attention in previous studies regarding its impact on the acquiring firm's value. Chang (1998) and Fuller et al. (2002), among others, show that private (public) target M&As enhance (diminish) the acquiring firm's value, yet this is highly sensitive to the deal's payment method. Moeller & Schlingemann (2005) further confirm these findings in CBAs. These studies contend that due to (a) the limited access to external financing of private firms, and (b) the low competition for private firms (due to the limited information availability for private firms), M&As of private target firms result in lower takeover premiums and higher acquirer abnormal returns. Similarly, the simplicity of the ownership structure of a private firm decreases the takeover premium due to the need to satisfy the interests of only a focused group of stakeholders in the target firm (Choi & Russell, 2004; Aybar & Ficici, 2009).

On the other hand, the takeover premiums associated with unlisted target FTCBAs should be higher to reflect the higher merger-valuation risk. Such higher takeover premiums are therefore likely to decrease the acquiring firm's value unless the merger-valuation risk is effectively controlled and the post-acquisition benefits are securely enhanced. As stated in the Theoretical Considerations section, earnout financing could offer a well-calibrated solution via the effective control of such risks, which leads to a reduction in the takeover premiums associated with FTCBAs (as a result of the lower discount to the apparent value of the firm) and hence, enhance firm value. The use of earnout financing is therefore expected to enhance value creation in unlisted target FTCBAs. Hence, we develop the following hypothesis:

> **Hypothesis 2:** Unlisted target earnout-financed FTCBAs outperform other CBA counterparts (i.e., NFTCBA_NEW and NFTCBA_SAME) financed with either earnout or single up-front payments.

Target-Country-Specific Factors and Firm Value

We consider two factors that are likely to affect the acquiring firm's value in FTCBAs: (i) the cultural and geographical distance between home and host countries and, (ii) the legal environment in the host country.

The *cultural and geographical distance* between home and host countries in CBAs can add to the valuation challenges for the acquiring firm and increase the post-acquisition integration costs (Ambros & Håkanson, 2014). Although there is a debate around the role of cultural difference in investment decisions (Tihanyi et al., 2005), the main dimension in the debate remains on whether the cultural distance affects the performance of MNCs and hence firm value (Shenkar, 2001; Barbopoulos et al., 2014). High cultural distance can inflate the initial cost of entry into the host country and the post-investment integration costs, and perhaps lead to significant intra-organizational conflicts and poor implementation of business plans (Tihanyi et al., 2005). Thus, the cultural distance between the merging firms' countries is a potential liability to the firm's value (Zaheer, 1995). We use Hofstede's cultural dimensions (power distance, masculinity, uncertainty avoidance and individualism) and the method proposed by Kogut and Singh (1988) to calculate the cultural distance between the merging firms' countries.

We hypothesise that both the valuation challenges and the post-acquisition integration costs faced by FTCBAs should be positively correlated with the cultural and geographic difference between the merging firms' countries. As stated in the Theoretical Considerations section, the greater the merger-valuation challenges, the more earnout financing should enhance value creation in CBAs. Therefore, earnout financing in general, and in FTCBAs in particular, should have an increasingly positive impact on the value creation the larger the cultural and geographical distances between the merging firms' countries are. In light of this discussion, we set out the following hypothesis:

> **Hypothesis 3a:** Earnout-financed FTCBAs outperform their counterparts financed with single up-front payments when the cultural distance between merging firms' countries is higher.
>
> **Hypothesis 3b:** Earnout-financed FTCBAs outperform their counterparts financed with single up-front payments when the geographical distance between merging firms' countries is larger.

The *legal system* of the target firm's country is expected to play a fundamental role in the success of earnout-financed FTCBA deals, as their effectiveness largely depends on legal and regulatory impediments and the enforceability of contracts. Barbopoulos et al. (2017) find evidence consistent with this argument, contending that the ability of earnouts to reduce adverse selection and moral hazard problems depends on the legal system in the target firm's domicile and its effectiveness. Kohers & Ang (2000), Datar et al. (2001) and Barbopoulos & Sudarsanam (2012) offer similar conclusions. Along these lines, recent international business literature highlights the impact of the

legal system in the merging firms' countries on firm value. Ellis et al. (2017), for example, show that the acquirer value increases with the governance distance between the acquirer and the target, which is measured via, among others, the rule of law and the regulatory quality. Lastly, Renneboog et al. (2017) show that country-level differences in legal (creditor) protection affect firm value in CBAs. We therefore expect the impact on firm value of earnout financing in FTCBAs to vary with the strength of the legal system in the target country. We measure the strength of the legal system and legal enforcement of contracts using the indices of La Porta et al. (1997), the Fraser Institute, and Kaufmann et al. (2010). Hence, we set out the following final hypothesis:

> **Hypothesis 4:** Earnout-financed FTCBAs outperform their remaining CBA counterparts financed with either earnout or single up-front payments when the legal system of the target firm's country of residence is relatively strong.

METHODS

Measurement of Abnormal Returns

In this paper, firm value is proxied by the acquirer abnormal returns. The commonly used methods to estimate abnormal returns in response to a corporate takeover announced by an acquiring firm i require a long time-series, or a window of returns of the acquiring firm i that needs to be free of the effect of other firm-specific events announced from the same firm i within the estimation period. However, our sample is composed of many deals, some of which are announced by frequent acquirers within short periods. Therefore, standard asset-pricing methods may not be appropriate. In line with numerous previous studies addressing similar concerns (e.g., Fuller et al., 2002; Barbopoulos & Sudarsanam, 2012; Danbolt & Maciver, 2012), in our main analysis the short run abnormal returns for an acquiring firm i in response to a merger announcement are estimated using the market-adjusted model (MAM), as shown in Equation (1):

$$AR_{it} = R_{it} - R_{mt} \tag{1}$$

where AR_{it}, is the abnormal return to acquirer i on day t, R_{it} is the log stock return of acquirer i on day t, and R_{mt} is the value-weighted market log return index (of the acquiring firm's country) on day t.[9] The announcement period Cumulative Abnormal Returns (CAR) for acquirer i is the sum of the abnormal returns over a five-day window ($t-2$ to $t+2$) surrounding the deal's announcement day, $t = 0$, as shown in Equation (2):

$$CAR_i = \sum_{t-2}^{t+2} AR_{it} \tag{2}$$

Univariate and Multivariate Analysis

First, the announcement period CARs are analysed according to type of M&A (i.e., domestic, CBA,

FTCBA, NFTCBA_NEW and NFTCBA_SAME) and the use or not of earnout financing. To assess the comparative performance of different groups of acquirers, the difference in mean CAR is tested.

We then examine the above interactions, along with several other control variables, in a multivariate framework. The following equation (3) is estimated:

$$CAR_i = \alpha + \sum_{j=1}^{k} \beta_j X_{ij} + \varepsilon_i \qquad i = 1 \dots N \tag{3}$$

where the intercept α denotes the acquiring firm's value after accounting for the effects of all the explanatory variables entering the information set X_{ij}. The dependent variable, CAR_i, is the five-day announcement period acquirer CAR_i (Equation (2)). The matrix of explanatory variables, X_{ij}, includes several factors known to affect the acquiring firm's value; the impact of each is gathered in the vector β_j. These variables are presented below in two main categories: the deal- and firm-specific factors and the country-specific ones.

Variables

Previous research shows that the acquiring firm's value is sensitive to the choice of payment mechanism (Kohers & Ang, 2000; Barbopoulos et al., 2017). Therefore, to account for the implications of the payment mechanism on acquirer value, a dummy variable is included in equation (3), which is assigned the value of 1 if earnout financing is included in the deal (=Earnout), and 0 otherwise (=single up-front payment in cash, stock or a mixture of cash and stock). To account for the impact of foreign acquisitions on acquirer value, we include in equation (3) a dummy variable assigned the value of 1 if the target is foreign (=CBA), and 0 otherwise (=Domestic). We also aim to account for the impact of the extent of acquirer global diversification (Errunza & Senbet, 1981; Gange et al., 2009), and hence to test whether the firm value and role of contingent payment in the form of earnout financing varies with the acquirer's prior local knowledge of the foreign target market. Thus, dummy variables are included that are assigned the value of 1 if the acquiring firm acquires a target abroad for the first time (=FTCBA), if the acquiring firm already has foreign operations and enters a new market (=NFTCBA_NEW), or if the acquiring firm already has operations in a foreign market and announces a subsequent deal in the same market (=NFTCBA_SAME), and 0 otherwise, respectively. When classifying deals as FTCBAs, we ensure that the acquiring firm has not engaged in any prior international acquisition of assets, such as divestitures or minority stakes.

Lastly, the international business and finance literature provides ample evidence on the influence of the target firm's listing status (i.e., unlisted vs. listed) on the acquiring firm's value (Chang, 1998; Fuller et al., 2002; Faccio et al., 2006). A dummy variable assigned the value of 1 if the target is an unlisted firm (=Unlisted Target), and 0 otherwise (=Listed Target) is therefore added in equation (3).

As stated in the Hypotheses Development section, the merger-valuation risk, but mostly the post-acquisition integration cost for the acquirer, is likely to increase with the cultural distance between the

respective countries. To account for the impact of the cultural distance (CD), in equation (3) we use Hofstede's four cultural dimensions (power distance, masculinity, uncertainty avoidance and individualism) and the method proposed by Kogut & Singh (1988), to calculate the cultural distance as shown in equation (4):

$$CD_j = \frac{\sum_{i=1}^{4} \left\{ \frac{\left(I_{ij} - I_{i\eta}\right)^2}{V_i} \right\}}{4} \quad (4)$$

where: I_{ij} denotes the index for the Ith cultural dimension and jth (target) country, V_i is the variance of the index of the Ith dimension, η indicates the acquirer country, and CD_j is the cultural distance of the jth country from the acquirer country.[10]

Ambros & Håkanson (2014) argue that distance, whether geographical or cultural, between the home and host countries affects a firm's performance when entering or operating in foreign markets. Lack of a common language can also be expected to add to the complexity and cost of identifying, evaluating, negotiating and integrating targets across national borders. However, Morosini et al. (1998) find cultural distance to have a positive impact on acquiring firm's value. Following prior literature on internationalisation and CBAs, we control for cultural distance (Morosini et al., 1998), geographical distance between acquirer and target countries (Conconi et al., 2016; Xie et al., 2017), the existence of a common border (Martynova & Renneboog, 2008), and the existence of a common language (Conconi et al., 2016; Martynova & Renneboog, 2008).

Prior literature has also found numerous country variables to affect acquirer firm value in CBA; we control for the main ones in equation (3). Some studies (e.g., Bris & Cabolis, 2008; Barbopoulos et al., 2012; Ellis et al., 2017; Renneboog et al., 2017) suggest that the target-firm country's legal system affects firm value in CBAs. Therefore, in alternative estimations of equation (3), we employ the following proxies: (a) a dummy variable assigned the value of 1 when the target firm operates in a country under Common Law (=Common Law), and 0 otherwise, (b) the time-varying 'Legal Enforcement of Contracts' measure obtained from the Fraser Institute (Economic Freedom), and (c) the time-varying 'Regulatory Quality' and 'Rule of Law' measures obtained from the Worldwide Governance Indicators (WGI), developed by Kaufmann et al. (2010). We also employ the time-varying 'Political Stability and Absence of Violence', 'Government Effectiveness' and 'Control of Corruption' variables to account for the impact of institutional changes over time on firm value.

Extant literature (e.g., Fuller et al., 2002) shows that acquirer value is positively related to the relative size of the deal (measured as the ratio of the deal value to the market value of the acquirer 20 trading days prior to the M&A announcement). Therefore, the relative size of the deal (=Relative Size) is included in equation (3). Further, information asymmetry between merging firms can influence firm value. Zhang (2006) suggest that investors tend to have more information on firms with a longer trading history, which results in lower information asymmetry. Therefore, the age of the acquirer (measured by the log of the number of days between the announcement day and the first record of the

company in Datastream) (=Acquirer Age) is included in equation (3).

Key financial ratios of the acquiring firm, such as its market-to-book value (=Acquirer MTBV), its cash and equivalent relative to its total assets (=Acquirer Cash Ratio), its debt to equity ratio (=Acquirer Debt/Equity), and the ratio of net profit over revenue (=Acquirer Net Margin) that record information about the acquirer's growth opportunities and profitability are also added in equation (3).

Bradley et al. (1988), Campa & Kedia (2002) and Barbopoulos & Sudarsanam (2012) point to the impact of industrial diversification on firm value. Therefore, to control for the potential effect of industrial diversification, a dummy variable assigned the value of 1 for cross-industry deals (i.e., where the target and acquirer do not share the same primary two-digit SIC code) (=Diversifying M&A), and 0 otherwise (=Focused M&A), is included in equation (3).

The merger-valuation risk and post-acquisition integration cost for the acquirer increases with the level of intangible assets of the target. To account for such challenges, in equation (3) we include the 'Target in Intangible Sector' dummy, assigned the value of 1 if the target is operating within Media, Retail, High Technology, Healthcare, or Telecommunication sectors, and 0 otherwise, as in Barbopoulos et al. (2017).

Baker et al. (2009) argue that CBAs in countries with higher capital controls are likely to achieve higher corporate wealth creation. The level of capital control of targets' domiciles is measured by the capital control index developed by Gwartney et al. (2014) and updated annually. The Capital Control variable (=Target Capital Control) is included in equation (3).

Kiymaz (2004) suggests that the impact on firm value of CBAs is affected by the strength of their domestic currency relative to the currency of the target firm's country. To measure the wealth effects of exchange rate fluctuations, we use the procedure outlined by Kiymaz (2004) to create an index. A positive (negative) value of the index indicates that the acquiring firm's currency has appreciated (depreciated) relative to the target's native currency. Acquisitions made when the domestic currency was stronger are expected to generate higher firm value. Therefore, the exchange rate (=Exchange Rate) is included in equation (3).

Doukas & Travlos (1988) and Doukas (1995) suggest that firm value from CBAs is greater when expanding into emerging countries. Therefore, we use country classification as offered by the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD) and the World Bank and construct within equation (3) a dummy variable assigned the value of 1 if the target firm is based in an emerging country (=Target in Emerging Country), and 0 otherwise (=Target in Developed Country).

Lastly, Manzon et al. (1994) test whether differences in firm-level and target-country tax systems affect the acquirer value in CBAs. To account for divergent tax policies across countries, we use data on corporate tax rates offered by the IMF, OECD, and the World Bank (=Target Corporate Tax) in equation (3). Finally, we add in equation (3) acquirer country, target industry, and year fixed effects.

Self-Selection

As stated in the Introduction section, we address self-selection bias concerns regarding the endogeneity of a firm's decision to engage in a CBA (or not) (as in Campa & Kedia, 2002) and the firm's decision to employ earnout in the financing process of the deal (or not) (as in Barbopoulos et al., 2017) using (a) the Heckman two-stage procedure, and (b) the Propensity Score Matching (PSM) method augmented with the Rosenbaum-bounds sensitivity method. We acknowledge that the issue of addressing such self-selection bias issues is more complex in the earnout-financed CBAs context, and perhaps even more so in the context of earnout-financed FTCBAs, as we are dealing with (a) the firm's primary decision to globally diversify and (b) the firm's subsequent decision to employ earnout financing in its payment process of the deal.

DATA AND SAMPLE STATISTICS

Data

The sample consists of M&As announced by UK, US, Canadian and Australian acquirers between 01/01/1992 and 31/12/2012 and recorded by the Security Data Corporation (SDC). Figure 1 provides the absolute and relative frequency of earnout financing activity by acquiring-firm country. Consistent with Kohers & Ang (2000) and Datar et al. (2001), earnout financing is regularly used in Anglo-Saxon countries. Clearly, the largest volume of earnout-financed M&As are announced by British, American, Canadian and Australian acquirers. While the relative frequency of earnout financing is relatively high in the right-hand half of Figure 1, the absolute earnout activity is in many countries very low, making meaningful statistical analysis impossible. As a result, we retain only M&As announced by acquirers based in the UK, the US, Canada and Australia.

(Insert Figure 1 about here)

We apply standard sample selection restrictions. Specifically, we restrict our sample to deals exceeding $1m and to acquirers with market value over $1m (4 weeks prior to the announcement of the deal). As we wish to study M&As motivated by changes in corporate control, we follow Rossi & Volpin (2004) and focus on deals in which the acquirer aims to purchase at least 50% of the target firm's equity. Targets of public, private and subsidiary listing statuses and all domiciles (domestic or foreign) are included in the sample. To avoid the confounding effects of multiple acquisitions, deals announced within five days of another deal by the same acquirer are excluded from the sample. Also excluded are buy-backs, repurchases, exchange offers, recapitalisations, privatisations, self-tender offers, spin-offs, reverse M&As, and M&As where either the acquirer or the target firm are 'government and agencies' organisations. The daily stock price and market value of the acquirer needs to be available from Datastream. The above criteria are satisfied by 7,701 UK, 18,080 US, 3,702 Canadian and 2,365 Australian M&As, leaving us with a final sample of 31,848 M&A announcements. 7,605 of these are CBAs, involving targets in 141 countries (details on these countries are available upon request).

Table 1 records the annual distribution of our sample deals by M&A type and payment method. This shows that while earnout is used in 13% of all deals, it is used in 25% of M&As announced by UK firms (consistent with Barbopoulos & Sudarsanam, 2012), and only 9%, 7% and 10%, respectively, of M&As announced by American, Canadian and Australian firms, respectively. The UK is the most active earnout market worldwide.[11] The table also shows that CBAs account for 23.9% of our sample, but the prevalence of CBA varies substantially amongst the four countries, with 43% of Canadian but only 15.6% of US acquisitions crossing their national borders. FTCBAs account for 6.6% of the overall sample, with NFTCBA_NEW and NFTCBA_SAME accounting for 7.6% and 9.7% of the sample, respectively.

(Insert Table 1 about here)

Finally, Table 1 highlights the two major merger waves across our sample period. Interestingly, while the merger waves are observed for total M&A activity, and for domestic M&As and CBAs separately, the patterns are not so clear for FTCBAs.

Sample Characteristics

Table 2 records the descriptive statistics of our sample by acquirer country. Consistent with Faccio & Masulis (2005) and Draper & Paudyal (2006), Table 2 shows that the majority of M&As in all four countries involve unlisted target firms (81% of all domestic deals and 85% of all CBAs). Approximately 42% of deals are industry diversifying and 64% involve targets from intangible-rich sectors. Table 2 also conveys that 90% of all target firms operate within countries under the Common Law legal system.

(Insert Table 2 about here)

The average deal size is larger in the US than in the other three countries. In the UK and Australia, CBAs tend to be much larger than domestic M&As. CBAs also involve larger acquirers, on average, relative to domestic M&As. Nevertheless, not all CBAs appear to share the above characteristics, as FTCBAs are substantially smaller in size and younger than the established MNCs. However, deals announced by FTCBAs exhibit the greatest relative deal size, on average, compared to domestic and established MNCs. This further corroborates the increased risk faced by acquirers in their initial (=FTCBA), relative to their subsequent (=NFTCBA) CBAs, as well as relative to domestic M&As. In addition, FTCBAs exhibit the greatest cash ratio and (with the exception of US firms) the lowest debt-to-equity ratio, relative to those announced by domestic and existing MNCs. Moreover, while the relative earnout value (=ratio of earnout value to deal value) offers an accurate proxy for the riskiness of an earnout-financed deal (consistent with Cain et al., 2011), the fact that higher earnout value is observed for FTCBAs relative to counterparts announced by other MNCs provides another indication of the high valuation risk faced by acquirers in FTCBAs. Lastly, we find that in FTCBAs younger acquirers tend to use earnout, and that earnout-financed FTCBAs have low net margins.

Table 3 records the correlations between the variables in our analysis. Noticeable correlations, as

expected, are recorded between CBAs and Geographical Distance (=80%) and Target Country Regulatory Quality and Target in Emerging Markets (= – 82%). The correlation coefficients in general do not raise any concerns regarding multicollinearity that may make it difficult to assess the effect of independent variables in multiple regressions.

(Insert Table 3 about here)

RESULTS AND DISCUSSION

The Extent of the Acquiring Firm's Global Diversification and Earnout Financing

In the univariate analysis, we examine whether firm value, as proxied by the acquirer abnormal returns, depends on (a) the choice of acquirers without any prior international business experience to set up transnational operations (i.e., FTCBA), as opposed to acquirers with prior international business experience that continue to diversify globally (i.e., NFTCBA), and (b) the choice of earnout in the financing process of the deal (hypotheses 1a and 1b). The results, reported in Table 4, are consistent with a generally positive valuation effect of global diversification (consistent with Gande et al., 2009), which is particularly powerful in FTCBAs financed with deferred payments in the form of earnouts.[12] Panel A shows that FTCBAs announced by British acquirers yield higher average acquirer abnormal returns, at 2.53 percentage points, compared to the corresponding 1.59, 0.78 and 0.67 percentage points for domestic M&As, NFTCBA_NEW, and NFTCBA_SAME, respectively. The differences of 0.95, 1.75 and 1.87, respectively, are significant at the 5% and 1% levels (differentials are not reported for brevity, but are available upon request).

(Insert Table 4 about here)

We confirm the same patterns for deals announced by American, Canadian and Australian acquirers (Panels B to D, respectively). That is, FTCBAs generally create more value than domestic M&As and the M&As announced by established MNCs (NFTCBA_NEW or NFTCBA_SAME), yet this is most notable when earnouts are involved. This suggests that the benefits of global diversification depend on both (a) the acquiring firm's degree of existing global diversification, and (b) the choice of deferred financing in the form of earnout.[13] Collectively, these results support our Hypotheses 1a and 1b.

Our results across all four acquiring countries further show that domestic target acquirers outperform their NFTCBA_SAME counterparts. Moreover, in unreported results we find some indication of higher abnormal returns in FTCBAs in Asia and the Rest of the World group of countries, although British acquirers generally perform better when acquiring European targets (results available upon request).

Overall, these results support our predictions that earnouts in NFTCBA_NEW or NFTCBA_SAME are not expected to significantly benefit acquirers, unlike in those deals announced by FTCBAs. When firms have experience in identifying, evaluating, negotiating with and integrating targets across their national borders and the acquisition has limited impact on the acquiring firm's

level of global diversification, earnout seems to offer no tangible benefits to the acquirer. This is even more evident in the case of deals announced by NFTCBA_SAME, given that the acquirer has prior local market knowledge in the target firm's domicile.

The results discussed above are obtained from the univariate analysis; hence, they do not simultaneously account for the effect of deal, firm and country specific factors, along with the joint impact of global diversification and earnout financing, on firm value. To accommodate the impact of such factors, we conduct a multivariate analysis of a cross-sectional sample of firms via OLS nested regressions. However, a concern in interpreting our results from such a multivariate analysis, as well as the univariate results discussed above, is whether they are affected by self-selection bias with regards to endogeneity of the firms' choice whether to diversify globally (or not) and to choose to employ earnout (or not) in the financing process of the deal. We address such issues following the Heckman two-stage procedure and the Propensity Score Matching (PSM) method augmented with the Rosenbaum-bounds (RB) sensitivity method.

Heckman two-stage procedure. We are dealing with concerns related to two potentially endogenous firm choices: the basic choice of the firm to diversify internationally or not (i.e., CBA, FTCBA, NFTCBA_NEW, NFTCBA_SAME) and also, if the firm chooses to diversify internationally, the choice to employ earnouts in the financing process or not. To accommodate such concerns in our multivariate analysis, we include the inverse Mills ratio (IMR) in each of our regressions. The IMRs are associated with the selection equations that correspond to the firm's choice to (a) globally diversify (CBA) or to be engaged in a FTCBA, NFTCBA_NEW, or NFTCBA_SAME, and (b) use earnout financing. We use a bivariate probit model with sample selection to control for self-selection for the decision of CBA, FTCBA, NFTCBA_NEW, NFTCBA_SAME, and for earnout financing. For brevity, we do not report the first stage (selection equation). The results from the multivariate analysis, which include the lambdas, are reported in Table 5.[14]

(Insert Table 5 about here)

Specifically, in the second stage of Model 1 we include the $\lambda_{CBA,}$ which accounts for the firm's choice to engage in a CBA (basic choice to diversify globally). In the second stage of Models 2 (full sample), 6 and 9 to 12 (only CBA sample), we include the $\lambda_{FTCBA,}$ which accounts for the firm's choice to engage in a CBA for the first time (i.e., FTCBA). In the second stage of Models 3 and 7 (only CBA sample) we include the λ_{NFTCBA_NEW}, which accounts for the firm's choice to engage in a NFTCBA in a new country while it already has acquired a target before in another foreign country (i.e., NFTCBA_NEW). In the second stage of Models 4 and 8 (only CBA sample) we include the λ_{NFTCBA_SAME}, which accounts for the firm's choice to engage in a NFTCBA in the same country that the firm had previously acquired a target (i.e., NFTCBA_SAME). Finally, in the second stage across all Models (Models 1 to 4 for the full sample; Models 5 to 12 for only the CBA sample; Model 13 for only the FTCBA sample) we include the $\lambda_{EARNOUT}$, which accounts for the firm's choice to employ

earnout. As can be seen from Table 5, lambdas are insignificant (except when the control group contains domestic M&As where coefficients are statistically significant but small), and hence self-selection does not have a significant impact on the interpretation of our results.

Estimates across all models indicate that deals involving unlisted targets, and relatively large deals, add more value to acquirers, in line with Fuller et al. (2002). We find the acquirer market-to-book ratio, acquirer age, and deals involving targets operating in intangible-rich sectors to be inversely related to firm value in domestic M&As but not in CBAs (Models 5 to 12) and FTCBAs (Model 13). Acquirer cash ratio is found to be positively related to firm value. Acquirer Debt-to-Equity is found to positively affect firm value only in FTCBAs. Results also show that industry-diversifying deals destroy value, again only in FTCBAs. CBAs in emerging markets add more value to acquirers while both capital controls and geographical distance inversely affect acquirer value. We also find that FTCBAs from the UK, Canada and Australia acquiring targets in the US with earnout enhance firm value in general. In additional tests (available upon request), we find that cross-border LBO transactions have a positive impact on firm value, consistent with Cao et al. (2015), and that withdrawn deals have no differential impact on firm value.[15]

Models 1 and 2 investigate the impact of (a) earnout-financed CBAs, and (b) earnout-financed FTCBAs, relative to all domestic and remaining CBAs, respectively, on firm value. Results from Model 1 show that earnout-financed CBAs yield inferior value to acquirers, consistent with findings of Mantecon (2009). Nevertheless, Model 2 reveals the positive and significant benefits of global diversification in CBAs announced by FTCBAs. FTCBAs add significant value to acquirers when earnouts are used (coefficient 'EARNOUT × FTCBA' = 0.014, significant at the 5% level). Specifically, earnout-financed FTCBAs add 1.4% higher value to the acquiring firm, relative to other M&As, namely to both domestic and remaining CBAs. Models 3 and 4, unlike Model 2, confirm that the benefits of global diversification in the presence of earnout financing are limited to FTCBAs (as both interactions of 'EARNOUT × FTCBA_NEW' and 'EARNOUT × FTCBA_SAME' are statistically insignificant). This offers further support to our Hypotheses 1a and 1b.

In Models 5 to 12, we turn our attention to factors that are likely to influence the value of firms engaged in CBAs and consider the effects of cultural and geographical distance between the merging firms' countries, and the strength of the legal system and law enforcement of contracts. Moreover, across all models we control for the effects of the level of capital controls, the strength of the acquiring firm's home currency relative to the currency of the host country, whether the target operates in an emerging market or not, the level of corporate tax, and common language. Model 6 reveals that earnout-financed FTCBAs yield 1.7% higher value to the acquiring firm (coefficient 'EARNOUT × FTCBA' = 0.017, significant at the 5% level), relative to M&As announced by established MNCs. Models 7 and 8 further confirm the latter. This reinforces our earlier predictions that the impact of earnout in eliminating merger-valuation risk in NFTCBA_NEW or NFTCBA_SAME, relative to FTCBA, is expected to be of a lower magnitude. Lastly, Model 13 aims to identify the factors that

influence the acquirer value from engaging in only FTCBAs. As an uncertainty-resolution payment mechanism, the choice of earnout financing in FTCBAs leads to an immediate 1.3% significantly higher firm value ('Earnout' coefficient = 0.013, significant at the 1% level). Collectively, the results presented above strongly support the view that FTCBAs, rather than NFTCBAs, benefit significantly from earnout financing. These findings support both Hypotheses 1a and 1b.

Target-Firm and Target-Country-Specific Effects

We next investigate whether the target firm's listing status, the target country's strength of legal system, and the cultural and geographical distance between the merging firms' countries interact with the acquiring firm's global diversification and earnout financing in influencing firm value in CBAs. Model 9 conveys that earnout-financed FTCBAs that involve unlisted firms add 1.4% higher value to the acquiring firm (coefficient 'Earnout × FTCBA × UNL_TRG' = 0.014, significant at the 5% level), relative to remaining CBAs. This supports our Hypothesis 2: earnout financing in FTCBAs offers a mechanism for the resolution of uncertainty originating from the information asymmetry between the merging firms. Models 10 and 11 investigate whether firm value in FTCBAs is affected by likely merger-valuation challenges, as proxied by the cultural and geographical distance between the merging firms' countries; the same models investigate how earnout financing can potentially mitigate, if not solve, such risks. Both models show that the benefits of earnout financing are higher in FTCBAs (coefficient 'Earnout × FTCBA × CD' = 0.004 and 'Earnout × TFCBA × GD' = 0.002, both significant at the 5% level), offering support to Hypotheses 3a and 3b. Once again, earnout financing seems to contribute to address merger-valuation risk which is particularly noticeable in FTCBAs in target countries that are culturally different to, and geographically distant from, the acquirer country. Moreover, FTCBAs are likely to create more value for the acquirer when the legal enforcement of contracts in the host country is strong and hence, the earnout financing benefits are more likely to be delivered. Lastly, Model 12 offers strong evidence that earnout-financed FTCBAs enhance firm value more when the regulatory quality in the host country is particularly high.[16] These results are consistent with our Hypothesis 4.

Propensity Score Matching (PSM) and Rosenbaum-bounds (RB) methods. To deal with self-selection concerns in the univariate analysis, we employ the Propensity Score Matching (PSM) method.[17] The PSM allows for a bias-reduced causal inference by pairing treated deals (i.e., earnout) with untreated or control (i.e., non-earnout) deals, based on a propensity score that is estimated at deal level via a logit model using observable features, such as those discussed in the section on variables. For brevity we do not report these results, but they are available upon request. Following the matching exercise, the proxy of firm value of treated and control sample deals are compared. The propensity scores of the acquirer choice of earnout and non-earnout within FTCBA, NFTCBA_NEW and NFTCBA_SAME are estimated. Specifically, the PSM is employed in three Exercises: in Exercise 1,

earnout-financed deals announced by FTCBAs are matched to non-earnout financed deals announced by FTCBA; in Exercise 2, earnout deals announced by NFTCBA_NEW are matched to non-earnout deals announced by NFTCBA_NEW; and in Exercise 3, earnout deals announced by NFTCBA_SAME are matched to non-earnout deals announced by NFTCBA_SAME. Each exercise allows us to disentangle the impact of earnout vs. non-earnout from the impact of the deal type per se. Through this quasi-experimental research design based on the PSM, the earnout effect is therefore evaluated in isolation.

Across each exercise, we select deals from the non-earnout group based on alternative Matching Ratios (MR) of 1:1, 3:1 and 5:1 within 1% Absolute Probability Difference (APD). To check for the accuracy of the matching, we test whether the distributions of the covariates between the treated and control groups are similar using the two-sample *t*-test. The test results (available upon request) confirm that the distributions of the logistic model covariates for all subgroups of CBAs between treated and control groups, while statistically different before the matching, are not statistically different after the matching (Rosenbaum & Rubin, 1985). We apply the Rosenbaum-bounds (RB) sensitivity method (Rosenbaum, 2002) to assess the effect of possible omitted variable bias that may affect the propensity score estimation and thus our findings. This method allows us to investigate the exposure of our derived conclusions from the PSM to the effect of missing covariates from our propensity score estimator (logit model). RB results are also available upon request.

Determinants of Earnout Choice. The PSM method is based on matching treated to control sample deals based on a propensity score predicting the use of the earnout. Therefore, the logistic regression is implemented to model the choice of earnouts in deals announced by FTCBAs (Exercise 1), NFTCBA_NEW (Exercise 2), or NFTCBA_SAME (Exercise 3), and calculate each deal's propensity to exhibit the treatment or earnout. In the estimations, our dependent variable is a dummy variable that assumes the value of 1 if a deal is earnout-financed, and 0 otherwise.

Extant earnout literature illustrates that earnouts are most likely to be used in acquisitions of unlisted target firms, operating in intangible-rich sectors or unrelated industries and being subject to substantial risk that is mainly traced through adverse selection and moral hazard channels (Kohers and Ang, 2000). Moreover, Datar et al. (2001) illustrate that Common Law countries facilitate powerful contractual agreements, thus increasing the likelihood of the use of earnout. In addition, we employ the market-to-book ratio to capture the acquirer's growth opportunities and hence examine the extent to which acquirers are already exposed to, or are perhaps seeking to externally acquire, growth opportunities. In the latter case, the earnout offers a relatively safe solution as it incentivises the retention of performance milestones required for payment (Cadman et al., 2014). Moreover, as earnout is more likely to be used in riskier unlisted target deals, we use relative deal size to offer a proxy for the deal's riskiness (Kohers and Ang, 2000; Cain et al., 2011). Kohers and Ang (2000: 459) argue that "Since the costs of valuation mistakes are increasing with the target's relative size, risk-averse bidders

are more likely to seek protection from this misvaluation risk through the use of larger proportions of earnouts.". We also utilise key financial ratios of the acquiring firm as further determinants of the earnout use. These consist of the acquiring firm's cash-ratio (total cash and cash equivalents to total assets), its debt-to-equity ratio (total debt to common equity) and net profit to revenue (profit margin). These variables proxy for the liquidity, leverage and profitability profile of the acquiring firm. Lastly, we include factors known to influence CBA activity. These consist of the target country's level of economic development, the capital controls in place in the target country, the corporate tax rate that is in effect in the target country and the relative strength of the acquiring firm's currency.

When matching within NFTCBA_NEW and NFTCBA_SAME deals, we also include the ratio of the acquiring firm's foreign to total sales, as these acquirers have sale revenues from previous foreign operations.[18] This allows us to further capture how the acquiring firm's degree of global diversification affects the valuation effects of earnout, as well as match treated earnout deals to non-earnout counterfactual M&As involving acquirers that are exposed to similar degrees of global diversification (Reuer et al., 2004).

PSM and RB Methods within FTCBA, NFTCBA_NEW and NFTCBA_SAME: The earnout effect.

Table 6, Panel A, presents the output of the PSM within deals announced by FTCBAs. The results across all panels invariably show that irrespective of the MR that we use (1:1, 1:3, or 1:5), earnout-financed FTCBAs (=Treated) enhance firm value more than counterparts financed by non-earnout (=Control). Specifically, earnout-financed FTCBAs announced by British acquirers yield higher average acquirer abnormal returns, at 2.59 percentage points, compared to the corresponding of 0.09 percentage points of counterparts' non-earnout-financed FTCBAs (MR = 1:1). The difference of 2.50 percentage points is significant at the 1% level, suggesting that earnout-financed FTCBAs on average add 2.50% higher value to the acquiring firm, relative to control deals. We find the same results for FTCBAs announced by American, Canadian and Australian firms, regardless of the MR employed.

(Insert Table 6 about here)

We further show that earnout-financed deals announced by NFTCBA_NEW and NFTCBA_SAME (Panels B and C, respectively) are less beneficial to acquirers, as differentials between the treated and control groups of deals across all four acquiring countries are statistically insignificant. Lastly, the results across all Panels and MRs are relatively insensitive to the impact of any missing or unobserved covariate, as indicated through the Rosenbaum-bounds (RB) sensitivity analysis (these results are for brevity not reported, but are available upon request).[19] These results offer further support to our hypotheses 1a and 1b predicting the value enhancing impact of earnout in FTCBAs rather in the remaining CBAs (i.e., NFTCBA_NEW and NFTCBA_SAME).

CONCLUDING REMARKS

This paper presents new insights into the impact of earnout financing on firm value when engaged in

cross-border acquisitions (CBAs). Our analysis is based on a sample of 31,848 domestic and foreign target acquisition announcements originating from the four countries with the highest volume of earnout-financed M&As: the UK, the US, Canada and Australia. Prior research suggests that acquirers at best break even when involved in earnout-financed CBAs. We show that earnout-financed first-time CBAs (i.e., FTCBAs) yield superior firm value, relative to all domestic deals or M&As by established MNCs regardless of whether the non-first-time cross-border acquirer is entering a new market (i.e., NFTCBA_NEW) or not (i.e., NFTCBA_SAME). Therefore, in line with the predictions of our Hypotheses 1a and 1b, the results confirm the superior performance of FTCBAs, and establish that earnout financing generally enhances firm value when firms choose to expand internationally for the first time in their business history through a corporate takeover.

This suggests that the contingent nature of earnout financing can help address (a) potential adverse section and moral hazard issues and, (b) the acquirers' lack of prior international experience, hence allows them to efficiently accommodate the inherent risks of leaving their home country for the first time and expanding into a new geographical market through a CBA. To this end, the uncertainty-resolution properties of earnout financing help maximise the likelihood of the deal's success. We find the benefits to FTCBAs of using earnout financing are higher where the target firm is unlisted, where the cultural or geographical distance between the merging firms' countries is large, and when acquiring in countries where the regulatory quality is strong. The results further suggest that the firm value from earnout-financed FTCBAs increase when expanding into emerging markets that exhibit a higher level of investment risk.

To reduce the exposure of the derived conclusions to potential self-selection bias considerations, we adopt (a) the Heckman two-stage procedure and, (b) a quasi-experimental research design via the Propensity Score Matching (PSM) method augmented with the Rosenbaum-bounds sensitivity analysis through which the earnout effect is evaluated in isolation. The analysis based on the Heckman two-stage procedure renders our results qualitatively unaffected. Moreover, the PSM analysis offers direct evidence of the superiority of earnouts over non-earnouts (yielding on average more than 2 percentage-points higher announcement-period abnormal returns) in FTCBAs. By contrast, the superior performance of earnouts when used to finance FTCBAs does not appear to hold for subsequent international acquisitions, whether into a new country (NFTCBA_NEW) or not (NFTCBA_SAME).

Overall, this paper offers a thorough examination of the impact of earnout financing on the firm value when engaged in CBAs. When firms choose to acquire a target firm beyond their national borders through a CBA, earnout financing offers a major value enhancing opportunity.

Notes

[1] Earlier scholars show that the value of firms engaged in CBAs is sensitive to managerial motives (managers' enhanced job security (Amihud & Lev, 1981)), agency costs (Seth et al., 2000), national pride of acquiring targets based in developed countries (Hope et al., 2011), market access (Doukas & Travlos, 1988), industry affiliation (Denis et al., 2002), quality of accounting standards (Bris & Cabolis, 2008), intangibility of assets (Chari et al., 2010), shareholder protection (Rossi & Volpin, 2004), international taxation (Huizinga et al., 2012), global diversification (Gande et al., 2009), and other factors (Eckbo, 2009; Erel et al., 2012).

[2] Previous research shows that CBAs are associated with higher merger-valuation complexities and risks, as well as post-acquisition integration challenges, relative to domestic M&As (Moeller & Schlingemann, 2005); hence CBAs lead to lower firm value than domestic M&As. A notable exception is Danbolt & Maciver (2012), who find cross-border bidders outperform domestic ones into and out of the UK.

[3] While single up-front payments in stock could address adverse selection and moral hazard issues (Hansen, 1987), foreign targets are rarely willing to accept foreign equity as the payment, which restricts acquirers to the cash-payment option (Moeller & Schligemann, 2005). Fishman (1989) also argues that, in cases of valuation disagreement, cash financing may offer a sub-optimal contract design.

[4] Such deals may include unfamiliar institutions and cultural values, disparate accounting practices, capital restrictions, tax policies and disclosure rules, divergent contract enforceability due to legal and regulatory differences, and unpredictable future cash flows at home due to unforeseen exchange rate movements.

[5] Moral hazard arises when contractual performance cannot be precisely monitored or enforced due to weak contract formulation, imprecise performance measurement, or weak contract-enforcement remedies available to the party exposed to performance failure by the other contracting parties. For a discussion of the adverse selection and moral hazard perspectives of earnouts, see Cain et al. (2011).

[6] While cash deals expose acquirers to the full risk of target overvaluation, in stock deals this risk is shared between the merging firms (Hansen, 1987). Stock deals, nevertheless, do not always guarantee that the target firm is managed to ensure the realisation of the expected value implied by the acquisition premium, unless the target owners/managers retain sufficient interest through their equity in the combined firm.

[7] Under equity financing, the target firm's ownership in the combined firm is usually relatively small, and hence, the acquirer is disproportionately exposed to post-merger price corrections in case of misvaluation error (Kohers & Ang, 2000).

[8] Several other contractual mechanisms are available for enhancing M&A success such as (a) termination fees, lockups and material adverse-change clauses that are designed to prevent, or raise the

cost of, either the acquirer or the target reneging on the deal, (b) collars that are designed to minimise the impact of short term adverse stock price movements, and (c) toeholds that are designed to increase the probability of deal success through buying up chunks of target shares. Unlike earnouts that are designed to manage valuation risk, these mechanisms are designed to eliminate transactional risk.

[9] For robustness, we estimate abnormal returns using the market model (MM), the capital asset pricing model (CAPM) and the Fama-French 3-factor model (3-FFM) (with parameters estimated over days *t*-250 to *t*-40). In unreported results (available upon request) we find that the correlations between the CAR obtained from (a) the market-adjusted model, (b) MM, (c) CAPM, and (d) 3-FFM, across all four countries, are in excess of 0.90. All results using CAR obtained from (a), (b), (c) and (d) are qualitatively similar, and our conclusions hold regardless of which event study model we apply.

[10] While Hofstede's cultural dimensions (and Kogut & Singh's measure) of CD have been subject to critique (see e.g., Shenkar, 2001; Kirkman et al., 2006, 2017; Caprar et al., 2015), it remains the most widely used proxy for CD in the international business literature (Beugelsdijk et al. 2017; Kirkman et al., 2017).

[11] CBAs initiated by UK acquirers accounted for almost 30% of global CBAs in the late 1980s (Healy & Palepu, 1993). UNCTAD (2000) confirms this for the late 1990s. Historically one in three, and recently almost one in two, UK acquirers have been involved in CBAs, making the UK the most CBA-active market worldwide.

[12] Our results are also consistent with findings from prior research on the impact of earnout on the acquiring firm's value (Kohers & Ang, 2000; Barbopoulos & Sudarsanam, 2012). We find that earnout-financed M&As enhance firm value more than their counterparts financed with single up-front payments in cash or stock. Consistent with Mantecon (2009), we also find that choosing earnouts rather than single up-front payments does not significantly enhance a foreign acquirer's value relative to domestic ones.

[13] While we might have expected some, if modest, benefits of earnout in addressing valuation risk in NFTCBA_NEW (as opposed to NFTCBA_SAME, where the acquirer has prior local market knowledge), generally we do not find this to be the case. This may be due to the characteristics of NFTCBA_NEW, in which the acquirers are generally large (and perhaps the transactions are small relative to the acquirer's size), suggesting the valuation risk is less of an issue in such deals. With deals announced by NFTCBA_SAME and NFTCBA_NEW offering no or only modest expansion of the firm's global diversification, such deals have only limited impact on the acquiring firm's value.

[14] The variables in the selection equations are (a) the relative size of the deal, (b) in the selection equation of CBA, FTCBA, NFTCBA_NEW and NFTCBA_SAME a dummy variable assigned the value of 1 if earnout is used (0 otherwise), (c) in the selection equation of earnout a dummy variable assigned the value of 1 if the deal is CBA (0 otherwise), (d) a dummy variable if the deal is diversifying (0 otherwise), (e) dummy variables assigned the value of 1 if the target firm is in an

intangible-rich sector (0 otherwise), (f) a dummy variable assigned the value of 1 if the target is an unlisted firm (0 otherwise), (g) acquirer characteristics such as the MTBV, cash-ratio and debt-to-equity ratio, and (h) acquirer country, target industry, and year fixed effects.

[15] We thank an anonymous reviewer for drawing our attention to these tests.

[16] We obtain qualitatively similar results when we employ alternative measures of the quality of legal system, such as the classification to common vs. civil law (La Porta et al., 1997) and the legal enforcement of contracts (Fraser Institute). These results are available upon request.

[17] Behr and Heid (2011) provide a thorough discussion of the PSM methodology along with its application in evaluating the success of German bank mergers in the period 1995-2000. See also Dehejia & Wahba (2002) for an application of the matching method.

[18] Denis et al. (2002) argue that the observed increase in the prevalence of global diversification over time stems from both an increase in the fraction of firms operating in multiple national markets and, conditional on the existence of global diversification, the fraction of total firm sales that are attributable to foreign operations.

[19] The RB critical value of Γ at p=0.10 (=41% for the UK, 30% for the US, 72% for Canada and 22% for Australia) offers relatively high confidence regarding the quality and reliability of our PSM process.

Appendix: Variable Definitions

This table defines the variables used in the empirical analysis and indicates the data source used. SDC denotes the Thomson-Reuters SDC ONE Banker database.

Variable Type/Name	Description	Source
All	Refers to the entire sample analysed in this paper.	SDC
Acquirer Age	Number of days between the acquirer's first recorded day on Datastream and the deal's announcement day.	Datastream
Acquirer Cash Ratio	Acquirer's ratio of total cash and cash equivalents to total assets in the quarter prior to the announcement of the deal.	Datastream
Acquirer Debt / Equity	Acquirer's total debt as a percentage of common equity value during the quarter prior to the announcement of the deal.	Datastream
Acquirer MTBV	Acquirer's ratio of market value over book value of equity (measured 20 days prior to the deal's announcement).	Datastream
Acquirer MV	Acquirer's market value of equity (measured 20 days prior to the deal's announcement).	Datastream
Acquirer Net Margin	Acquirer's ratio of net profit to revenue during the last quarter prior to the deal's announcement.	Datastream
Cash	Dummy = 1 when payment is 100% cash.	SDC
Common Language	Dummy = 1 if acquirer and target countries share a common language.	World Bank
Cross-Border Acquisition (CBA)	Dummy = 1 when the deal involves a foreign target, and = 0 when acquirer and target are domiciled in the same country (= Domestic).	SDC
Cultural Distance (CD)	Cultural distance between acquirer and target countries in terms of Hofstede's power distance, masculinity, uncertainty avoidance and individualism (see Eq. 4).	Kogut & Singh (1988)
Diversifying M&A	Dummy = 1 when acquirer and target do not share the same two-digit primary SIC code, and = 0 otherwise.	SDC
Deal Value	Deal transaction value, in millions of US dollars.	SDC
Domestic (Dom)	Dummy = 1 when acquirer and target are domiciled in the same country, and = 0 when the deal involves a foreign target (= CBA).	SDC
Earnout (Earn)	Dummy = 1 when payment includes an earnout provision, and = 0 otherwise (=Non-Earnout).	SDC
Earnout Value	Value of deferred payment, in millions of US dollars.	SDC
Exchange Rate	Strength of acquirer to target country currency, following Kiymaz (2004).	Datastream
Foreign to Total	Acquirer's foreign sales as a percentage of total sales during the last quarter prior to the deal's announcement.	Datastream
First Time CBA (FTCBA)	Dummy = 1 when the deal constitutes an acquiring firm's first cross-border deal ever, and = 0 otherwise.	SDC

Continued

Continued (**Appendix**)

Variable Type/Name	Description	Source
Geographical Distance (GD)	Distance (in kilometres) between acquirer and target countries.	distancefromto.net
Mixed	Dummy = 1 when the payment is a mixture of cash, stock and/or other methods of payment, excluding earnout provisions, and = 0 otherwise.	SDC
Non-Earnout	Dummy = 1 for full cash, full stock or mixed payment without earnout provisions, and = 0 when an earnout provision is included.	SDC
Relative Size	Ratio of Deal Value to MV.	SDC & Datastream
Relative earnout value	Ratio of earnout value to Deal Value.	SDC
Stock	Dummy = 1 when payment is 100% stock exchange.	SDC
Unlisted Target (UNL_TRG)	Dummy = 1 if target is not a listed firm, and = 0 otherwise.	SDC
Not First-Time CBA New Country (NFTCBA_NEW)	Dummy = 1 when the deal is not the acquirer's first ever cross-border deal but takes place in an unprecedented country, and = 0 otherwise.	SDC
Not First Time CBA Same Country (NFTCBA_SAME)	Dummy = 1 when the deal is cross-border and takes place in a country in which the acquirer has already engaged in an M&A deal in the past.	SDC
Target Capital Control	Time-varying index covering 141 countries. Its values range from 1.4 (for the least open economy) to 9.8 (for the most open economy).	Economic Freedom of the World (2014)
Target Common Law	Dummy variable taking the value = 1 when the deal is cross-border and the target's nation follows the English Common Law legal system, and = 0 otherwise.	La Porta et al. (1997)
Target Corporate Tax	Time-varying percentage of taxation on corporate profits across target countries.	IMF, OECD, World Bank
Target Country Regulatory Quality (RQ)	Regulatory quality captures perceptions of ability of government to formulate and implement policies and regulations	Kaufmann et al. (2010)
Target Country Rule of Law	Rule of law captures extent to which agents have confidence in and abide by the rules of society	Kaufmann et al. (2010)
Target Country Legal Enforcement of Contracts	The legal enforcement of contracts in the target's country.	Fraser Institute
Target in Emerging Country	Dummy = 1 when the deal is cross-border and the target is in an emerging market, and = 0 otherwise.	IMF, OECD, World Bank
Target in Intangible Sector	Dummy = 1 when the target belongs to an intangible-rich sector (Media and Entertainment, Consumer Products and Services, High Technology and Telecommunications), and = 0 otherwise.	SDC

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Table 1 Sample distribution by year

Year	All M&A (ALL)	Domestic M&A (DOM)	Cross-border M&A (CBA)	First time CBA (FTCBA)	Non-FTA CBA in a new market (NFTCBA NEW)	Non-FTA CBA in the same market (NFTCBA SAME)	Earnout payment	Cash (CASH)	Stock (STOCK)	Mixed (MIXED)
1992	737	602	135	57	39	39	76	238	171	252
1993	993	840	153	47	54	52	100	333	221	339
1994	1,291	1,081	210	80	58	72	108	468	280	435
1995	1,444	1,174	270	74	88	108	151	483	342	468
1996	1,713	1,414	299	93	98	108	165	554	460	534
1997	2,045	1,673	372	126	116	130	190	640	468	747
1998	2,159	1,694	465	114	190	161	211	794	435	719
1999	2,016	1,614	402	95	145	162	183	704	527	602
2000	2,187	1,692	495	141	133	221	255	634	646	652
2001	1,487	1,111	376	105	112	159	232	478	337	440
2002	1,317	1,016	301	73	95	133	188	574	193	362
2003	1,154	895	259	82	63	114	170	494	177	313
2004	1,526	1,147	379	121	117	141	231	602	221	472
2005	1,755	1,307	448	118	138	192	278	763	214	500
2006	1812	1,313	499	157	154	188	292	801	203	516
2007	2,034	1,447	587	155	186	246	331	830	248	625
2008	1,354	935	419	111	124	184	222	562	185	385
2009	1,012	705	307	79	78	150	125	387	217	283
2010	1,313	880	433	106	135	192	202	562	166	383
2011	1,300	879	421	107	141	173	233	544	156	367
2012	1,199	824	375	72	147	156	182	568	154	295
Total	31,848	24,243	7,605	2,113	2,411	3,081	4,125	12,013	6,021	9,689
% of All	-	76.1%	23.9%	6.6%	7.6%	9.7%	13.0%	37.7%	18.9%	30.4%
UK	7,701	5,072	2629	448	887	1294	1931	3331	565	1874
% of UK	-	65.9%	34.1%	5.8%	11.5%	16.8%	25.1%	43.3%	7.3%	24.3%
US	18,080	15,263	2817	981	1055	781	1694	7052	3895	5439
% of US	-	84.4%	15.6%	5.4%	5.8%	4.3%	9.4%	39.0%	21.5%	30.1%
Canada	3,702	2,111	1591	473	320	798	258	949	952	1543
% of Canada	-	57.0%	43.0%	12.8%	8.6%	21.6%	7.0%	25.6%	25.7%	41.7%
Australia	2,365	1,797	568	211	149	208	242	681	609	833
% of Austral.	-	76.0%	24.0%	8.9%	6.3%	8.8%	10.2%	28.8%	25.8%	35.2%

Notes: This table reports the annual distribution of our sampled M&As announced by UK, US, Canadian and Australian acquirers. The overall sample (ALL) is split into domestic (DOM) and cross-border acquisitions (CBA), with the sample of CBA further divided into three groups: First-time CBA (FTCBA), Not-First-Time CBA in a New Country (NFTCBA_NEW), and Not-First-Time CBA in the Same Country (NFTCBA_SAME). The sample (ALL) is also split by method of payment, differentiating between acquisitions where an earnout payment is used, with the non-earnout (single up-front financed) deals split into where the payment was made using all cash (CASH), all stock (STOCK) or where a mixture of cash and stock payments were used (MIXED). Further details on the variables and data sources are in the Appendix.

Table 2 Descriptive statistics

	All		Domestic		CBA		CBA Only					
							FTCBA		NFTCBA New		NFTCBA Same	
	All	Earn.	All	Earn.	All	Earn.	All	Earn.	All	Earn.	All	Earn.
	Panel A: Acquirer in United Kingdom											
All Deals	7,701	1,931	5,072	1,302	2,629	629	448	112	887	221	1,294	296
Unlisted Target	6,877	1,921	4,546	1,297	2,331	624	412	112	796	218	1,123	294
Diversifying M&A	3,593	917	2,401	627	1,192	290	204	50	388	98	600	142
Target in Intang. Sect.	4,683	1,412	3,187	956	1,496	456	288	92	476	162	732	202
Target Common Law	6,574	1,672	5,072	1,302	1,502	370	260	59	332	87	910	224
Deal Value ($m)	155.9	28.4	89.7	19.8	283.5	46.11	57.9	17.6	533.3	40.7	190.4	61.0
Acquirer MV ($m)	2,002.8	807.1	976.3	397.9	3,983.3	1,654.1	446.6	219.6	4,515.6	2,085.0	4,842.8	1,875.2
Relative Size	0.33	0.26	0.34	0.29	0.30	0.20	0.95	0.37	0.20	0.19	0.15	0.14
MTBV	3.7	3.7	3.3	3.4	4.1	4.21	3.4	4.0	4.4	4.4	4.1	4.1
Acquirer Age (years)	15.6	12.8	14.2	11.3	18.2	15.9	8.8	7.0	17.8	13.7	21.8	20.8
Acquirer Net Margin	11.2	7.9	11.3	6.9	11.0	9.96	9.5	7.3	13.0	14.8	10.0	7.5
Acquirer Cash Ratio	24.7	25.9	22.7	25.7	28.4	26.38	36.0	31.3	27.1	26.9	26.8	24.2
Acquirer Debt/Equity	91.2	66.5	88.9	66.2	95.6	67.13	65.5	31.9	103.5	67.1	100.6	80.6
Earnout Value ($m)	8.6	8.6	5.8	5.8	14.5	14.5	8.9	8.9	13.5	13.5	17.4	17.4
Rel. Earnout Value	0.41	0.41	0.41	0.41	0.40	0.40	0.45	0.45	0.40	0.40	0.38	0.38
	Panel B: Acquirer in United States											
All Deals	18,080	1,694	15,263	1,408	2,817	286	981	107	1,055	125	781	54
Unlisted Target	14,597	1,662	12,311	1,379	2,286	283	848	104	870	125	568	54
Diversifying M&A	7,603	682	6,454	583	1,149	99	421	40	410	43	318	16
Target in Intang. Sect.	13,383	1,367	11,475	1,134	1,908	233	710	91	705	95	493	47
Target Common Law	16,848	1,579	15,263	1,408	1,585	171	615	68	484	62	486	41
Deal Value ($m)	337.3	98.9	358.1	85.98	225.0	162.46	95.9	42.0	246.5	250.4	358.1	197.5
Acquirer MV ($m)	5,931.6	3,144.4	5,315.6	2,921.41	9,269.2	4,242.35	1,114.2	633.9	9,259.1	3,792.3	19,526.2	12,434.2
Relative Size	0.45	0.23	0.44	0.24	0.48	0.20	0.78	0.28	0.32	0.16	0.31	0.14
MTBV	9.7	2.0	9.8	2.05	9.4	2.03	5.6	3.2	3.4	2.5	2.8	4.3
Acquirer Age (years)	10.9	10.3	10.5	10.2	12.9	11.1	7.3	6.1	14.6	13.7	17.7	15.2
Acquirer Net Margin	96.8	8.7	113.1	8.67	12.9	8.65	9.0	8.4	17.9	8.6	10.1	9.3
Acquirer Cash Ratio	34.6	38.0	34.4	37.37	35.5	41.18	40.7	43.4	33.3	40.0	32.3	39.6
Acquirer Debt/Equity	118.3	48.1	124.8	50.23	84.1	37.72	106.4	40.5	69.6	30.9	77.5	48.1
Earnout Value ($m)	26.7	26.7	25.5	25.5	32.3	32.3	11.2	11.2	41.7	41.7	52.4	52.4
Rel. Earnout Value	0.34	0.34	0.34	0.34	0.33	0.33	0.34	0.34	0.31	0.31	0.36	0.36

Continued

Continued (**Table 2**)

	All		Domestic		CBA		CBA Only					
							FTCBA		NFTCBA New		NFTCBA Same	
	All	Earn.	All	Earn.	All	Earn.	All	Earn.	All	Earn.	All	Earn.
	Panel C: Acquirer in Canada											
All Deals	3,702	258	2,111	97	1,591	161	473	44	320	34	798	83
Unlisted Target	2,858	254	1,486	95	1,372	159	433	44	266	33	673	82
Diversifying M&A	1,102	94	637	34	465	60	146	16	81	10	238	34
Target in Intang. Sect.	1,301	161	689	58	612	103	191	26	90	19	331	58
Target Common Law	3,196	218	2,111	97	1,085	121	327	35	169	12	589	74
Deal Value ($m)	115.8	71.8	118.9	18.64	111.7	103.88	60.5	87.3	98.0	148.0	147.6	94.6
Acquirer MV ($m)	1,286.3	2,631.0	1,043.9	169.66	1,608.1	4,113.96	183.8	378.7	1,561.1	3,380.3	2,471.1	6,394.6
Relative Size	0.93	1.49	0.71	0.46	1.23	2.11	2.33	0.55	0.71	0.87	0.79	3.46
MTBV	3.0	2.0	2.8	1.28	3.2	4.21	5.9	5.3	2.2	4.8	2.1	2.8
Acquirer Age (years)	9.8	8.9	10.1	8.8	9.3	9.0	6.8	7.6	9.8	9.8	10.5	9.3
Acquirer Net Margin	63.0	18.2	97.2	35.7	15.6	6.86	36.8	5.3	10.1	8.3	8.1	7.1
Acquirer Cash Ratio	47.3	38.2	47.2	32.27	47.5	41.33	51.7	46.4	48.5	46.4	45.0	36.8
Acquirer Debt/Equity	64.9	62.3	70.6	49.62	57.3	69.04	26.4	31.7	34.4	28.8	82.4	103.1
Earnout Value ($m)	17.6	17.6	4.9	4.9	25.3	25.3	31.5	31.5	27.9	27.9	21.0	21.0
Rel. Earnout Value	0.40	0.40	0.38	0.38	0.41	0.41	0.45	0.45	0.40	0.40	0.39	0.39
	Panel D: Acquirer in Australia											
All Deals	2,365	242	1,797	156	568	86	211	36	149	20	208	30
Unlisted Target	1,757	239	1,269	153	488	86	184	36	133	20	171	30
Diversifying M&A	920	89	718	58	202	31	84	14	49	5	69	12
Target in Intang. Sect.	971	133	768	85	203	48	81	18	49	10	73	20
Target Common Law	2,179	212	1,797	156	382	56	144	20	85	11	153	25
Deal Value ($m)	162.8	33.6	87.8	21.8	400.3	55.02	46.2	22.9	183.2	74.9	915.2	80.3
Acquirer MV ($m)	1,057.1	300.6	812.6	158.13	1,830.9	559.07	189.3	97.9	2,406.6	1,030.3	3,083.7	798.3
Relative Size	0.78	1.05	0.72	0.59	0.97	1.88	1.34	3.67	0.73	0.96	0.76	0.35
MTBV	1.8	2.4	1.8	2.45	1.7	2.39	3.2	1.1	2.5	3.4	3.0	3.2
Acquirer Age (years)	8.6	7.3	8.2	7.2	9.7	7.4	6.0	4.9	11.1	6.2	12.4	11.1
Acquirer Net Margin	143.0	119.3	155.0	159.18	100.3	19.56	70.9	46.7	75.0	9.3	1,42.6	8.1
Acquirer Cash Ratio	42.8	43.8	40.8	39.71	49.2	51.28	56.0	64.9	45.2	39.6	45.5	43.7
Acquirer Debt/Equity	76.9	36.7	88.5	42.57	39.8	25.34	30.6	7.0	38.3	38.8	49.5	35.8
Earnout Value ($m)	8.3	8.3	5.0	5.0	14.2	14.2	11.9	11.9	12.8	12.8	18.0	18.0
Rel. Earnout Value	0.37	0.37	0.37	0.37	0.38	0.38	0.50	0.50	0.28	0.28	0.31	0.31

Notes: This table reports descriptive statistics of our sampled M&As announced by UK, US, Canadian and Australian acquirers. Panel A records statistics for M&As announced by acquirers based in the UK. Panel B records statistics for M&As announced by acquirers based in the US. Panel C records statistics for M&As announced by acquirers based in Canada. Panel D records statistics for M&As announced by acquirers based in Australia. The overall sample (All) is subdivided into domestic and cross-border acquisitions (CBA), with the CBA sample further sub-divided into three groups: First-time CBA (FTCBA), Not-First-Time CBA in a New Country (NFTCBA_NEW), and Not-First-Time CBA in the Same Country (NFTCBA_SAME). Summary statistics for core firm, deal and target home country characteristics are presented for all deals of a particular deal type and for earnout-financed deals only (Earn). Further information on the definition of each variable can be found in the Appendix.

Table 3 Correlation matrix of main variables

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
CBA	(1)																				
FTCBA	(2)	0.48																			
NFTCBA_NEW	(3)	0.51	-0.08																		
NFTCBA_SAME	(4)	0.58	-0.09	-0.09																	
Earnout	(5)	0.04	0.01	0.03	0.02																
Relative Size	(6)	0.01	0.04	-0.01	-0.01	-0.01															
Acquirer MTBV	(7)	0.00	0.00	0.00	0.00	0.00	0.00														
Acquirer Age	(8)	0.11	-0.11	0.09	0.17	-0.02	-0.02	-0.01													
Unlisted Target	(9)	0.05	0.05	0.03	0.00	0.17	-0.01	0.00	-0.10												
Diversifying M&A	(10)	-0.02	-0.01	-0.02	-0.01	0.01	0.00	0.00	0.09	0.05											
Target in Intangible Sector	(11)	-0.08	-0.01	-0.05	-0.07	0.04	-0.02	0.00	-0.13	0.00	-0.10										
Acquirer Cash Ratio	(12)	0.04	0.08	-0.01	0.00	-0.02	0.03	0.02	-0.19	-0.02	-0.14	0.12									
Acquirer Debt/Equity	(13)	-0.01	-0.01	-0.01	-0.01	-0.02	0.00	0.00	-0.01	-0.01	0.00	0.00	-0.03								
Target Corporate Tax	(14)	-0.14	-0.07	-0.13	-0.03	-0.11	-0.01	-0.01	-0.08	-0.04	0.02	0.14	-0.02	0.01							
Target Capital Control	(15)	-0.03	-0.02	-0.05	0.01	0.09	0.00	0.01	0.06	0.02	-0.03	0.06	0.10	-0.01	-0.13						
Target in Emerging Country	(16)	0.37	0.19	0.24	0.16	-0.01	0.02	0.00	0.01	0.05	-0.06	-0.12	0.11	-0.01	-0.18	-0.17					
Common Language	(17)	-0.61	-0.25	-0.48	-0.23	-0.02	-0.01	0.00	-0.08	-0.07	0.02	0.06	-0.03	0.01	0.13	0.08	-0.45				
Cultural Distance (CD)	(18)	0.76	0.34	0.51	0.35	0.02	0.01	0.00	0.09	0.06	-0.03	-0.09	0.06	-0.01	-0.21	-0.09	0.62	-0.90			
Geographical Distance (GD)	(19)	0.80	0.38	0.44	0.44	0.02	0.02	0.00	0.09	0.02	-0.03	-0.07	0.06	-0.01	-0.17	-0.04	0.39	-0.47	0.62		
Target Reg. Quality (RQ)	(20)	-0.40	-0.18	-0.26	-0.19	0.03	-0.02	0.00	-0.04	-0.05	0.07	0.07	-0.12	0.01	-0.09	0.23	-0.82	0.54	-0.66	-0.38	
Exchange Rate	(21)	-0.02	0.02	0.00	-0.04	-0.01	0.00	0.00	-0.02	-0.01	0.01	0.00	-0.06	0.00	0.12	-0.03	-0.13	0.02	-0.06	-0.02	0.18

Notes: This table reports the Pearson correlation coefficients between cross-border acquisitions (CBA), first-time CBA (FTCBA), not-first-time CBA in a new country (NFTCBA_NEW), not-first-time CBA in the same country as before (NFTCBA_SAME), and other variables used in the multivariate analysis in the paper. Variable definitions can be found in the Appendix.

Table 4 Univariate analysis of acquiring firm's market-adjusted abnormal returns

		All Payment	Earnout	Non-Earnout	All Payment	Earnout	Non-Earnout	All Payment	Earnout	Non-Earnout	All Payment	Earnout	Non-Earnout
		Panel A: Acquirer in UK			**Panel B: Acquirer in US**			**Panel C: Acquirer in Canada**			**Panel D: Acquirer in Australia**		
All deals	Mean	1.29***	1.41***	1.25***	1.45***	1.56***	1.44***	3.94***	6.51***	3.75***	4.28***	5.47***	4.14***
	N	7,701	1,931	5,770	18,080	1,694	16,386	3702	258	3444	2365	242	2123
Domestic Acquisition	Mean	1.33***	1.59***	1.24***	1.49***	1.44***	1.50***	3.38***	8.47***	3.13***	3.93***	4.22***	3.91***
	N	5,072	1,302	3,770	15,263	1,408	13,855	2,111	97	2014	1,797	156	1,641
Cross-Border Acquisition (CBA)	Mean	1.22***	1.04***	1.28***	1.25***	2.19***	1.14***	4.69***	5.33***	4.62***	5.36***	7.73**	4.94***
	N	2,629	629	2,000	2,817	286	2,531	1,591	161	1430	568	86	482
First Time CBA (FTCBA)	Mean	1.75***	2.53***	1.49***	2.05***	3.01***	1.93***	5.73***	7.36***	5.56***	7.86***	10.20**	7.38***
	N	448	112	336	981	107	874	473	44	429	211	36	175
Not-First Time CBA in a new country (NFTCBA_NEW)	Mean	1.27***	0.78**	1.44***	0.97***	2.10***	0.82***	5.20***	5.75***	5.13***	6.80***	14.23	5.65***
	N	887	221	666	1,055	125	930	320	34	286	149	20	129
Not-First Time CBA in the same country (NFTCBA_SAME)	Mean	1.00***	0.67**	1.09***	0.61***	0.79	0.60***	3.87***	4.08***	3.85***	1.79***	0.43	2.02***
	N	1,294	296	998	781	54	727	798	83	715	208	30	178

Notes: This table presents the mean firm value, as proxied by the announcement period 5-day (t-2, t+2) acquirer cumulative abnormal returns. Panel A records statistics for M&As announced by acquirers based in the UK. Panel B records statistics for M&As announced by acquirers based in the US. Panel C records statistics for M&As announced by acquirers based in Canada. Panel D records statistics for M&As announced by acquirers based in Australia. In each panel, abnormal returns are presented according to the type of M&A: all deals, domestic deals, cross-border acquisitions (CBA), first-time CBA (FTCBA), not-first-time CBA in a new country (NFTCBA_NEW), not-first-time CBA in the same country as before (NFTCBA_SAME). Results are reported in the first column of each panel for the full sample (all payment), for earnout-financed deals, and for non-earnout deals. *N* refers to the sample size. The statistical significance of differences in returns between groups of acquirers is tested using the *t*-test for equality of means. ***, ** and * indicate significance at 1%, 5% and 10%, respectively. Further information on the definition of each variable can be found in the Appendix.

Table 5 The impact of global diversification and earnout financing on firm value (corrected for self-selection)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
CBA	0.002												
FTCBA		-0.001				-0.003			-0.003	-0.003	-0.003	-0.003	
NFTCBA_NEW			0.004				0.003						
NFTCBA_SAME				0.001				0.001					
Earnout	-0.005***	-0.005***	-0.005***	-0.002	-0.003	-0.006**	0.001	-0.003	-0.006*	-0.006**	-0.006**	-0.006**	0.013***
Earnout × CBA	0.002												
Earnout × FTCBA		0.014***				0.018**							
Earnout × NFTCBA_MEW			-0.003				-0.011**						
Earnout × NFTCBA_SAME				-0.004				-0.001					
Earnout × FTCBA × UNL_TRG									0.014**				
Earnout × FTCBA × CD										0.004**			
Earnout × FTCBA × GD											0.002**		
Earnout x FTCBA × RQ												0.010**	
Unlisted Target (UNL_TRG)	0.026***	0.026***	0.026***	0.026***	0.014***	0.015***	0.014***	0.014***	0.014***	0.015***	0.014***	0.014***	0.010
Cultural Distance (CD)					-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.007
Geographical Distance (GD)					-0.003**	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**	-0.003**	-0.004
Target Regulatory Quality (RQ)					0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.026**
λ_{CBA}	-0.007**												
λ_{FTCBA}		-0.007*				-0.003			-0.003	-0.003	-0.004	-0.003	
λ_{NFTCBA_NEW}			-0.004**				0.011						
λ_{NFTCBA_SAME}				0.009				-0.004					
$\lambda_{EARNOUT}$	0.002*	0.004***	0.002*	0.006**	0.001	0.001	0.001	-0.001	0.001	0.001	0.001	0.001	-0.002
Intercept	0.040***	0.040***	0.040***	0.013	0.094**	0.095***	0.075*	0.099**	0.096***	0.096***	0.097***	0.097***	0.073
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Sq.	4.91	4.93	4.90	4.88	6.41	6.50	6.48	6.41	6.50	6.49	6.49	6.51	9.36
F-Stat	95.71	96.04	95.71	95.50	15.40	14.20	14.17	14.00	14.20	14.19	14.18	14.24	5.64
Mean VIF	1.64	1.32	1.37	2.03	2.25	2.44	2.22	2.25	2.44	2.10	2.11	2.44	2.34
Number of Observations	26,245	26,245	26,245	26,245	4,519	4,519	4,519	4,519	4,519	4,519	4,519	4,519	1,114

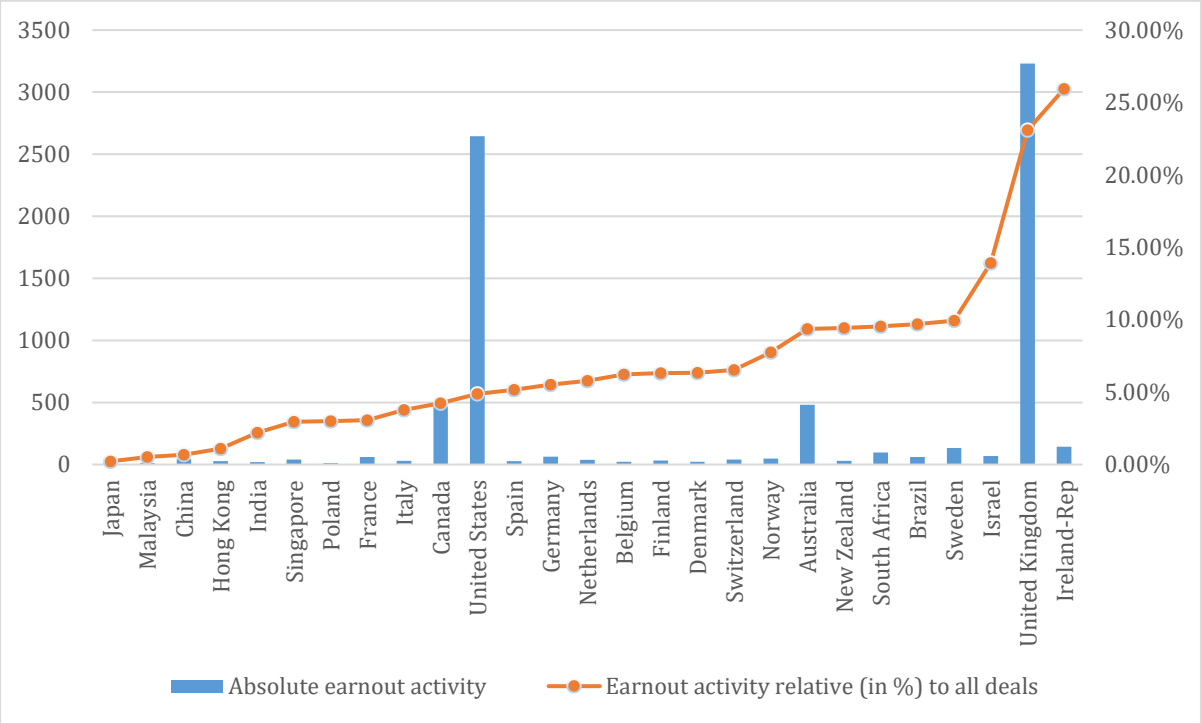
Notes: This table reports the results from the multivariate analysis on the acquirer abnormal returns of earnouts in M&As correcting for self-selection in the firm's choice to conduct CBAs or not – and sub-groups in CBAs – (as opposed to domestic and remaining CBAs depending on whether the control group includes domestic deals or not) and in the firm's choice to adopt earnout or not. The dependent variable consists of the acquirer 5-day CAR which is regressed against a set of explanatory variables. Controls include: deal relative size, acquirer age, acquirer MTBV, acquirer cash ratio, acquirer debt/equity ratio, acquirer net margin, diversifying M&A dummy, target in intangible sector dummy, target country capital control, exchange rate, target in emerging country dummy, target country corporate tax, and common language dummy. Variable definitions can be found in the Appendix. λ refers to the inverse Mills ratio (IMR) from a Heckman two-stage model. Model 1 analyses the CBA and earnout effects for the whole sample, while models 2, 3 and 4 explore the differentials for FTCBA, NFTCBA_NEW and NFTCBA_SAME deals for the whole sample respectively. Models 5 to12 focus on the sub-sample of CBAs, while Model 13 is restricted to the sample of FTCBAs. We include acquirer country, target industry, and year fixed effects. Regression outputs are estimated using OLS; the regression employs clustered standard errors based on the target's nation of origin to account for the correlation of country factors across observations (Petersen, 2009). VIF is the Variance Inflation Factor, which quantifies the severity of multicollinearity. Variance inflation is the reciprocal of tolerance. ***, ** and * indicate significance at 1%, 5% and 10%, respectively.

Table 6 Univariate analysis (corrected for self-selection)

	Panel A: Acquirer in UK			**Panel B: Acquirer in US**			**Panel C: Acquirer in Canada**			**Panel D: Acquirer in Australia**		
	MR 1:1	MR 1:3	MR 1:5	MR 1:1	MR 1:3	MR 1:5	MR 1:1	MR 1:3	MR 1:5	MR 1:1	MR 1:3	MR 1:5
	FTCBA											
Treated Group	2.59***	2.59***	2.59***	2.81***	2.81***	2.81***	7.67***	7.67***	7.67***	12.49**	12.49**	12.49**
N	102	102	102	94	94	94	40	40	40	30	30	30
Control Group	0.09	1.11**	1.62***	0.35	0.96**	1.37***	0.52	1.83*	3.05***	1.05	13.08**	11.25***
N	102	185	234	94	190	265	40	104	156	30	57	81
Diff: Treated vs. Control	2.50***	1.47**	0.97	2.45**	1.85**	1.44*	7.14***	5.84***	4.62**	11.44*	-0.59	1.24
	NFTCBA_NEW											
Treated Group	0.84**	0.84**	0.84**	1.99***	1.99***	1.99***	5.74***	5.74***	5.74***	14.23	14.23	14.23
N	200	200	200	112	112	112	34	34	34	20	20	20
Control Group	1.65***	1.71***	1.70***	0.59	1.00**	0.88***	8.06***	6.91***	6.77***	6.29	4.76**	5.64***
N	140	296	389	88	224	344	31	83	109	17	40	57
Diff: Treated vs. Control	-0.81	-0.88*	-0.86*	1.40*	0.99	1.11*	-2.32	-1.17	-1.03	7.94	9.47	8.59
	NFTCBA_SAME											
Treated Group	0.71**	0.71**	0.71**	0.71**	0.71**	0.71**	4.08***	4.08***	4.08***	0.56	0.56	0.56
N	277	277	277	277	277	277	83	83	83	29	29	29
Control Group	1.36***	1.24***	1.27***	1.12***	1.25***	1.46***	3.33**	3.91***	4.27***	-0.28	1.09	0.73
N	187	412	529	189	388	506	65	156	221	25	56	76
Diff: Treated vs. Control	-0.65	-0.53	-0.56	-0.41	-0.54	-0.75**	0.75	0.17	-0.19	-0.84	-0.53	-0.17

Notes: This table presents the mean firm value, as proxied by the announcement period 5-day (t-2, t+2) acquirer cumulative abnormal returns using earnout financing (the Treated Group) and that of a Control Group of acquirers, virtually identical in all respects other than in the use of earnout financing, to those in the Treated (i.e., earnout-financed) group. Each acquirer using earnout financing is matched to an acquirer (depending on the matching ratio) not using earnout financing using Propensity Score Matching (PSM). The PSM technique employs 1:1, 3:1 and 5:1 nearest neighbour matching ratios (MR), allowing for replacement. The Diff: Treated vs. Control captures the earnout effect, corrected for self-selection. Panel A records results for M&As announced by acquirers based in the UK. Panel B records results for M&As announced by acquirers based in the US. Panel C records results for M&As announced by acquirers based in Canada. Panel D records results for M&As announced by acquirers based in Australia. CBA refers to cross-border acquisitions, FTCBA refers to first-time CBA, NFTCBA_NEW refers to not-first-time CBA in a new country, NFTCBA_SAME refers to not-first-time CBA in the same country as before. *N* refers to the sample size. The statistical significance of differences in returns between groups of acquirers is tested using the *t*-test for equality of means. ***, ** and * indicate significance at 1%, 5% and 10%, respectively. Further information on the definition of each variable can be found in the Appendix.

Figure 1 Frequency of Earnout Financing Activity Worldwide



Notes: This figure reports the frequency of earnout activity worldwide, by acquirer country. The left-hand scale (and columns) report the absolute number of earnout-financed deals during 1992 to 2012 (inclusive), while the percentage of earnout activity to total M&A activity in the country adopting earnout financing is reported (with the continuous line) on the right-hand scale. The figure is restricted to countries with a minimum of five earnout-financed deals during the sample period for deals that have survived the sample selection restrictions reported in section *Data*. Data obtained from the Thomson-Reuters SDC ONE Banker database.