Expertise or Proximity in International Private Equity? Evidence from a Natural Experiment

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This Version: April 2014

Abstract

Using data on international leveraged buyout (LBO) investments, we analyze whether lack of proximity impedes the ability of U.S. private equity (PE) investors to successfully invest across borders. In particular, U.S. PE investors have substantial experience in monitoring and supporting portfolio firms, but have to trade off this advantage with the difficulty of monitoring cross-border LBO investments that are further away. We exploit the exogenous shock to "effective" proximity of U.S. PE investors to other countries due to open sky agreements (OSA) signed between the U.S. and the countries of potential LBO target firms. We find that increase in proximity due to the ease of travel afforded by an OSA between the U.S. and another country has a positive and statistically significant impact on U.S. PE firms' propensity to invest in LBOs in that country. Further, improvements in ease of travel between the target firm country and the U.S. are followed by more successful LBO investments in those countries, and this effect is driven by investments made by U.S. PE investors. In addition, for the set of LBOs for which OSAs occur after the deal, LBOs backed by U.S. PE firms perform better when an OSA happens immediately subsequent to the deal rather than later. Moreover, our results do not reflect access to U.S. product or public financial markets, since we do not find any evidence that OSAs have an impact on success rates of investments by non-U.S. PE firms. Our results are broadly consistent with the idea that proximity is an important factor in PE investors' decision to invest across borders. Further, proximity impacts the success of cross-border LBOs at least partly due to the effect of active monitoring by PE investors.

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We thank Mergermarket Ltd. for providing data on private equity exits. We thank seminar participants at the Norwegian School of Economics for their comments and suggestions. All errors and omissions are our own.

1. Introduction

Private equity (PE) and leveraged buyout (LBO) investments have been extremely popular over the last decade in the U.S., particularly due to lower interest rates during the 2000s. Over this time, there has also been a substantial increase in the market for buyouts around the world and a respectable proportion of this market involves investment by cross-border PE investors. A significant proportion of cross-country buyouts between 2001 and 2010, over 42 percent of total invested dollar value, involve a U.S. PE firm. There is a limited amount of research, however, that analyzes how such cross-country PE investments perform and what are the determinants of international PE firms making such investments. A related question is: to what extent can international PE firms add value to their portfolio firms? A significant hurdle facing active investment and monitoring by cross-border PE investment is that of geographic distance and lack of proximity. Thus, while U.S. PE investors may have the expertise to add value to firms that they invest in, their effectiveness in doing so may be limited by costs imposed by the lack of proximity in international investments.[1,2]

We contribute to the literature by analyzing how "effective" proximity affects the propensity of U.S. PE investors to invest across international borders and how such proximity can affect the success of these investments. In our analysis, we focus on investments in international markets made by U.S. PE investors, since they comprise the largest proportion of the cross-border PE market and since the PE market has existed for a historically longer period in the U.S. A natural obstacle in answering the research question described above is the identification of the causal effect of effective proximity on the propensity of U.S. PE investors to invest internationally and the success rate of cross-border investments made by

[1] Note that, to the extent that there is a limited pool of talented individuals with significant ability to enhance the performance of a portfolio firm, PE firms establishing international offices may not solve the problem of lack of proximity. In particular, a PE firm may not be able to use its most talented employees in all locations that it makes its investments, even if it has an office in that location. Ultimately, whether or not proximity matters in the cross-border PE context is an empirical question.

[2] The LBO and PE literature finds that PE firms add non-pecuniary value to the portfolio companies that they invest in. We will discuss this literature in detail below.

U.S. PE firms. For instance, U.S. PE firms may invest across borders in countries that are easier to travel to, but such ease of travel may be related to prior business relationships between the U.S. and that country. Empirical analysis of cross-border PE investments can also be confounded by the potential selection of portfolio firms and target countries by U.S. PE firms. Moreover, unknown factors unobservable by the researcher can also affect the propensity of investments by U.S. PE firms and the success of their investments. To overcome such obstacles, we use the signing of open sky agreements (OSA) between the U.S. and other countries as a source of exogenous variation in the ease of travel across international borders.

Over the 1990s and the 2000s, the U.S. signed OSAs with various countries in order to open up air travel with those countries.[3] These agreements were signed with both developed and developing countries. Further, there is no systematic relationship between the timing of the OSAs and the economic performance of the partner country signing the OSA with the U.S (see Figure 1). We also find that there is a significant and positive impact of the signing of an OSA between the U.S. and a country on the ease and volume of air travel between the U.S. and that country (see Figure 2 and results in Section 4.2). We measure ease of air travel using various proxies such as the number of U.S. airports connected with the country signing the OSA, the number of airport pairs connected between the U.S. and the country signing the OSA, the total passenger volume between the U.S. and the country signing the OSA, and the total number of departures between the U.S. and the country signing the OSA. Thus, OSAs give us an exogenous variation in the ease of travel and effective proximity which we link with the propensity of investment by a U.S. PE investor in an LBO in a country and with the likelihood of an eventual successful exit of the LBO firm.

[3] These agreements were signed over various years, i.e., they were staggered over time, allowing us to use time and country level variation.

Our sample is comprised of LBO transactions conducted between 2001 and 2010 in 28 nations. We start by analyzing the relationship between variables measuring ease of travel to the U.S. (mentioned above) and the propensity of a U.S. PE investor to invest in a cross-border LBO. We find a positive and significant relationship between the ease of travel measures for travel between a country and the U.S. and the propensity of a U.S. PE investor to invest in the LBO of a firm located in that country. This association is economically significant: for instance, a one inter-quartile range increase in the number of *Connected U.S. airports* is associated with an 8.1 percentage point increase in the probability of investment by a U.S. PE investor. This is economically large given that the unconditional probability that a U.S. PE investor participates in a cross-border LBO in our sample is 12.8 percent. Further, we find a negative relationship between the geographic distance of a country and the U.S. and the propensity of a U.S. PE investor to invest in the LBO of a firm located in that country. These results are consistent with the lack of proximity being an important factor in the decision of U.S. PE investors to invest across borders. However, since our ease of travel measures can also be affected by various factors such as the volume of prior trade between the countries, cultural factors, and other geo-political factors, the results above do not conclusively demonstrate causality.

We relate how the presence of an OSA between the U.S. and a country impacts the propensity of a U.S. PE investor to invest in the LBO of a firm located in that country. We find that, after an OSA between the U.S. and a country, U.S. PE investors are more likely to invest in LBOs of firms in that country. In particular, OSAs are likely to increase the propensity of investment by a U.S. PE firm by 2.8 percentage points, which is economically significant. This suggests that there is a positive effect of ease of travel and effective proximity on cross-border PE investments. The context of private equity is important, as prior literature has suggested that PE investors play an active role in enhancing the performance of

the firms that they invest in through mechanisms such as replacing the management team and enhancing the operational performance of the firm. We term this the "monitoring" effect. It is also possible that more efficient travel options between the U.S. and a country can make it easier to conduct due-diligence on a prospective LBO candidate firm. We term this the "screening" effect. Thus, our results above may reflect both screening and monitoring effects being enhanced due to more efficient travel options to the location of the target LBO firm. As a placebo test, we check whether OSAs with the U.S. are related to investments by non-U.S. international PE investors in a country. We find no such relationship, validating our identification strategy.

We then test whether investment by U.S. PE investors is more likely to lead to a higher likelihood of successful exit. Successful exits are defined either as sales to a strategic buyer (trade sale) or going public (IPO). We find that investment by U.S. PE investors is increases the likelihood of a successful exit by 2 percentage points, which is significant given the unconditional exit rate of 16 percent. The above results hold even if we change our definition of exit to IPOs only. Moreover, this result does not hold for investment by non-U.S. PE investors, indicating that U.S. PE investors may have a greater level of expertise in LBO investments.

We find that our measures of ease of travel between the U.S. and the target LBO firm country (i.e., number of connected U.S. airports and airport pairs, passenger volume, and number of departures) are positively related to the likelihood of a successful exit. Consistent with this, the presence of an OSA between the U.S. and the target LBO firm's country is positively related to the likelihood of successful exit. We then test whether the positive relation between our exogenous shift in effective proximity to the U.S. and the likelihood of a successful exit is indeed driven by investments made by U.S. PE investors. Thus, we run this test separately for LBOs that have U.S. PE investors, and for LBOs which do not have U.S.

PE investors. We find that the positive relationship between the presence of an OSA and the likelihood of successful exit holds only for the sample of firms that are backed by U.S. PE investors. This result is consistent with the idea that the increased presence of U.S. PE investors resulting from an exogenous increase in effective proximity due to the OSA has a positive impact on the success of the LBO investment. It also rules out the possibility that OSAs enhance the prospects of a non-U.S. LBO target firm by increasing access to U.S. product markets and public financial markets. If this was the predominant reason for the success of LBOs in foreign countries, then LBOs of firms whose countries sign OSAs with the U.S. should be successful regardless of whether or not a U.S. PE investor participates in that LBO.

Finally, we try to understand whether the above results reflects greater ease of travel between the U.S. and the target LBO firm's country increasing the ability of the U.S. PE investor to monitor their investments better, or increasing their ability to better screen their investments. We show that our results are at least partly driven by enhanced monitoring by U.S. PE investors due to greater ease of travel. To do this, we restrict ourselves to the sample of LBOs that are announced prior to an OSA being signed between the U.S. and the target LBO firm's country. For this set of firms, OSAs will not impact the screening done by U.S. LBO investors, since the LBO investment has already been made. We then exploit how the timing of the OSA after the LBO investment, which is plausibly exogenous to the unobservable quality of the target LBO firm, is related to the likelihood of a successful exit of the LBO. The logic behind this test is as follows: monitoring activities conducted by the PE firm earlier during the term of the investment are likely to be more fundamental and have a longer lasting effect than monitoring activities conducted later in the term of the investment.[4]

[4] Consistent with this, a research paper by Spencer Stuart (Bright and Roberts (2011)) finds that, for a sample of PE investments in Europe that plan a change in CEO at the time of investment, a majority of CEO changes occur within the first 18 months of the investment. Moreover, half of the firms whose CEOs changed in years two to four were underperforming, and a further 10 percent were unable to reach agreement on strategy or were

Thus, if an OSA occurs earlier in the term of the investment of the PE firm, early monitoring activities of the PE investor will be more effective due to the greater resulting ease of travel; whereas if an OSA occurs later in the term of the investment, early monitoring activity will be less effective. Consistent with this, we find that, if the OSA takes place within one year after the LBO, then the LBOs backed by U.S. PE investors are more likely to be successful. However, there is no significant effect of the presence of U.S. PE investors on the successful exit of LBOs if the OSA takes place after the first year subsequent to the LBO. This result is supportive of the idea that at least some of the positive effect of ease of travel on LBO success is driven by monitoring activities of the PE investor.

Broadly, our results indicate that proximity is an important determinant for whether or not U.S. PE firms will invest in cross-border LBOs. Moreover, U.S. PE firms investing across borders experience more successful exits of their LBO investors when it is easier for them to travel to the location of the target LBO firms. Further, our results partly reflect a monitoring effect, that is, efforts by U.S. PE investors to improve the prospects of the target LBO firm. These efforts are more effective when they are closer to their investments.

The remainder of the paper is organized as follows. Section 2 describes the related literature and our contribution to it. Section 3 describes the data, sample selection criteria, and our empirical methodology. Section 4 describes the results of our empirical tests and section 5 concludes.

2. Related Literature

This paper is related to the broad literature on private equity. Using a global sample of PE investments, Bernstein, Lerner, Sorensen, and Stromberg (2010), find that industries where PE funds have invested in the past five years grow more quickly in terms of

unable to continue the relationship with the private equity firm, again supporting the idea that early monitoring activity by PE investors is important.

productivity and employment. Lerner, Sorensen, and Stromberg (2011) find that firms undergoing LBOs have more cited patents. Bernstein and Sheen (2013) find that, in the context of firms in the restaurant industry, firms undergoing takeovers by PE firms experience significant operational improvements leading to better performance. Boucly, Sraer, and Thesmar (2011) use French data to find that following a leveraged buyout, targets become more profitable, grow much faster than their peer group, issue additional debt, and increase capital expenditures. Similarly, using Swedish data, Bergstrom, Grubb, and Jonsson (2007) find that buyouts have a significant positive impact on the companies' operating performance.

Davis, Haltiwanger, Jarmin, Lerner, and Miranda (2011) find that private equity buyouts catalyze the creative destruction process in the labor market, with only a modest net impact on employment. The creative destruction response mainly involves a more rapid reallocation of jobs across establishments within target firms.[5] On the other hand, Guo, Hotchkiss, and Song (2011) find that increases in industry valuation multiples and realized tax benefits from increasing leverage, while private, are each economically as important as operating gains in explaining realized returns. In addition to the above papers, several studies find large gains in operating performance following the buyout and theories attribute these gains to reduced agency costs through the disciplining effects of leverage and better governance.[6] Unlike our study, however, the above papers do not analyze cross-border PE

[5] Value addition by investors is also a frequent theme in the VC literature. Chemmanur, Krishnan, and Nandy (2011) find that VC-backed firms experience substantial improvements in productivity after VC investment, and this increase reflects greater sales growth and better cost controls. Puri and Zarutskie (2012) compare the life-cycle dynamics of a matched sample of VC-backed and non-VC-backed companies and find that VC financing firms grow more rapidly. Sorensen (2007) shows that companies funded by more experienced VCs are more likely to go public. He documents that this follows both from the direct influence of more experienced VCs and also from sorting in the market for venture capital.

[6] See Kaplan (1989a), Kaplan (1989b), Lichtenberg and Siegel (1990), Smith (1990), Kaplan (1994), Cotter and Peck (2001).

investments and the role of distance in determining international investments by U.S. PE investors and the eventual success of these investments.[7]

There is less evidence though on the effect of geographic distance on private equity investments. Chemmanur, Hull, and Krishnan (2013) study how local and international venture capitalists interact with each other and how syndicate composition in international venture capital investments can affect successful exit of international VC investments.[8] Tian (2010) finds that VC investors located farther away from an entrepreneurial firm tend to finance the firm using a larger number of financing rounds, shorter durations between successive rounds, and investing a smaller amount in each round. In a recent paper, Bernstein, Giroud, and Townsend (2013) use the establishment of new airline routes between different VC firms and their existing portfolio companies to show that reductions in travel time are associated with an increase in the number of patents and number of citations per patent of the portfolio company, as well as an increase in the likelihood of an eventual IPO or acquisition. While the above papers focus on venture capital investments, our paper analyzes buyout deals. Moreover, while Bernstein, Giroud, and Townsend (2013) analyze the impact of domestic distance on U.S. VC-backed firm performance, we analyze how cross-border PE deals are impacted by an exogenous change in ease of travel. Further, we also analyze how increases in effective proximity between the country of PE firms and that of the potential target LBO firms increases the likelihood of an investment by U.S. PE investors.[9]

[7] Kaplan and Strömberg (2008) describe the leveraged buyout and private equity industry in detail.
[8] Our paper is also related to the literature on cross-border takeovers (e.g., Ferreira, Massa, and Matos (2010)).
[9] Another related paper is Giroud (2013), who shows that travel time reductions lower monitoring costs for firms with headquarters that are geographically separated from their production facilities.

3. Data, Sample Selection, and Empirical Methodology

3.1 Sample Selection

We start by collecting LBO transactions in various (non-U.S.) countries from Capital IQ, SDC Platinum M&A and SDC VentureXpert databases from 2001-2010. We restrict our attention to the sample of developed nations, since the total number of transactions in emerging nations was relatively small in these databases. Countries are considered to be developed if they are classified by the World Bank as being a high income nation (which is based off of 2008 GNI per capita). To be included in our sample, each deal has to satisfy the following inclusion criteria: 1. The deal is flagged as an LBO transaction; 2.The transaction is closed; 3. The deal is not a secondary buyout (SBO); 4. A change of control takes place; 5. The target and PE firm's countries are known; and 6. The LBO transaction must not have more than three buyers, so as to exclude large syndicates, which are more likely to occur in venture capital (VC) deals (this restriction eliminates less than 1% of the sample). We harmonize PE firm and variable names across the three databases. When a specific LBO deal shows up in multiple datasets and (in some cases) different databases have different deal transaction values, deal level information is taken from the observation with the highest transaction value. The final sample has 8416 LBO transactions from 2001-2010 from 28 nations.

We then carefully match the above LBO data to successful exits, which is our measure of deal performance. Due to data limitations, we are unable to calculate a rate of return or IRR for the LBO for the vast majority of our sample. For this study we define exit success if the LBO target firm gets acquired by a strategic buyer (merger or acquisition) or goes public (IPO). Wang (2012) states that, "…secondary buyouts serve no purpose aside from alleviating the financial needs of private equity firms." Thus, we do not count SBOs as successful exits. We obtain exit data comes from various data sources including Capital IQ,

SDC new issues database, Compustat, Global Compustat, and Mergermarket databases.[10] If a portfolio company is matched to multiple exits, we use the exit date that is closest to the LBO date. We also exclude LBO deals where the exit occurs within 180 days of the LBO. Such quick flips raise concerns about the type of transaction that the portfolio company is undergoing in the LBO.[11] Since exit data from our data sources (particularly from the Mergermarket database, which accounts for a substantial portion of our exits) are only reliable since 2001, we use 2001 as our starting year.

3.2 Variable Description

Our first analysis variable is *U.S. buyer,* which is a dummy variable that is 1 if an U.S. PE firm invests in the LBO target firm and 0 otherwise. For our placebo tests, we also define *Intl. buyer (non-US)* as a dummy variable that is 1 if a non-U.S. international PE firm invests in the LBO target firm and 0 otherwise. Our second analysis variable is *Exit success*, which is 1 if the target firm eventually gets acquired by a strategic buyer or goes public and 0 otherwise. We also conduct our analysis with an alternative measure of success, namely, *IPO*, which is a dummy variable that is 1 if the target firm eventually goes public and 0 otherwise.

We analyze how "effective" proximity and ease of travel between the U.S. and the target firm's country affects *U.S. buyer* and *Exit success*. Our primary measures of effective proximity and ease of travel are variables that determine the availability of convenient air travel options between the U.S. and the target firm countries. Thus, we have four measures of ease of travel: (a) *Connected U.S. airports*, which is the number of airports in the U.S. that have a direct flight to the country of the target firm in a year. This variable represents the

[10] Mergermarket is a database owned by the Financial Times group and contains information on a large number of PE firm exits across the world. A substantial number of LBO exits excluded from other databases were obtained from the Mergermarket database.

[11] To ensure we have a representative sample, we compare our data to that of Stromberg (2007). In comparison our dataset has more observations and a higher percentage of successful exits during the overlapping year-country range. Our data also features similar country distributions for the overlapping country-year range.

availability of travel opportunities to the target firm country from multiple U.S. cities, which allows travelers located in various U.S. locations to travel to potential target company countries; (b) *Airport pair connections*, which is the number of U.S. and target country airport pairs that are connected by direct flights in a year. This variable represents the availability of travel options between U.S. cities and target firm cities, which allows travelers located in various U.S. locations to travel to various locations in the country of the potential target firm; (c) *U.S. Departures,* which is the number of direct flight departures (in thousands) between the U.S. and the deal target's country in a year. This variable indicates how frequently travelers can travel non-stop to the country of a potential target firm; and (d) *U.S. Passengers*, this is the number of transported passengers (in millions) between the U.S. and the country of the target firm in a year. This variable reflects the travel volume between the U.S. and the country of a potential target firms. As an additional measure of proximity, we use *Log U.S. distance*, which is the log of one plus physical distance between a country's capital (or economic capital, if capital is not very large) to the United States' leading economic city, New York City. Distance between the U.S. and any other country is measured as the distance between New York City and the capital or economic center of the other country, calculated using the great circle formula[12]. The benefit of using the flight data over the geographic distance data is that the former is time-varying, while the latter is not. This allows us to incorporate country fixed effects in the regressions where we use the air travel based measures of effective proximity.

Data on international travel, used to create ease of travel variables described above, are obtained from T-100 international flight data taken from the Bureau of Transportation Statistics website. This database reports monthly flight data from all international direct flights arriving and departing from the U.S. To calculate the *U.S. departures* variable

[12] Distances are obtained from the CEPII website, please see http://www.cepii.fr/anglaisgraph/bdd/distances.htm

described above, we restrict our analysis to flights that are conducted by major air carriers (We define a major international flight carrier as having at least 2% of total international flight departures for at least one year between 1990 and 2012).[13] This requirement helps us eliminate smaller chartered flights and focus more directly on flights that are commercially available.

In addition to the above data, we also control for *Log deal amount* in our regressions, which is the natural logarithm of the deal value of the LBO. In many cases, deal values for our sample of LBOs are missing. We follow the literature and impute missing deal values. We conduct a regression of deal amount (for deals with non-missing deal values) on country, year and industry fixed effects. Imputed deal values are then obtained as the predicted value from this regression. Imputed deal value are constrained to be less than or equal to the sample's maximum observed value and likewise to be greater or equal to the sample's minimum value.[14]

We also control for the *Number of buyers*, which is the total number of buyers participating in the LBO transaction. In addition, we control for country specific variables including, *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural logarithm of the target country's real GDP in the LBO transaction year; and *Log market cap*, which is the natural logarithm of the target country's real total market capitalization in the year of the LBO transaction. *Log GDP* and *Log market cap* are calculated using data from the World Bank data. Moreover, countries in our sample can also sign air services agreements with other countries, which may affect our results using open sky agreements with the U.S. Thus, we also control for *Air agreements*, which is the number of bilateral foreign air service agreements that the target firm's country has signed before the current deal date. Data to

[13] A cutoff of 1% or 0.5% leads to qualitatively similar results to those described here.
[14] See, for example, Bernstein, Lerner, Sorensen, and Stromberg (2010) where missing deal values are calculated by a similar method.

calculate *Air agreements* is hand-collected from government websites of various countries in our sample.

3.3 Identification: U.S. Open Sky Agreements

Over the 1990s and the 2000s, the U.S. signed open sky agreements (OSAs) with various countries in order to open up the market for air travel and increase access to those countries. These agreements were signed with both developed and developing countries. According to the U.S. state department web site, "*The United States has achieved Open Skies with over 100 partners from every region of the world and at every level of economic development."* Since open sky agreements with the U.S. led to an increase in air travel (shown below) between the U.S. and the partner country, they provide us with a plausibly exogenous variation in ease of travel to those countries from the U.S.

In our sample, we do not find any systematic trends between economic development and the implementation of Open Sky Agreements with the U.S. In Figure 1, we report the median GDP of the countries in our sample around their year of signing the OSA (time 0 is the year in which OSA was signed). The solid line is the trend in the median (unadjusted) real GDP whereas the dashed line is the trend in the median residual GDP. The residual GDP is the residual from the regression of real GDP on country and year fixed effects, and thus effectively removes any purely time-varying or purely country-varying effects from the GDP. We find that there is no discernible increase in the median GDP of countries prior to signing the OSA. Thus, it does not seem like countries undergoing substantial economic development are more likely to sign OSAs with the U.S. Moreover, OSAs are not followed by a substantial increase in the average GDP of a country, also suggesting that OSAs are not necessarily signed with countries that are expected to do well by the U.S. government. Thus, the trends reported in Figure 1 supports the validity of our identification strategy of using OSAs as an

exogenous variation in the access to these countries. These trends, in addition to the fact that timing of cross-country treaties cannot be perfectly determined due to bureaucracy and politics within the negotiating countries, make the signing of OSAs plausibly exogenous to the apriori likelihood of investment by U.S. PE investors in cross-border LBOs and the eventual success of those LBOs.[15]

Our instrument for effective proximity and ease of travel therefore reflects a positive shock in the ease of travel due to the signing of an OSA between the U.S. and the country of the potential target firm. Thus, we define *Post Open sky* as a dummy variable that is 1 if the deal announcement date is after the signing of an OSA between the target's firm nation and the U.S., and 0 otherwise.[16] Figure 2 shows the effect of the signing of an open sky agreement with the United States on our ease of travel variables, with year 0 being the year of the signing of the open sky agreement. We see that ease of travel in terms of both availability of travel options (in terms of access to airports from and to various locations in the U.S. and the target firm's country) as well as the volume of travel (in terms of departures and passenger volume) increase substantially in the three years after the OSA is signed between the U.S. and the target firm's country. These trends support the idea that the ease of travel (and therefore effective proximity) between the U.S. and target firm countries increase due to OSAs and are supportive of the use of OSAs as an instrument for ease of travel.

3.4 Summary Statistics

Table 1 provides summary statistics for the sample. Panel A reports the summary statistics of our variables. Out of the 8416 LBOs, 12.8 percent have an U.S. LBO buyer,

[15] In addition, placebo tests suggest that our results relating OSAs to the likelihood of international (U.S.) PE investment and successful exits are not present for non-U.S. international PE firms, indicating that OSAs do not have a significant impact on international LBOs through other channels such as access to U.S. product markets or U.S. public financing markets.

[16] When deal announcement date is unavailable, we use deal effective date. Announcement and effective dates are the same date for 62% for the overlapping sample (i.e. for observations that have both dates) and are within one year of each other for more than 99% of the overlapping sample.

whereas 21.9 percent have a non-U.S. international buyer. The median target country is 3.6 thousand miles from the U.S. The median deal amount is 48 million dollars and the median deal has one buyer. Panel B shows the distribution of LBO deals in our sample across the year of the LBO deal announcement. Similar to the trends in the U.S. PE market, we see a significant increase in the level of LBO investments in our sample of countries from 2004 to 2007. Panel C reports the distribution of target firms' countries. There is substantial LBO activity in Europe, with the UK (22.7%), France (16.4%), and Germany (12.0%) comprising the group of countries with the greatest extent of LBO activity. The sample also has a significant number of deals outside of Europe, with deals in Australia, Canada, Hong Kong, Israel, Japan, New Zealand, Singapore and South Korea.

4. Empirical Tests and Results

4.1 Likelihood of U.S. PE Investments and Effective Proximity

We start by analyzing how proximity of potential target countries to the U.S. affects the propensity of U.S. PE firms to invest in LBOs in those countries. We thus estimate the following equation:

$$\Pr(US\ buyer_{it} = 1) = \alpha + \beta_1 Proximity_{ct} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it.} \quad (1)$$

Here, i indexes the LBO deal, j indexes industry, c indexes the country, and t indexes year. As described before, *U.S. buyer* is a dummy variable that is 1 if a U.S. PE firms invests in the LBO, and 0 otherwise; $Proximity_{ct}$ refers to the various ease of travel variables described above and represents the effective distance (in terms of travel) between the U.S. and the country of the potential LBO target firm; X_{it} are time varying and deal varying control variables; γ_c are country of the target firm fixed effects; δ_j are two-digit SIC code fixed effects; and ρ_t are the year of announcement fixed effects. We estimate equation (1) as a logit model, since the dependent variable is binary.

Table 2 reports the results of our analysis. We find that our measures of proximity, namely, *Connected U.S. airports, Airport pair connections, U.S. departures, and U.S. passengers* are positively related to the probability of a U.S. PE firm investing in the LBO (reported in Columns (1), (2), (3), and (4) respectively). The first three variables have statistically significant coefficient estimates. Economically, a one inter-quartile range increase in the number of *Connected U.S. airports* is associated with an 8.1 percentage point increase in the probability of investment by a U.S. PE investor. This is economically large given that the unconditional probability that a U.S. PE investor participates in a cross-border LBO in our sample is 12.8 percent. Consistently, a one inter-quartile range increase in the number of *Airport pair connections* is associated with a 5.2 percentage point increase in the probability of investment by a U.S. PE investor; and a one inter-quartile range increase in the number of *U.S. departures* is associated with a 7.9 percentage point increase in the probability of a U.S. PE investment.

Finally, we also report our analysis using distance from the U.S. (i.e., *Log U.S. distance*) as an alternative proxy for proximity. We find that *Log U.S. distance* is negatively related to the probability of investment in the LBO by a U.S. PE investor. Economically, a one-interquartile increase in *Log U.S. distance* is associated with a 1 percentage point lower probability of investment by a U.S. PE investor. However, geographic distance is an imperfect measure of effective proximity. We are unable to use target country fixed effects in this specification, and thus our results can be affected by country-specific characteristics. Moreover, geographic distance does not consider the time taken to travel to the target firm's country from various locations in the U.S. Due to these reasons, we conduct our analyses below using the air travel based measures of proximity.

4.2. Open Sky Agreements and Effective Proximity

In this section, we empirically test whether open sky agreements with the U.S. increase effective proximity as measured by our ease of air travel variables. For this analysis, we use country-year level data and estimate the following model.

$$Proximity_{ct} = \alpha + \beta_1 Post\ open\ sky_{ct} + \beta_2 X_{ct} + \gamma_c + \rho_t + e_{ct}, \quad (2)$$

where X_{ct} is the set of country- and time-varying control variables. We report the result of this analysis in Table 3. Column (1) in Table 3 indicates that the presence of an OSA between the U.S. and another country is associated with a statistically significant increase in the *Connected U.S. airports* per year. Economically, an OSA increases the number of U.S. airports connected to a country per year by 2.2 airports, which is considerable considering that the median value of *Connected U.S. airports* in our sample is 10. Column (2) of Table 4 finds that the presence of an OSA between the U.S. and another country is associated with a statistically and economically significant increase in the *Airport pair connections* per year between the U.S. and that country: an OSA increases airport pair connections by 6.74, relative to the median value of 11 for *Airport pair connections*. Finally, in Columns (3) and (4), we find that the presence of an OSA between the U.S. and another country is associated with an increase in the *U.S. departures* to that country per year by 2.7 thousand and in the *U.S. Passengers* per year by 234,000. These numbers are considerable relative to the sample median of 5.6 thousand for *U.S. departures* and of 643,000 for *U.S. Passengers.* These results are consistent with those in Figure 2.

Broadly the results in this section and those in Figure 2 are consistent with the notion that OSAs have a significant and positive impact on the ease of travel between the U.S. and signatory countries. Thus, OSAs provides us with a significant and plausibly exogenous change in the effective distance between the U.S. and other countries.

4.3 Likelihood of U.S. PE Investments and Effective Proximity: OSA as a Natural Experiment

In this section, we analyze whether our instrument for effective proximity, i.e., the presence of an OSA, is positively related to the propensity of a U.S. PE firm to invest in the LBO. We thus estimate the following differences-in-differences model:

$$\Pr(US\ buyer_{it} = 1) = \alpha + \beta_1 Post\ open\ sky_{ct} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it}. \quad (3)$$

The result of the logit estimation of equation (3) is reported in Column (1) of Table 4. We find that U.S. PE firms are more likely to invest in LBOs in a country after the OSA is signed between the U.S. and that country. Economically, having an OSA for a country increases the likelihood that a U.S. PE firm will invest in that country by 2.8 percentage points, which is large relative to the unconditional probability of U.S. PE investment in cross-border LBO deals of 12.8 percent. Thus, this result is consistent with the idea that an exogenous change in effective proximity between a country and the U.S. increases the likelihood that U.S. PE firms will invest in LBOs in that country.

One explanation for our results is that they captures an increase in the trend of U.S. PE firm investments in cross-border LBOs, rather than any impact of increase in effective proximity due to the OSA. Thus, in Column (2) of Table 4, we include a control variable called *Pre Open sky(-5,0)*, which is a dummy variable that is one if the announcement date of an LBO lies prior to and within a 5 year period prior to an OSA is signed between the target firm's country and the U.S. If the results indeed reflect a trend effect, then our coefficient estimate should also be statistically significant and positive for the *Pre Open sky(-5,0)* variable.[17] We do not find that this is the case. The coefficient estimate is statistically insignificant for *Pre Open sky(-5,0)*, and is statistically different from that for *Post open sky* (reported in last row).

[17] This also serves an important part of validating our identification strategy. As noted by Roberts and Whited (2011), this methodology helps in serving as a test for the key assumption in difference-in-difference regressions, namely, that of parallel trends.

Another possibility is that, our results really reflect an increasing trend in cross-border LBO investments, in general, rather than due to the impact of OSA on U.S. PE investors' ease of travel. If this is the case, then we should also find that *Post open sky* is a positive related to the propensity of investments by non-U.S. PE firms. We thus conduct a logit regression of the propensity of non-U.S. international PE firms to invest in a country on *Post open sky* and control variables. Specifically, we estimate the following model:

$$\Pr(Intl.buyer\ (Non-US)_{it}=1) = \alpha + \beta_1 Post\ open\ sky_{ct} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it}. \quad (4)$$

In Column (3) of Table 4, we report the result of this test, and find that there is no statistically significant relation between *Post open sky* and the propensity of a non-U.S. international PE firm to invest in the LBO. This test thus serves as a useful placebo check on our analysis. This test also rules out the possibility that an OSA with the U.S. and a country increase the likelihood of success of all LBOs in that country if the OSA allows greater access to U.S. product or public financial markets. If that were the case, then all LBOs in that country should be more likely to be successful, regardless of the identity of the investor.

We conduct additional placebo tests by repeating the tests above with falsified values of *Post open sky*. We report the results of this analysis in Table 5. Column (1) of Table 5 shows the results of our basic logit analysis with the main independent variable being *Post Open Sky (Actual-5),* which is a dummy variable defined as 1 for all LBO deals announced after the date that is five years prior to the actual OSA date, and 0 otherwise. If our basic results relating *Post open sky* to *U.S. buyer* are really due to a trend effect, then our results should hold even in the falsified specification. We find that the coefficient estimate on *Post Open Sky (Actual-5)* is not significant, consistent with the idea that our results are not driven by trend effects. Similarly, in Column (2) of Table 5 shows the results of our basic logit analysis with the main independent variable being *Post Open Sky (Actual +5),* which is a

dummy variable defined as 1 for all LBO deals announced after the date that is five years after the actual OSA date, and 0 otherwise. Again, we find that the coefficient estimate on the falsified open sky agreement dummy, *Post Open Sky (Actual+5),* is not significant, consistent with the idea that our results are not driven by trend effects

4.4 Likelihood of Successful Exit and U.S. PE Investment

We analyze whether U.S. PE investors are successful when they invest in LBOs across borders in this section. In particular, we run the following logit specification:

$$\Pr(Exit\ success_{it} = 1) = \alpha + \beta_1 US\ buyer_{it} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it}. \quad (5)$$

We also conduct the same analysis for non-U.S. international buyers:

$$\Pr(Exit\ success_{it} = 1) = \alpha + \beta_1 Intl.buyer\ (Non-US)_{it} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it}. \quad (6)$$

Specification (5) estimates are reported in Column (1) of Table 6.[18] We find a positive and statistically significant relation between *U.S. buyer* and the probability of successful exit. Economically, having a U.S. PE investor in the LBO is associated with a 2 percentage point higher likelihood of exit. Given that the unconditional probability of successful exit is 16 percent, the increase due to the presence of a U.S. PE investor is economically significant. We also estimate specification (5) using the likelihood of an IPO exit as the dependent variable. The result of this regression is reported in Column (2) of Table 6. We find that the presence of a U.S. PE investor is associated with a 2.3 percentage point higher likelihood of an IPO exit. Thus, the presence of a U.S. PE investor has statistically and economically meaningful relationship with the likelihood of a successful exit of the LBO investment.

[18] Note that the control sample includes LBO firms backed by local PE firms as well as those backed by non-U.S. international PE firms. In tests below, we will also analyze the impact of non-U.S. international PE investors on successful exit.

We then test whether the results above are also true for non-U.S. international investors. We thus estimate equation (6) and report the results of this regression in Column (3) of Table 6. We do not find any significant relationship between the investment made by non-U.S. international PE firms, and the likelihood of a successful exit. This result may reflect the greater extent of expertise of U.S. investors in enhancing the prospects of the LBO target firm.

4.5 Likelihood of Successful Exit and Effective Proximity

We explore whether, and to what extent, proximity and ease of travel to the location of the LBO target firm increases the likelihood of success of U.S. PE investments. Since monitoring requires proximity, monitoring will be more effective when U.S. PE investors can get to their portfolio companies faster, i.e., have greater proximity with them. Further, ease of travel can also potentially increase the ability of U.S. PE investors to potentially screen their investments better. We believe that the latter is less likely to be the case, since travel between U.S. and other developed nations was available prior to OSAs as well, and screening activities do not require as much ease of travel availability as monitoring activities do. We will, nevertheless, refrain from attributing our results in this section specifically to monitoring activity, and will distinguish screening and monitoring in the next section.

Thus, we analyze whether greater effective proximity has a positive relationship with the probability of successful exit:

$$\Pr(Exit\ success_{it} = 1) = \alpha + \beta_1 Proximity_{ct} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it}. \quad (7)$$

Table 7 reports the results of these tests and suggest a positive impact of greater proximity and ease of travel to the U.S. on successful exit of LBO investments. The impact of the ease of travel variables is also economically significant. For instance, a one inter-quartile increase in the number of U.S. airports connected with the country of the LBO target firm

increases the likelihood of successful exit by 6.8 percentage points. The economic magnitudes are also significant for all other ease of travel variables used here.

Next, we test whether the greater propensity of U.S. PE investors to invest across borders when travel becomes easier by analyzing the effect of *Post open sky* on *Exit success*:

$$\Pr(Exit\ success_{it} = 1) = \alpha + \beta_1 Post\ open\ sky_{ct} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it}. \quad (8)$$

We estimate equation (8) for the entire sample, as well as for the sample of firms that receive investment from U.S. PE investors and for the sample of firms that do not receive any investment from U.S. PE investors. Thus, if proximity to the U.S. drives the likelihood of successful exit due to greater U.S. PE investor participation, then this effect is likely to be stronger for the sample of firms that get investment from U.S. PE investors. On the other hand, if proximity to the U.S. drives the likelihood of successful exit due to other reasons such as greater access to U.S. product markets or public financial markets, then the effect of proximity to the U.S. on exit will be significant for all samples.

Table 8 reports the results of this test. First, in Column (1) of Table 8, we find that *Post open sky* is positively and significantly related to the likelihood of successful exit. Economically, an OSA between the U.S. and the country of the LBO target firm is positively associated with a 3.8 percentage point higher likelihood of exit for the LBO target firm. Column (2) of Table 8 indicates that this result is significant for the sample of firms that get U.S. PE investment, whereas Column (3) of Table 8 suggests that this relation is not significant for the sample of firms that do not get U.S. PE investment. Thus, the results so far suggest that an exogenous change in effective proximity results in greater U.S. PE investments across borders, which in turn leads to a higher likelihood of eventual successful exit of the LBO firm. Further, the results in this section also rule out the possibility that our results are reflective of greater proximity to the U.S. leading to greater access to U.S. product markets or U.S. public financial markets (such as the ability to list in U.S. stock markets). If

this were the case, then the effect of proximity to the U.S. would be uniformly positive for all firms, rather than just those that have U.S. PE investors.

We further check whether U.S. PE investors are more successful due to greater proximity to their portfolio firms by conducting a bivariate probit estimation of the following specification:

$$\Pr(US\ buyer_{it} = 1) = \alpha + \beta_1 Post\ open\ sky_{ct} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + e_{it}, \quad (9)$$

$$\Pr(Exit\ success_{it} = 1) = \alpha + \beta_1 US\ buyer_{it} + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + \mu_{it}. \quad (10)$$

Table 9 reports the results of this analysis. We find, from Column (1), that *Post open sky* is positively and significantly related to the propensity of U.S. PE investors to participate in the cross-border LBO of a firm. Column (2) indicates that *U.S. buyer* is positively related to *Exit success*. This is essentially an IV analysis where *Post open sky* is an instrument for *U.S. Buyer*, and suggests that the presence of a U.S. PE investor has a positive effect on the success of the portfolio firm.

4.6 Likelihood of Successful Exit and Effective Proximity: Successful Exit Outcomes of PE Investments Made Before Open Sky Agreements

While the analyses in the prior sections point to a causal relation between U.S. PE investors and the successful exit of LBO firms, the causality is not conclusive. One can, for instance, make the case that being able to fly to the country of the LBO target firm more easily and conveniently due to OSAs can allow PE firms to screen their investments better. Thus, rather than having a causal impact, our earlier results may reflect a greater ability of PE firms from the U.S. to select higher quality investments.

We rule this explanation out by analyzing the sample of LBOs where OSAs occur after the LBO investment has been made by PE investors. In such a sample, screening is unrelated to the OSA, since the OSA occurs after the LBO investment. However, we take advantage of the uncertainty in the timing of the OSA by analyzing whether OSAs right after

(i.e., within one year of) the PE investments are more successful than OSAs that happen later.[19] The intuition is that the monitoring activities should have a greater impact during the earlier part of the LBO investment. Consistent with this idea, practitioner research by Spencer Stuart (Bright and Roberts (2011)) finds that, for a sample of PE investments in Europe that plan a change in CEO at the time of investment (one example of PE monitoring activity), a majority occur within the first 18 months of the investment. Moreover, they find that half of the CEOs that changed in year two to four were underperforming, and a further 10 percent were unable to reach agreement on strategy or were unable to continue the relationship with the private equity firm. These statistics thus support the idea that early monitoring activity by PE investors is important.

We thus expect that OSAs occurring earlier will enhance such early monitoring activities much more and should have a significant impact on the performance of the LBO firm, if indeed our results are partly driven by monitoring. If, on the other hand, our results above relating proximity and LBO success are purely driven by screening effects, then OSAs enacted after the PE investment should have no impact on the successful exit outcomes of LBO firms. We thus estimate:

$$\Pr(Exit\ success_{it} = 1) = \alpha + \beta_1 US\ buyer_{it} * OSA(year \leq 1) + \beta_2 US\ buyer_{it} * OSA(year > 1) + \beta_2 X_{it} + \gamma_c + \delta_j + \rho_t + \mu_{it}. \quad (11)$$

Here, *OSA (year<=1)* refers to LBO deals where the target firm country signs an OSA with the U.S. within one year after the deal announcement, and *OSA (year>1)* refers to LBO deals where the target firm country signs an OSA with the U.S. in or after the second year after the deal announcement.[20] We report the logit and OLS estimations of equation (11) in

[19] We exclude observations for which the PE firm exits the investment within two years after the initial investment. This allows us to study the impact of the OSA on exit rates for exits that occur after the OSA.

[20] Note that we do not expect OSAs to immediately impact monitoring in the first year. Rather, OSAs taking place within one year of the LBO can impact early monitoring activity over the next few years, since it may take time for airlines to expand their services after their countries sign an OSA. Moreover, OSAs that occur later (i.e., year 2 or beyond) will push back effective monitoring activities even later. E.g., it is possible that an OSA

Table 10.[21] Our results indicate that LBO deals that were followed by an OSA within a year of the deal are more successful when a U.S. investor invests in the LBO. However, this effect is not there when the OSA is signed more than one year after the deal is signed.[22] The difference between the coefficients is statistically significant. The OLS results in Column (4) are consistent with this interpretation, suggesting that our results are not biased by the non-linear nature of logit estimation making it harder to interpret the effect of interaction terms.

To ensure that these results are robust, we conduct a similar analysis for non-U.S. international PE firms, and find that the positive effects of the OSA within one year of investment (for U.S. PE firms) disappears; instead, the interaction term between Int. (non-U.S.) buyer and OSA (year<=1) is negative and significant in Columns (2) and (5) for the logit and OLS specifications, respectively. Moreover, there is no statistically significant difference for investments by non-U.S. international PE investors between investments made within one year of the OSA and those made after a year following the OSA. We then rerun the analysis by incorporating interaction terms for both U.S. and other international PE investors in Columns (3) and (6), and find similar results.

Thus, the results in this section rule out a story where the increase in effective proximity positively impacts the success of LBOs purely due to the better screening ability afforded by proximity. If that were the case, then the timing of the OSA after the announcement of LBO deals would not impact their success. Rather, the results suggest that, monitoring has an important role earlier during the LBO and that the impact of monitoring by U.S. PE firms is higher when OSAs are enacted soon after the LBO investment. Broadly the

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that takes place in year 2 will only impact travel by year 3, creating a significant three year gap from LBO investment where difficulties in travel may restrict the effectiveness of monitoring activities undertaken by the PE investor.

[21] The OLS estimation helps us rule out the possibility that our logit based inferences are biased due to incorrect interpretation of interaction terms.

[22] Our results are qualitatively similar if we use 6 month or 18 months as cutoffs instead of one year.

results above are consistent with monitoring activity performed by PE investors in cross-border investments.

5. Conclusion

Using data on international leveraged buyout (LBO) investments, we analyze whether lack of proximity impedes the ability of U.S. private equity (PE) investors to successfully invest across borders. In particular, U.S. PE investors have substantial experience in monitoring and supporting portfolio firms, but have to trade off this advantage with the difficulty of monitoring cross-border LBO investments that are further away. We exploit the exogenous shock to "effective" proximity of U.S. PE investors to other countries due to open sky agreements (OSA) signed between the U.S. and the countries of potential LBO target firms.

We show that the OSAs indeed increase the ease of travel measured by the number of U.S. airports connected to the country of a potential LBO target, the number of U.S.-LBO target country airport pairs connected by direct flights, the number of U.S. departures to the country of the potential LBO target firm, and the number of passengers between the U.S. and the country of the potential LBO target. These ease of travel measures are also related positively to the propensity of U.S. buyers to invest in LBOs in a country as well as the rate of success of these LBO investments. We find that an exogenous increase in proximity due to the ease of travel afforded by an OSA between the U.S. and another country has a positive and statistically significant impact on U.S. PE firms' propensity to invest in LBOs in that country.

Further, improvements in ease of travel between the target firm country and the U.S. are followed by more successful LBO investments in those countries, and this effect is driven by investments made by U.S. PE investors. In addition, for the set of LBOs for which OSAs

occur after the deal, LBOs backed by U.S. PE firms perform better when an OSA happens immediately subsequent to the deal rather than later. Moreover, our results do not reflect access to U.S. product or public financial markets, since we do not find any evidence that OSAs have an impact on success rates of investments by non-U.S. PE firms.

Our results are broadly consistent with the idea that proximity is an important factor when PE investors decide to invest across borders. Further, proximity impacts the success of cross-border LBOs at least partly due to the effect of active monitoring by PE investors.

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Table 1: Summary Statistics

This table reports summary statistics for the leveraged buyouts (LBO) sample used in this sample. The sample covers LBOs in developed countries (non-U.S.) from 2001 to 2010. Panel A reports the summary statistics of various variables used in the paper. *U.S. Buyer* is a dummy variable which equals one if one of the PE firm investing in an LBO is located in the United States. *Intl. Buyer (Non-U.S.)* which is a dummy variable that is one if at least one of the PE firms investing in an LBO is not located in the same country of the target firm and none of the PE firms investing in the LBO is from the United States. *U.S. distance*, is the physical distance, in thousands of miles, between the target LBO firm country's capital (or economic capital, if capital is not very large) to the United States' leading economic city, New York City. *Deal amount* is the imputed deal value. Imputed deal value is the actual deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise. *Number of buyers* is the total number of buyers participating in the LBO transaction. *Local PE activity* is the number of LBO transactions that have taken place in the target country over the last five years. *GDP* is the target country's real GDP in the LBO deal year. *Market cap* is the target country's total real market capitalization in the LBO deal year. Panel B reports the distribution of the announcement year of the LBO deals in our sample. Panel C reports the country in which the LBO target firm is located.

Panel A: Variable description

	Mean	Median	Min	Max	N
U.S. buyer	0.1277	0	0	1	8416
Intl. buyer (Non-U.S.)	0.2189	0	0	1	8416
U.S. distance (1000's miles)	3.9263	3.6277	0.3407	9.9474	8416
Deal amount ($ millions)	167.8536	47.9700	0.0006	5500	8416
Number of buyers	1.2346	1	1	3	8416
Local PE activity	397.712	194	0	1235	8416
GDP ($ billions)	1249.77	1410.49	3.6508	5217.81	8416
Market cap ($ billions)	1530.315	1295.311	1.0269	4736.51	8416

Panel B: Year of LBO deal

Announcement Year	N	Percent
2001	442	5.25
2002	445	5.29
2003	521	6.19
2004	783	9.30
2005	998	11.86
2006	1238	14.71
2007	1447	17.19
2008	1113	13.22
2009	572	6.80
2010	857	10.18

Panel C: Target country distribution		
Country	N	Percent
Australia	322	3.83
Austria	88	1.05
Belgium	157	1.87
Bermuda	10	0.12
Canada	508	6.04
Czech Republic	81	0.96
Denmark	224	2.66
Finland	192	2.28
France	1381	16.41
Germany	1006	11.95
Greece	13	0.15
Hong Kong	32	0.38
Hungary	26	0.31
Iceland	7	0.08
Ireland	42	0.50
Israel	43	0.51
Italy	466	5.54
Japan	250	2.97
Luxembourg	33	0.39
Netherlands	423	5.03
New Zealand	45	0.53
Norway	153	1.82
Singapore	44	0.52
South Korea	46	0.55
Spain	381	4.53
Sweden	400	4.75
Switzerland	133	1.58
United Kingdom	1910	22.69

Table 2: Likelihood of U.S. PE Investment and Effective Proximity

This table reports the results of logit regressions where the dependent variable is *U.S.* buyer, which is a dummy variable which equals one if one of the PE firm investing in an LBO is located in the United States. The independent variables are: *Connected U.S. airports*, which is the number of U.S. airports that have a direct flight to the country of the target firm; *Airport pair connections*, which is the number of airport pairs (one airport in the U.S. and one located in the LBO target firm country) that have a direct flight between the U.S. and the country of the LBO target firm; *U.S. Departures*, which is the number of direct flight departures (in thousands) between the U.S. and the LBO target firm's country; *U.S. Passengers,* which is the number of transported passengers (in millions) between the U.S. and the country of the LBO target firm; *Log U.S. distance*, which is the natural logarithm of *U.S. distance,* where *U.S. distance*, is the physical distance between the target LBO firm country's capital (or economic capital, if capital is not very large) to the United States' leading economic city, New York City; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Connected U.S. airports	0.029***				
	[0.008]				
Airport pair connections		0.008**			
		[0.003]			
U.S. departures			0.014*		
			[0.007]		
U.S. passengers				0.117	
				[0.075]	
Log U.S. distance					-1.054***
					[0.087]
Air agreements	0.257***	0.267***	0.260***	0.266***	0.120***
	[0.053]	[0.053]	[0.054]	[0.054]	[0.013]
Log deal amount	0.319***	0.319***	0.319***	0.319***	0.284***
	[0.045]	[0.045]	[0.045]	[0.045]	[0.042]
Number of buyers	0.436***	0.442***	0.443***	0.443***	0.495***
	[0.066]	[0.066]	[0.066]	[0.066]	[0.062]
Local PE activity	0.000	0.000	0.000	0.000	-0.001***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Log GDP	3.424*	4.199**	4.059**	3.809*	0.363***
	[2.010]	[2.036]	[2.020]	[2.018]	[0.095]
Log market cap	-0.299	-0.409	-0.443*	-0.414	-0.436***
	[0.255]	[0.255]	[0.257]	[0.257]	[0.105]
Target country FE	Y	Y	Y	Y	N
Year FE	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y
Observations	7,897	7,897	7,897	7,897	8,351
Pseudo R-sq	0.117	0.116	0.116	0.116	0.0931

Table 3: The Impact of Open sky agreement with U.S. on Effective Proximity and Ease of Travel

This table reports the results of OLS regressions where the dependent variables are ease of travel variables reported at the top of each column. Specifically, the dependent variable in Column (1) is *Connected U.S. airports*, which is the number of U.S. airports that have a direct flight to the country of the target firm. The dependent variables in Column (2) is *Airport pair connections*, which is the number of airport pairs (one airport in the U.S. and one located in the LBO target firm country) that have a direct flight between the U.S. and the country of the LBO target firm. The dependent variable in Column (3) is *U.S. Departures*, which is the number of direct flight departures (in thousands) between the U.S. and the LBO target firm's country. The dependent variable in Column (4) is *U.S. Passengers,* which is the number of transported passengers (in millions) between the U.S. and the country of the LBO target firm. The independent variables are: *Post open sky,* which is a dummy variable which equals one for years in and after the year in which the country signs an open sky agreement with the United States; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; and *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date. All regressions are estimated with a constant term, and country fixed effects and year fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Connected U.S. airports	Airport pair connections	U.S. Departures	U.S. Passengers
Post Open Sky	2.215**	6.740**	2.740*	0.235*
	[0.908]	[2.740]	[1.435]	[0.140]
Log GDP	0.325	0.776	0.611	0.052
	[0.571]	[1.080]	[0.399]	[0.045]
Log market cap	-9.492	-25.836**	-15.567***	-1.643***
	[6.203]	[12.263]	[5.071]	[0.582]
Local PE activity	-0.006	-0.009	-0.006**	-0.001**
	[0.005]	[0.007]	[0.002]	[0.000]
Air agreements	0.971*	4.613**	2.169**	0.204**
	[0.567]	[2.275]	[0.945]	[0.083]
Target country FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	221	221	221	221
Adjusted R-squared	0.984	0.992	0.996	0.992

Table 4: Likelihood of U.S. PE Investment and Effective Proximity – Open Sky Agreements as a Proxy for Effective Proximity

This table reports the results of logit regressions. The dependent variable in Columns (1) and (2) is *U.S.* buyer, which is a dummy variable which equals one if one of the PE firm investing in an LBO is located in the United States. The dependent variable in Column (3) is *Intl. buyer (non U.S.),* which is a dummy variable that is one if at least one of the PE firms investing in an LBO is not located in the same country of the target firm and none of the PE firms investing in the LBO is from the United States. The independent variables are: *Post open sky,* which is a dummy variable which equals one for all LBO deals signed after the date on which the country of the LBO target firm signs an open sky agreement with the United States; *Post open sky(-5,0),* which is a dummy variable which equals one for all LBOs that are announced in the 5 years prior to the date in which the country of the LBO target firm signs an open sky agreement with the United States; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)	(3)
	U.S. Buyer	U.S. Buyer	Intl. Buyer (Non U.S.)
Post Open Sky	0.294**	0.361*	0.201
	[0.149]	[0.185]	[0.137]
Pre Open sky(-5,0)		0.087	
		[0.160]	
Air agreements	0.236***	0.241***	0.141**
	[0.056]	[0.057]	[0.060]
Log deal amount	0.319***	0.318***	0.142***
	[0.044]	[0.044]	[0.028]
Number of buyers	0.478***	0.477***	0.291***
	[0.063]	[0.063]	[0.056]
Local PE activity	0.000	0.000	-0.000
	[0.000]	[0.000]	[0.000]
Log GDP	2.615	2.519	6.115***
	[1.827]	[1.839]	[1.425]
Log market cap	-0.310	-0.305	-0.656***
	[0.230]	[0.230]	[0.174]
Target country FE	Y	Y	Y
Year FE	Y	Y	Y
Industry FE	Y	Y	Y
Observations	8,351	8,351	8,388
Pseudo R-sq	0.121	0.121	0.135
Post Open Sky – Pre Open sky(-5,0)		0.274*	

Table 5: Likelihood of U.S. PE Investment and Open Sky Agreements - Placebo Tests

This table reports the results of logit regressions where the dependent variable is *U.S.* buyer, which is a dummy variable which equals one if one of the PE firm investing in an LBO is located in the United States. The independent variables are: *Post open sky (actual-5),* which is a dummy variable which equals one for all LBO deals signed after a date that is five years prior to the actual date on which the country of the LBO target firm signs an open sky agreement with the United States; *Post open sky (actual+5),* which is a dummy variable which equals one for all LBO deals signed after a date that is five years after to the actual date on which the country of the LBO target firm signs an open sky agreement with the United States; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)
Post Open Sky (Actual-5)	0.012	
	[0.220]	
Post Open Sky (Actual +5)		0.024
		[0.247]
Air Agreements	0.280***	0.281***
	[0.053]	[0.054]
Log deal amount	0.320***	0.321***
	[0.044]	[0.044]
Number of buyers	0.479***	0.479***
	[0.063]	[0.063]
Local PE activity	0.000	0.000
	[0.000]	[0.001]
Log GDP	2.731	2.757
	[1.890]	[1.869]
Log market cap	-0.349	-0.352
	[0.228]	[0.229]
Target country FE	Y	Y
Year FE	Y	Y
Industry FE	Y	Y
Observations	8,351	8,351
Pseudo R-sq	0.121	0.121

Table 6: U.S. PE Investment and Successful Exit Outcomes

This table reports the results of logit regressions. The dependent variable in Columns (1) and (3) is *Exit Success*, which is a dummy variable which equals one if the firm was able to successfully exit the investment through a trade sale or an IPO. The dependent variable in Columns (1) and (3) is *IPO*, which is a dummy variable which equals one if the firm was able to successfully exit the investment through an IPO. The independent variables are: *U.S. buyer*, which is a dummy variable which equals one if one of the PE firm investing in an LBO is located in the United States; *Intl. buyer (non-U.S.),* which is a dummy variable that is one if at least one of the PE firms investing in an LBO is not located in the same country of the target firm and none of the PE firms investing in the LBO is from the United States; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Exit success	IPO	Exit success	IPO
U.S. buyer	0.156*	0.857***		
	[0.092]	[0.189]		
Intl. buyer (Non-U.S.)			0.023	-0.028
			[0.081]	[0.210]
Air Agreements	-0.002	-0.107	0.004	-0.072
	[0.061]	[0.196]	[0.061]	[0.198]
Log deal amount	0.050*	0.242**	0.054**	0.280***
	[0.026]	[0.104]	[0.026]	[0.105]
Number of buyers	0.065	0.024	0.074	0.101
	[0.060]	[0.136]	[0.060]	[0.139]
Local PE activity	0.000	-0.003**	0.000	-0.003**
	[0.000]	[0.001]	[0.000]	[0.001]
Log GDP	-2.087	-5.187	-2.050	-4.725
	[1.596]	[3.743]	[1.595]	[3.658]
Log market cap	0.072	-0.021	0.069	-0.109
	[0.218]	[0.559]	[0.219]	[0.547]
Target country FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Observations	8,369	7,445	8,369	7,445
Pseudo R-sq	0.0796	0.204	0.0792	0.193

Table 7: Effective Proximity and Ease of Travel with the U.S. and Successful Exit Outcomes of PE investments

This table reports the results of logit regressions where the dependent variable is *Exit Success*, which is a dummy variable which equals one if the firm was able to successfully exit the investment through a trade sale or an IPO. The independent variables are: *Connected U.S. airports*, which is the number of U.S. airports that have a direct flight to the country of the target firm; *Airport pair connections*, which is the number of airport pairs (one airport in the U.S. and one located in the LBO target firm country) that have a direct flight between the U.S. and the country of the LBO target firm; *U.S. Departures*, which is the number of direct flight departures (in thousands) between the U.S. and the LBO target firm's country; *U.S. Passengers,* which is the number of transported passengers (in millions) between the U.S. and the country of the LBO target firm; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Connected U.S. airports	0.019**			
	[0.008]			
Airport pair connections		0.007*		
		[0.004]		
U.S. Departures			0.018**	
			[0.008]	
U.S. Passengers				0.139*
				[0.080]
Air agreements	-0.031	-0.020	-0.024	-0.008
	[0.064]	[0.064]	[0.064]	[0.063]
Log deal amount	0.056**	0.056**	0.056**	0.056**
	[0.027]	[0.027]	[0.027]	[0.027]
Number of buyers	0.067	0.070	0.070	0.070
	[0.062]	[0.062]	[0.062]	[0.062]
Local PE activity	0.000	0.000	0.000	0.000
	[0.000]	[0.000]	[0.000]	[0.000]
Log GDP	-3.188*	-2.943	-2.900	-3.292*
	[1.867]	[1.874]	[1.865]	[1.867]
Log market cap	0.091	0.036	-0.006	0.056
	[0.251]	[0.251]	[0.251]	[0.251]
Target country FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Observations	7,935	7,935	7,935	7,935
Pseudo R-sq	0.0814	0.0811	0.0813	0.0811

Table 8: U.S. Open Sky Agreements and Successful Exit Outcomes of PE investments

This table reports the results of logit regressions where the dependent variable is *Exit Success*, which is a dummy variable which equals one if the firm was able to successfully exit the investment through a trade sale or an IPO. Column (1) reports the regression result for the entire sample. Column (2) reports the regression result for the sample of firms that have at least one U.S. PE investor backing them. Column (3) reports the regression result for the sample of firms that have no U.S. PE investors backing them. The independent variables are: *Post open sky,* which is a dummy variable which equals one for all LBO deals signed after the date on which the country of the LBO target firm signs an open sky agreement with the United States; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)	(3)
	Exit success (Full sample)	Exit success (U.S. buyer sample)	Exit success (Non-U.S. buyer sample)
Post Open Sky	0.300**	1.094***	0.192
	[0.146]	[0.413]	[0.162]
Air Agreements	-0.054	-0.367**	0.011
	[0.066]	[0.164]	[0.077]
Log deal amount	0.054**	-0.067	0.056**
	[0.026]	[0.090]	[0.027]
Number of buyers	0.075	0.329**	0.013
	[0.060]	[0.138]	[0.069]
Local PE activity	0.000	-0.000	0.000
	[0.000]	[0.001]	[0.000]
Log GDP	-2.303	0.518	-3.000
	[1.617]	[3.952]	[1.839]
Log market cap	0.097	-0.127	0.149
	[0.221]	[0.483]	[0.255]
Target country FE	Y	Y	Y
Year FE	Y	Y	Y
Industry FE	Y	Y	Y
Observations	8,369	1,005	7,274
Pseudo R-sq	0.0798	0.152	0.0808

Table 9: U.S. Open Sky Agreements and Successful Exit Outcomes of PE investments - Bivariate Probit

This table reports the results of bivariate probit regressions where the dependent variable in Column (1) is *U.S. buyer*, which is a dummy variable which equals one if one of the PE firm investing in an LBO is located in the United States; and that in Column (2) is *Exit Success*, which is a dummy variable which equals one if the firm was able to successfully exit the investment through a trade sale or an IPO. The independent variables are: *U.S. buyer; Post open sky,* which is a dummy variable which equals one for all LBO deals signed after the date on which the country of the LBO target firm signs an open sky agreement with the United States; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)
	U.S. buyer	Exit success
Post Open Sky	0.172**	
	[0.080]	
U.S. buyer		0.782**
		[0.386]
Air Agreements	0.121***	-0.026
	[0.032]	[0.033]
Log deal amount	0.149***	0.011
	[0.024]	[0.015]
Number of buyers	0.255***	-0.002
	[0.034]	[0.038]
Local PE activity	0.000	0.000
	[0.000]	[0.000]
Log GDP	1.185	-1.317
	[0.950]	[0.888]
Log market cap	-0.139	0.07
	[0.120]	[0.113]
Target country FE	Y	Y
Year FE	Y	Y
Industry FE	Y	Y
Observations	8,416	8,416
Chi2	2.94353*	

Table 10: U.S. Open Sky Agreements and Successful Exit Outcomes of PE investments made Before Open Sky Agreements

Columns 1-3 of this table report the results of logit regressions whereas columns 4-6 report the results of OLS regressions. The dependent variable in both columns is *Exit Success*, which is a dummy variable which equals one if the firm was able to successfully exit the investment through a trade sale or an IPO. The regression sample includes only the LBO deals that are announced prior to the date on which the country of the LBO target firm signs an open sky agreement with the United States. The independent variables are: *U.S. buyer*OSA (year<=1)*, where *U.S. buyer* is a dummy variable which equals one if one of the PE firm investing in an LBO is located in the United States, and *OSA (year<=1)* is a dummy variable which equals one for all LBO deals announced within (but before) one year of the date on which the country of the LBO target firm signs an open sky agreement with the United States; *U.S. buyer*OSA (year>1)*, where *OSA (year>1)* is a dummy variable which equals one for all LBO deals announced at least one year before the date on which the country of the LBO target firm signs an open sky agreement with the United States; *Int. buyer*OSA (year<=1)*, where *Int. buyer* is a dummy variable which equals one if one of the PE firm investing in an LBO is located outside of the country of the acquired firm and is not from the United States, *Int. buyer*OSA (year>1)*, which is the interaction of *Int. buyer* and *OSA (year>1)*; *Air agreements*, which is the number of air services agreements that the LBO target firm's country has signed at the time of the current deal date; *Log deal amount*, which is the natural log of the deal value when available and the predicted value from a regression of deal value on fixed effects for country, investment year and target industry SIC code (2 digit level) otherwise; *Number of buyers*, which is the total number of buyers participating in the LBO transaction; *Local PE activity*, which is the number of LBO transactions that have taken place in the target country over the last five years; *Log GDP*, which is the natural log of the target country's real GDP in the LBO deal year; and *Log market cap*, which is the natural log of the target country's total real market capitalization in the LBO deal year. All regressions are estimated with a constant term, and country of LBO target firm fixed effects, year of LBO fixed effects, and two-digit SIC industry code fixed effects. Robust standard errors are reported in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Logit	Logit	Logit	OLS	OLS	OLS
U.S. buyer*OSA (year<=1)	0.852**		0.758**	0.106**		0.095*
	[0.346]		[0.356]	[0.048]		[0.049]
U.S. buyer*OSA (year>1)	-0.131		-0.190	-0.024		-0.033
	[0.184]		[0.187]	[0.028]		[0.029]
Int. (non-U.S.) buyer*OSA (year<=1)		-0.786*	-0.638		-0.085**	-0.069*
		[0.445]	[0.455]		[0.039]	[0.040]
Int. (non-U.S.) buyer*OSA (year>1)		-0.365	-0.404*		-0.053	-0.059*
		[0.235]	[0.239]		[0.034]	[0.034]
OSA (year<=1)	-0.305	-0.114	-0.286	-0.040	-0.019	-0.040
	[0.265]	[0.259]	[0.273]	[0.033]	[0.034]	[0.034]
Air Agreements	0.026	0.069	0.023	0.010	0.014	0.009
	[0.258]	[0.253]	[0.258]	[0.032]	[0.032]	[0.032]
Log deal amount	0.061	0.072*	0.068	0.009	0.010*	0.010*
	[0.044]	[0.044]	[0.044]	[0.006]	[0.006]	[0.006]
Number of buyers	0.177*	0.181*	0.189*	0.027	0.027*	0.028*
	[0.105]	[0.105]	[0.105]	[0.016]	[0.016]	[0.016]
Local PE activity	0.006**	0.007**	0.007**	0.001**	0.001**	0.001**
	[0.003]	[0.003]	[0.003]	[0.000]	[0.000]	[0.000]
Log GDP	-0.793	-0.851	-0.312	0.304	0.275	0.349
	[4.419]	[4.450]	[4.418]	[0.494]	[0.493]	[0.492]
Log market cap	0.802	0.774	0.799	0.119	0.122	0.121
	[0.596]	[0.601]	[0.601]	[0.086]	[0.086]	[0.086]
Target country FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
Observations	2,192	2,192	2,192	2,234	2,234	2,234
Pseudo R-sq	0.082	0.082	0.085			
R-sq				0.086	0.085	0.088
U.S. buyer*OSA (year<1)						
- U.S. buyer*OSA (year>=1)	0.982**		0.947**	0.130**		0.128**
Int. buyer*OSA (year<1)						
- Int. buyer*OSA (year>=1)		-0.421	-0.235		-0.032	-0.010

Figure 1: Mean GDP and Residual GDP around Open Sky Agreements

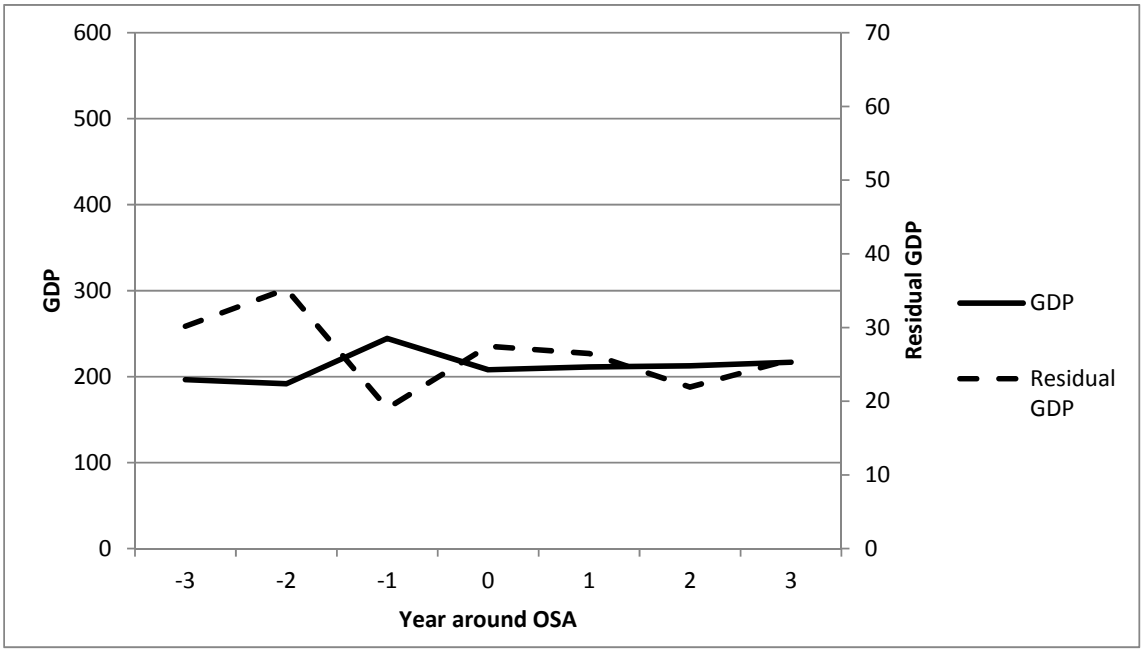

Figure 2: Ease of Travel and Open Sky Agreements