Institutions sans Frontières: International Agreements and Foreign Investment

Srividya Jandhyala*
srividya@gwu.edu

Robert Weiner*
rweiner@gwu.edu

International Business Department
George Washington University
2201 G Street NW, Funger Hall 401
Washington, DC 20052

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Abstract:

Do international institutions – institutions that transcend country borders– reduce MNEs' political risk? We examine whether the presence of International Investment Agreements (IIAs), negotiated among countries for foreign investor protection, lowers political risk faced by MNEs. Drawing on research from international business, political science, and international law, we argue that IIAs increase expected future cash flows, and hence the value of foreign assets, by limiting the ability of host governments to make discriminatory policy changes. However, the need for IIA protection, and the ability to benefit from it, varies with firm characteristics. Using detailed transaction-level data for sale of petroleum assets in 45 countries, we find that MNEs pay significantly higher amounts for those protected by IIAs than similar but unprotected assets, an effect moderated by the firm's reserve size and state ownership.

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Introduction

We draw on social science literature to examine a neglected dimension of a familiar topic in international business research – the effects of institutions and political risk on foreign direct investment (FDI). The IB literature has long emphasized the importance of property rights institutions and political risk in the expansion of multinational enterprises (MNEs) (Kobrin, 1976; Murtha & Lenway, 1994; North, 1990; Henisz & Delios, 2001; Loree & Guisinger, 1995). Perhaps curiously, for a field focused on cross-border activity, IB's take on institutions is almost exclusively domestic and comparative. In focusing on home and host institutions, the IB literature has largely ignored the proliferation of *international institutions* governing foreign direct investment (FDI). Institutions like the World Trade Organization's Agreement on Trade Related Investment Measures, Bilateral Investment Treaties, or Free Trade Agreements themselves transcend national borders, and thus fit uneasily in our framework of home and host countries.

Unlike in IB, international property rights institutions are studied extensively in other disciplines, notably political science and international law. However, the emphasis in these disciplines is on antecedents to adherence by government actors, evolution of legal doctrines, or effects on aggregate FDI at the country, dyad, or multi-country level.[1] Studies of the effectiveness of international institutions in promoting FDI flows yield mixed empirical results, which could be due to country-level aggregation, or because their protection applies only under specific circumstances. Largely missing in these analyses is a fundamental actor – the multinational firm – and its investment decisions; arguably of most interest to IB scholars.

[1] Studies include: international law (Salacuse and Sullivan, 2005; Yakcee, 2008, 2010; Newcombe and Paradell, 2009) economics (Egger & Pfaffermayr, 2004; Egger & Merlo, 2007), and political science (Elkins et al, 2006; Kerner, 2009; Jandhyala et al, 2011; Neumayer and Spess, 2005; Hallward-Driemeier, 2009).

This paper draws on insights from international business, political science, and international law to examine the investment behavior of MNEs. We focus on property rights institutions broadly referred to as International Investment Agreements (IIAs). Since the mid-twentieth century, governments have signed nearly 3000 IIAs, either bilaterally or multilaterally (UNCTAD, 2010). IIAs are aimed at altering the rules governing FDI by providing extensive rights and protection for MNEs, while restricting host governments' actions (Neumayer & Spess, 2005; Buthe & Milner, 2009), and providing alternatives to domestic courts to settle disputes (UNCTAD, 2004).

However, some authors are skeptical of the enhanced property-rights protection claimed for IIAs, arguing that they may be redundant because of protections already in commercial contracts (Yackee, 2009) or ineffective, because of the difficulty in enforcing legal claims against sovereign states (Rose-Ackerman, 2009). The effectiveness of IIAs as a solution to political hazards faced by MNEs remains an open question theoretically and empirically.

In contrast to the aggregate approach discussed above, we examine transaction-level investment data. The empirical setting is a single salient industry – petroleum. In addition to being one of the largest industries for international trade and FDI (Weiner, 2005), petroleum is a propitious setting for studying political risk. The large proportion of petroleum rents, high up-front capital costs, and political salience of petroleum exploration and production all make investment especially prone to rent-seeking by governments in countries of all income levels and political regimes, resulting in recurring expropriations (Kobrin, 1987, Guriev et al, 2011). In a recent example, the Argentine Government nationalized Spain's Repsol-YPF in 2012, after the company announced a major find of a billion barrels of oil the previous year (BBC, 2012).

Using data from the global market for underground petroleum reserves, we examine the amount paid by firms in each transaction to determine the risk mitigating role of IIAs. If firms expect stronger

property rights protection due to the presence of an IIA, they should be willing to pay a premium for assets protected by IIAs when compared to similar, but unprotected assets. The transactions that are not protected by IIAs may be purely domestic – and thus outside the scope of international institutions – or by MNEs whose home governments do not have an IIA with the host country in which the asset is located.

Our study makes three contributions to the literature. First, we introduce and highlight the role of international institutions in multinational investment, in contrast to the IB literature's focus on domestic institutions in home and host countries. IB research on international institutions focuses on corruption regulations (Cuervo-Cazurra, 2008; Jeong & Weiner, 2012) and coercive pressure of multilateral agencies (Henisz, Zelner & Guillen, 2005). We broaden the discussion by examining property rights (a central IB topic since Vernon's (1971) obsolescing bargain), responding to Westney's (2011: 379) call to examine "the global environment beyond the focus on industry competition and other MNCs that has long dominated strategy models."

Second, we provide direct tests of the effectiveness of international institutions in ameliorating political risk using an asset valuation model from the finance literature. Although political risk arising from weak institutions' inability to limit the policy discretion of the host government has long been argued to be an important factor limiting firms' international expansion (Kobrin, 1976; Boddewyn, 1988; Tallman, 1988; Ring, Lenway & Govekar, 1990; Henisz, 2000a), its influence has largely been inferred from indirect outcomes such as FDI flow, location choice, and entry mode. We examine transaction values to obtain a direct estimate of the value, if any, of political risk protection offered by IIAs. We thus complement the country-level study of IIA effectiveness in political science, economics, and international law.

Finally, we bring to the firm level some insights from disciplines that neglect firms, by examining interaction between IIAs and investment behavior. We develop theory that suggests that the need for

IIA protection, as well as MNEs' ability to benefit from such protection, should vary systematically with firm characteristics – particularly the firm's petroleum reserves, and its ownership.

In addition, by comparing domestic and cross-border investment directly, we are able to test whether international institutions can help offset the "liability of foreignness" (Zaheer, 1995) assumed in the IB literature, or even reverse it, so that MNEs are better protected against political hazards than local firms ("liability of localness", Perez-Batras & Eden, 2008; "advantages of foreignness", Un, 2011).

International Investment Agreements

Firms that undertake large upfront investments in licenses, resources, and infrastructure, are vulnerable to the classical "obsolescing bargaining" problem. Once an investment is sunk, bargaining power shifts from the foreign investor to the host country and the interests of the two parties diverge. When the initial advantages of the MNEs erode, host-country governments seek to renegotiate initial agreements to appropriate greater returns from the bargain (Vernon, 1971). Governments can alter the profitability of foreign investment through outright expropriation, or by altering contracts, regulations, taxes, tariffs, entry and exit rules, pricing, etc (Henisz, 2000a; Garcia-Canal & Guillen, 2008; Holburn & Zelner, 2010).

In the absence of a comprehensive multilateral agreement governing rules of FDI (such as the WTO for trade), the question of how firms can protect themselves against post-investment policy changes becomes critical. Since the Second World War, the governance of FDI has fallen on a series of bilateral and regional agreements, collectively referred to as International Investment Agreements (IIAs). IIAs are treaties between two or more countries in which each agrees to promote and protect FDI in its territory by investors of the other(s). These treaties are negotiated and signed by governments, but provide non-state actors (foreign firms and investors) contractual rights (Salacuse & Sullivan, 2005).

IIAs typically entitle foreign firms from signatory countries to be treated fairly, on par with domestic firms, as well as firms from other similarly protected countries.[2] They also protect contractual rights, guarantee the right to transfer profits in hard currency to the home country, and prohibit or restrict the use of performance requirements (Elkins, Guzman & Simmons, 2006). The agreements impose restrictions on discriminatory expropriation by the host government, as well as policy changes that are not for a public purpose. In case of nationalization, the foreign investor is guaranteed prompt, adequate, and just compensation in accordance with the due process of law (Hallward-Driemeier, 2009).

Finally, and perhaps most importantly, IIAs allow MNEs to seek international arbitration against host governments as an alternative to local courts (UNCTAD, 2004). MNEs can choose to convert a dispute with the host government, which might otherwise be settled through informal means or domestic courts, to a public international law dispute to be settled by an arbitration tribunal outside the jurisdiction of the host country (Salacuse, 2007-2008). The firm's home government need not be involved in this process.

Through IIAs, host governments effectively cede aspects of sovereign immunity in order to credibly protect FDI. Unlike domestic courts, states have little control over the process or final decision of the international arbitration tribunal (Elkins, Guzman & Simmons, 2006). Decisions have limited avenues for appeal and cannot be amended by the domestic court system or legislation. The ability to make claims against host country governments is a major departure from conventional international law and significantly expands the rights of MNEs (Van Harten, 2005).

The most prominent of the IIAs are Bilateral Investment Treaties (BITs), signed between pairs of countries (henceforth, dyads), establishing reciprocal terms and conditions for FDI. Since the first BIT signed between Pakistan and Germany in 1959, over 2700 such treaties have been signed involving

[2] Clauses include 'fair and equitable treatment', 'national treatment' and 'most favored nation treatment'

almost every country in the world (Figure 1). BITs are also the most common treaty used by foreign firms to file claims against host countries, with about 80 percent of known treaty-based investor-state dispute-settlement cases initiated using a BIT (UNCTAD, 2009).[3]

In contrast to most FDI, the petroleum sector also has a multilateral agreement – the Energy Charter Treaty (ECT). ECT FDI-protection provisions are similar to BITs including clauses for investor-state dispute settlement through international arbitration (Konoplyanik & Walde, 2006). Although it was initiated as an effort to help secure Eastern European energy supplies for Western Europe, its membership has grown to over fifty states including members of the European Union, other European countries, and a few others (e.g., Australia, Azerbaijan, Turkmenistan, and Mongolia).[4]

Unlike BITs (where at least one party in each dyad is often a developing country), the ECT also protects investments from one industrialized country into another. This is potentially important, as firms have experienced adverse changes in regulation even in countries characterized by government stability. Examples include the UK and Israeli governments changing tax rates on oil production (Manzano & Monaldi, 2008, Levinson & Chazan, 2010), and oil-exporting provinces of Canada and the US raising royalties after investment has been sunk. By considering the ECT in our analysis, we can avoid the existing BIT literature's emphasis on increasing FDI to the developing world, and examine IIA effects on a wide range of countries.

[3] Some cases are private; neither their filing nor resolution is public information.
[4] The ECT's aims are broader, encompassing protection of trade and transit in the energy sector (Konoplyanik & Walde, 2006)

Theory and Hypotheses

Political-science and international-law scholars have developed mixed theoretical predictions about the channels by which IIAs might protect FDI. Some writers view IIAs as instruments by which governments can make credible commitments, using international law to tie the hands of policy makers (Guzman, 1998; Elkins et al, 2006). Thus, IIAs are expected to foster FDI flows. Others have argued, however, that IIAs do not add any additional protection beyond what can already be found in commercial investment contracts (Yackee, 2008). Further, IIA interpretation by arbitral tribunals may be inconsistent (Franck, 2004-2005) and enforcement against sovereign states uncertain (Rose-Ackerman, 2009), suggesting that their presence may not influence FDI flows.

Our analysis focuses on the mechanisms through which IIAs may affect the value of petroleum reserves. In general, assets are valued for their expected future cash flows. We expect IIAs to raise expected future cash flows through three channels.

First, IIA presence provides greater certainty about future treatment of FDI. Host governments are less likely to adopt asset value-decreasing policies in violation of IIAs due to reputational consequences – in the eyes of other countries and investors, as well as credit rating agencies (Kerner, 2009). Further, IIAs take effort to negotiate; successfully agreeing and signing an IIA can help build trust between nations, reducing the likelihood of actions by host governments against MNEs based in signatory countries (Rangan and Sengul, 2009), even when actions may lie outside the formal scope of the IIA.

Second, MNE managers could anticipate that should a dispute arise, the presence of IIAs would provide greater bargaining leverage in negotiations with host country governments. For example, in mid-2010, UK-based Cairn Energy's sale of an oilfield in India to a domestic company was stalled due to a dispute over oil royalties which were so far being paid in full by Cairn's equity partner – state-owned ONGC (Oil and Natural Gas Corporation) (Financial Times, 2011). Although ONGC wanted the tax liability to be

changed as a condition for state approval of the sale, Cairn disputed the imposition of the extra financial burden. The presence of a UK-India BIT provided Cairn with an additional negotiating tool. The Indian Ministry of External Affairs recognized that attempts to impose a settlement in the dispute between Cairn and state-run ONGC would be considered as a denial of "fair and equitable treatment" under the treaty, exposing the country to potential arbitration claims (*Economic Times*, 2011).

Finally, in case of a dispute with a host government, IIAs allow firms to seek international arbitration. IIAs give firms the right to initiate proceedings at a neutral body such as ICSID[5] without approval or support of home governments. Unlike domestic courts, host governments have little control over the process or final decisions of the international arbitration tribunal, nor can they prevent such proceedings from going forward (Elkins, Guzman & Simmons, 2006). Decisions have limited avenues for appeal and cannot be amended by the domestic court system or legislation.[6]

In spite of the uncertainty associated with arbitration outcomes (Franck, 2004-2005; Rose-Ackerman, 2009), we expect managers of MNEs to value the option of arbitration positively. IIA-based arbitration provides additional protection beyond what might be available in the host country or is offered in an investment contract between the firm and the state. Moreover, investor-state contracts may not legally bind states (Bubb & Rose-Ackerman, 2007; Guzman, 1998).

These three channels are consistent with higher future cash-flows from assets protected by IIAs than similar but unprotected assets. Thus,

Hypothesis 1: Asset value will be higher in the presence of an International Investment Agreement.

[5] The World Bank's International Center for Settlement of Investment Disputes (ICSID) is the most popular venue for international arbitration (UNCTAD, 2009). Disputes are also filed under the United Nations Commission on International Trade Law (UNCITRAL), Stockholm Chamber of Commerce, and the Permanent court of arbitration.

[6] In an example of the use of an IIA in the petroleum industry, US-based Burlington Resources filed for arbitration against Ecuador with the ICSID in 2008 to challenge a new law requiring it to pay high taxes on windfall profits from its two reserves in the Amazon region. An ICSID ruling found that Ecuador unlawfully expropriated the firm's investment https://icsid.worldbank.org/ICSID/FrontServlet?requestType=CasesRH&actionVal=showDoc&docId=DC2777_En&caseId=C300, (accessed 27 November 2012)

Firm-level factors

Firms differ in their ability to operate effectively under prevailing institutions. Scholars have described how a firm's experience with a particular activity (see, for example, Capron & Guillen, 2009; Xia, Baol & Delios, 2009; Henisz & Delios, 2001) or ownership structure (Garcia-Canal & Guillen, 2008) moderates the influence of national level institutions. We extend this analysis to examine whether firm characteristics also moderate the effect of international institutions.

Global Reserves: Reserves – underground discovered and commercially recoverable quantities of oil and gas – are a key measure in the upstream petroleum industry. Reserves are a firm's inventory of future production, and hence closely related to firm valuation (Arnott, 2004; Osmunden, 2010). Bank loans are also collateralized against reserves (Muñoz, 2009). Academic studies have established significant relationships between petroleum firms' borrowing capacity and their reserves (Chung, Ghicas & Pastena, 1993), and between reserves and firm value (Misund et al, 2005).

We propose that the positive effect of IIAs on asset valuation is stronger for firms with large global reserves. Larger reserves provide both motivation and means for a firm to utilize an IIA, thereby increasing its value in asset valuation.

Firms with large reserves may have strategic reasons to protect their assets in the case of a dispute with a host government. In the petroleum industry, MNEs with larger reserves tend to be more geographically diversified *(Petroleum Intelligence Weekly,* 2011), and may associate failure to oppose regulatory changes in one country with other host countries' demands for concessions. For example, Exxon Mobil aggressively pursued international arbitration against the Venezuelan government, as it had implications for the company's assets in other countries, such as Russia and Nigeria (Witten, 2008-

2009). Thus, firms with large reserves are likely to use, and value IIAs' dispute resolution provision more than firms with smaller reserves.

In addition, large reserves also provide firms with the financial capacity needed to utilize IIAs. Financial capacity is crucial to IIA utilization for two reasons. First, international arbitration is an expensive process, requiring specialized intermediaries. UNCTAD (2009) estimated claimants' arbitration costs and legal fees at $5-12 million (equal to 5-10% of our median sample investment of $114 million); in comparison, the median equity-market value of publicly-traded petroleum firms on the Toronto Stock Exchange (the exchange with the largest number of petroleum listings) is about $21 million (as of November, 2012). Further, the burden of selection of arbitrators itself falls on the parties to the arbitration, and in some cases, so does the choice of arbitration rules and venue for arbitration. We argue that firms with larger reserves should be better able to absorb financial costs associated with the use of IIAs and also have better access to specialized intermediaries, and thus should be able to take better advantage of IIAs.

Second, enforcement of arbitral awards by winning firms may also depend on their resources. In the absence of supranational law enforcement, the jurisprudence and enforceability of awards can be problematic (Yackee, 2008). If a host government does not honor an arbitral award, a firm can initiate satellite litigation to seize assets abroad (Skinner et al, 2010), as well as seek assistance from its home government. Empirical studies have shown that ability to influence government varies with financial resources (Macher et al, 2011; Chong & Gradstein, 2010).

Thus if IIAs are effective, the positive effect on valuation of assets will be higher for firms with larger reserves, which suggests:

Hypothesis 2: Firm reserve size moderates the relationship between IIAs and asset value, such that the relationship is stronger for firms with larger reserves.

Ownership: Luo & Tung (2007) note that while state-owned firms make commercial investments, they are also expected to contribute to economic development at home, and are subject to home government influences. State-owned petroleum firms may invest in politically risky countries in order to secure national oil supply (Ramaswamy et al, 2012). Given the strategic involvement of the state, we propose four reasons why state-owned firms are less likely to value the risk-mitigating role of IIAs.

First, state-ownership not only is associated with a more tolerant risk attitude (Garcia-Canal & Guillen, 2008; Megginson & Netter, 2001) but also greater access to diplomatic mechanisms of dispute resolution. In case of a dispute with the host government, managers would anticipate state intervention and the use of diplomatic tools in resolution. The home government may negotiate directly with host officials. Further, the home government may also put additional pressure on the host to resolve the dispute by linking various issues in the state's foreign policy to the dispute on hand. While it does not preclude the use of international arbitration, this option gives state-owned firms alternative (and potentially less expensive and more effective) mechanisms of dispute resolution.

Second, the prospect of antagonizing their owners may make host countries less likely to expropriate state-owned firms. If managers of SOEs expect their risk of operating overseas to be lower, they will also value risk mitigating options lower than their non-state-owned peers.

Third, governments balancing multiple diplomatic considerations may intervene to prevent state companies from seeking enforcement of IIAs altogether. When a state's foreign policy conflicts with its firms' asset protection, it may ask the managers to desist. Thus, IIAs may be less useful as well as less necessary to state-owned firms.

Finally, recent legal scholarship suggests that IIA protection for investment by state-owned firms may be uncertain or unavailable (Blyschak, 2011). Many IIAs are vague about the availability of international arbitration for state-owned firms, leaving it to interpretation by a tribunal. Further, the potential venues for arbitration may also be smaller – ICSID rules, for example, may prevent any arbitration by a state-owned firm that may be discharging a governmental function or acting as an agent of the state. We therefore propose:

Hypothesis 3: State ownership moderates the relationship between IIAs and asset value, such that the relationship is weaker for state-owned firms.

Empirical analysis

We test our hypotheses using acquisitions of petroleum reserves. As noted above, reserves are inventory to be produced in the future; they are thus more homogenous and hence comparable across firms than assets such as plants or organizational divisions. In addition, commonly used metrics account for cost variations that affect reserve value, and widely quoted petroleum prices serve to establish cash-flows, allowing ready valuation of each asset. Finally, unlike most other assets, petroleum reserves are actively traded in a global market, allowing us to exploit a database of reserve-transaction announcements that include reported prices and reserve size.

We use publicly-announced-transaction data collected and maintained by the US firm John S. Herold Incorporated (JSH) for the period 2000-2007.[7] We restrict the sample to transactions in which all reserves are located in a single host-country, and the buyer is from a single home-country. Dropping deals with values under $10 million or missing, we obtain 1592 observations. Approximately three-

[7] We are grateful to JSH (now a part of IHS Inc.) for permission to use the data.

fourths of these transaction are of assets located in the US or Canada, and differ from the rest of the sample.[8] In order to avoid our results being dominated by North American transactions, we exclude them from our statistical analysis. Our final sample consists of 409 observations. Table 1 shows the distribution of transactions by host country (country wherein reserves are located) in the sample.

We follow the asset pricing model developed by Click & Weiner (2010), and model the value of a petroleum reserve as

$$V_R = R(P^E - C^E) \qquad (1)$$

Where V_R refers to the reserve value, R is the size of the reserve, and P^E and C^E are respectively expected petroleum prices and costs over the life of the reserve. Costs are often estimated as proportional to prices, both because the main component of cost is output taxes and royalties, and because production costs tend to rise with prices.[9] Thus, our specification for conventional reserves transforms to

$$\left(\frac{V_R}{R}\right) = P^E(1 - \emptyset) \qquad (2)$$

Rewriting in logarithmic form, and introducing international agreements, political risk, and other control variables, we arrive at the equation that we estimate:

[8] The large representation of North American transactions is in part due to national regulations and in part due to geology. In some of the largest oil producing countries (e.g., Saudi Arabia, Kuwait, Iran, and Mexico), petroleum is a state monopoly; hence they are not in the data. Geology also plays a role. Most North American transactions are for onshore reserves, which can be economic on a smaller scale. Outside the US and Canada, much of the oil reserves are offshore, where substantial scale economies result in large transaction sizes and fewer transactions. With the exception of parts of the Gulf of Mexico, Alaska, California, and the Maritimes, offshore drilling is prohibited in North America. Median deal size in North America is roughly $77 million, vs. $114 million elsewhere. Small firms account for about 60% of purchases in North America, but only 30% elsewhere.

[9] Petroleum production is heavily taxed worldwide, through a variety of fiscal structures. While complex and non-linear in output, they are effectively linear in prices (Van Benthem and Stroebel, 2010), motivating (2).

$$\ln\left(\frac{V_R}{R}\right) = \mu + \alpha \ln P^E + \beta\,(IIA) + \gamma\,(IIA * FirmCharacteristics) + \delta\,(political\ risk) + \sum_i \delta_i (cost\ proxies)_i + \sum_j \eta_j (controls)_j + \varepsilon \quad (3)$$

Our identification strategy is based on the fact that only some transactions are covered by IIAs. We compare transactions protected by IIAs – where the acquisition is by a foreign firm whose home country has previously negotiated an IIA with the host country – to transactions by MNEs whose home governments do not have an IIA with the host country, as well as domestic firms (which are not protected by international institutions). Thus, we estimate the premium due to the presence of IIAs, if any, on the transaction value of an asset.

Dependent variable: Our dependent variable is the value of petroleum reserves in the ground on a per barrel basis for each transaction. Following industry practice, we aggregate reserves of crude oil and natural gas based on thermal energy equivalence – the energy in 1 barrel of oil is on average equal to the energy in 6000 cubic feet of gas (Berry, Hasan & O'Bryan, 1998). Thus our dependent variable is measured in equivalent barrels of oil.

Using the value per barrel of oil at the transaction level as the dependent variable, rather than aggregate FDI flows, allows us to mitigate potential endogeneity issues in estimation. Some authors argue that increased FDI flows in a host country may cause an IIA to be signed with the home country as investors seek additional protection for their investment (Swenson, 2009; Aisbett, 2009; Kerner, 2009). The possibility that IIAs are an effect, rather than a cause of FDI decisions, is unlikely to arise here, as it would require that country level decisions regarding IIA partners are driven by transaction values. We verify this through a two-stage Heckman procedure described in the robustness tests.

Independent variables: Our primary independent variable is the presence of an International Investment Agreement (IIA). For every transaction, we create a dummy, IIA, coded 1 if the transaction is protected by an international investment agreement, and 0 otherwise. Roughly 31 percent of our transactions are covered by IIAs. We code the variable IIA to be 1 if the home and host countries of a transaction either have a BIT (87% of IIA-protected investments) or are signatories to the ECT (13%).[10]

Our second variable of interest is a firm's worldwide petroleum reserves. Data on total reserves are not reported systematically, and often unavailable for firms that are privately- or state-held. Instead, we use JSH's classification of firm-wide reserves as large, medium, or small, and create a dummy variable, Reserve Size, that is equal to 1 for firms with large reserves and zero otherwise.

The third variable in our analysis captures whether a firm undertaking FDI is state-owned. The dummy variable Foreign State Ownership is coded 1 if there is any ownership by a foreign government.

Control variables: We also include a number of control variables, broadly classified under three categories – host country, transaction, and reserve.

Host country controls: We first control for the host country's political risk. Political risk has been shown to impact asset values (Click & Weiner, 2010); the greater the political risk in the host country, the lower is the reserve value. Thus, we control for the extent of host country political risk using the political constraints (Polcon) measure (Henisz, 2000b). We also include a set of host country dummies to capture other factors that vary by country and may impact the asset value (e.g: royalty and tax rates, other cost factors, geographic distance, infrastructure quality).

[10] Note that when they have FDI in several countries, MNEs in principle can "treaty shop" for protection through host-country BITs with countries of their subsidiaries, rather than with their home country. Jurisdiction (hence protection) of FDI under such third-country BITs has been found to be problematic, however (Skinner et al 2010), and is ignored in our work.

Transaction level controls: We introduce a set of four controls at the transaction level. We differentiate between asset purchases by domestic and foreign investors. Domestic investors may have access to superior local information or different risk perceptions when compared to their foreign rivals which may influence their assessment of asset value. To control for this, we include an indicator variable, coded 1 for all transactions in which the home country of the buyer is different from the host country where the reserves are located, and 0 otherwise.

We control for whether the transaction involved a Merger or Acquisition (M&A), or a pure asset sale. M&A entails purchase of an entire firm with all its assets and liabilities, or a fraction of the target firm's equity. Asset sales refer to specific reserve assets, and entail no claim on the seller's equity. Asset sales are typically smaller in size and value than mergers and acquisitions; the sign of their effect on value per barrel of oil is unclear.

Since the value of the petroleum in the ground should depend on its expected market price once extracted, we follow Click & Weiner (2010) and include the expected future price of petroleum, measured by futures strip prices (the average of futures prices of the nearest 36 months ahead) for crude oil and natural gas on the New York Mercantile Exchange (NYMEX).

We consider the source of the transaction announcement (buyer or seller). Although reserves are typically assessed by outside consultants, buyers may be systematically more optimistic in interpreting reserve data and advice than sellers, and thus report larger reserves (Click & Weiner 2010). Thus, we include a dummy variable that takes the value 1 for those transactions in which data are reported by the buyer; we expect the coefficient to be negative.

Oil and reserve level controls: We include a series of controls for the quality of oil and the type of reserve. These variables are expected to capture the physical characteristics of the reserve.

Although considerable care is taken in the industry to determine reserve size, the exact size of each reserve is unobservable; instead the industry employs probabilistic definitions. Reserves are typically characterized as 'proved' (1P) or 'proved + probable' (2P). *Proved reserves* refer to the quantity of oil and gas in the ground that is economically extractable at current prices and costs with 90 percent probability. *Probable reserves* are similarly defined, but with 50 percent probability. All else equal, 1P transactions are more valuable; and we control for which figure is reported in each transaction using a dummy variable. We expect this variable to have a negative coefficient.

Next, we include two variables to control for the quality of oil. First, we include a dummy variable for heavy crude (Heavy Oil) because it fetches less in world markets than other types of oil; thus we expect the coefficient of this dummy to be negative. Second, we construct a variable that represents the percentage of natural gas in each reserve[11]. If oil and gas are identically priced based on their energy equivalence, we would expect the coefficient of this term to be equal to 0.

Finally, we control for differences in extraction costs and technology employed to recover and process the petroleum using a series of dummy variables. Excluding the onshore conventional process, we include dummy variables for each of the following categories: coalbed methane, liquefied natural gas (LNG), offshore shallow water, offshore deep water, frontier, and enhanced recovery production, and diversified. Except for the last category, each of the other categories is costlier than conventional extraction. Diversified refers to reserves with diverse characteristics; its effect on reserve value is unclear.

In addition to all the above controls, we finally include year dummies to account for any time specific effects beyond oil price changes, as discussed above.

[11] Although our dependent variable is measured in equivalent barrels of oil, some authors have argued that the ratio of the market values of oil and gas need not be equal to their energy ratios (Adelman & Watkins, 1995).

Results

We present the summary statistics for our sample and the correlations among the main variables in Table 2. The mean value of petroleum in the ground (i.e., asset value) is exp(1.49) = $4.47/barrel of oil equivalent and the mean market value is exp(3.77) = $43.69/barrel of oil equivalent.

Our main results using OLS models with robust standard errors are presented in Table 3. Model 1 of Table3 includes all the control variables discussed above. Model 2 introduces the main IIA variable while Models 3-5 show the interaction effects of IIA with Firm Resources and Foreign State Ownership.

In Model 2, we introduce our main independent variable of interest – the IIA dummy. We find the coefficient of this dummy to be positive and significant. We interpret this coefficient to suggest that the presence of an IIA increases investors' valuation of a foreign petroleum asset by approximately 27%. In comparison, Click & Weiner (2010) find that a one standard deviation increase in host-country political risk is associated with a 20-25% value discount. Thus, we find support for first hypothesis.

The next two models (Models 3-4) include the two interaction terms of IIA with Reserve Size and Foreign State Ownership respectively. In interpreting these interaction effects, we follow Brambor, Clark & Golder (2006) who argue that we cannot infer whether a variable has a meaningful conditional effect on the dependent variable simply by looking at the magnitude and significance of the coefficient on the interaction term alone. In order to examine conditional hypotheses (such as the interaction effects presented here), we need to perform conditional tests that take into account the coefficients of the main and interaction terms together, and calculate the relevant standard errors (in addition to the ones reported in the traditional regression table). In other words, the effect of IIA on the dependent variable depends on the value of the conditioning variables (firm characteristics).

In order to assess the interaction terms in our models, we calculate the marginal effects of IIA under (1) large and small firm-wide reserves, and (2) state-owned and non-state owned conditions of the firm's ownership. These effects are presented, along with their corresponding standard errors, in Table 4. We find that firms with large and small reserves differ significantly – for firms with large reserves, the presence of an IIA increases their willingness to pay for foreign petroleum assets by 43%. For firms with small reserves however, there is a small but insignificant negative effect. In Figure 2a, we plot this interaction effect. We interpret this finding to suggest that reserve size interacts with international institutions, and thus provide support for hypothesis 2.

Similarly, we find that firms with and without state ownership differ significantly. For firms without state ownership, the presence of an IIA significantly increases mean value of foreign petroleum assets by 30%. For firms with foreign state ownership, this effect is insignificant. In Figure 2b, we plot this interaction effect. We interpret this finding to provide support for hypothesis 3. This pattern of results is also observed in the full model where we include both interaction terms simultaneously.

Across the models, political risk variables are not significant, their effect likely absorbed in host-country dummies. The coefficient of the cross-border dummy is also insignificant. Given host-country fixed effects, this suggests that non-IIA-protected transactions are valued similarly, whether foreign or domestic. Thus, together with the premium for IIA protection (H1 above), our results suggest that IIAs can provide an advantage to FDI.

Transaction-level control coefficients are as expected. M&A transactions are associated with higher value than asset purchases, consistent with takeover premeia widely-discussed in the finance literature. The coefficient on futures strip price indicates that the value of petroleum underground increases one-for-one with expectations of its value in the market. The negative coefficient on the Proved + Probable dummy confirms that buyers value lower-probability reserves less. Not surprisingly, the coefficient on

the dummy for reserve-information being provided by the buyer is negative, consistent with buyer optimism about underground reserve estimates. Results on the control variables capturing physical properties of the asset are largely insignificant.

Robustness checks

We undertake a series of robustness checks to examine the validity of our results.

Our empirical specifications above assume take IIAs as exogenous. Yet a literature in political economy explains likelihood of signing an IIA by characteristics of the countries involved (Elkins, Guzman & Simmons, 2006; Jandhyala, Henisz & Mansfield, 2011). IIAs as a policy response to underlying conditions raise the possibility of endogeneity bias, e.g., if these conditions include lobbying by firms engaging in FDI that wish to raise the value of their investments. Indeed, endogeneity has been shown to bias estimate results of relationships between FDI flows and BITs, and may explain some of the mixed results in the literature (Aisbett, 2009; Kerner, 2009).

We address endogeneity through a Heckman (1979) two-stage procedure. The first stage is a probit model to estimate the likelihood of two countries' signing an IIA. Table 5 reports results from our first-stage-model, based on Jandhyala, Henisz & Mansfield (2011). The model's explanatory variables are proxies for vertical FDI potential (dyad per capita income difference), horizontal FDI potential (size of dyad economies), diffusion of IIAs (total number of BITs and ECT members), geographic distance between dyad countries, and dyad political risk (average dyad POLCON score)[12].

[12] The results reported in this table use all potential home-host dyads worldwide. We also estimated this model on the countries in our sample, with similar results.

Table 6 reports the second stage regression of transaction value on the variables in Table 3, augmented by the Inverse Mills Ratio (IMR) as an indicator of endogeneity bias. The IMR coefficient is insignificant, however, indicating the absence of such bias. Further, the coefficients of the IIA variable and its interaction with reserve size and foreign state ownership remain similar to those reported in the main results.

A second concern is that non-IIA transactions are under-sampled. If IIAs add value by protecting FDI, then selection bias may occur if observations not protected by IIAs ("non-IIA transactions") fall just below our threshold for sample inclusion. We address this potential selection bias by lowering the threshold for non-IIA transactions. To be conservative (and hence err in the opposite direction of oversampling non-IIA transactions), we chose $8 million as the threshold value for non-IIA transactions (compared to $10 million for IIA-transactions)[13]. Lowering the threshold adds 7 non-IIA transactions to the sample; but does not affect our empirical results above (Model 1, Table 7).

Next, we explore the different effects of IIAs for firms with large and small reserves by undertaking a sub-sample analysis. Models 2 and 3 in Table 7 include only firms with large and small reserves respectively. In Model 2 (large reserves sub-sample), we observe that the coefficient of IIA is positive and significant. However, in Model 3 (small reserves sub-sample), the coefficient of IIA is not significant.

We explore a similar sub-sample analysis with foreign state ownership in Models 4-5 in Table 7. In Model 4 (firms with foreign state ownership), the coefficient of IIA is not significant, while it is positive and significant in Model 5 (firms without foreign state ownership).

A fourth concern may be that our results are confounded by including both BITs and ECT in the coding of IIAs. While a BIT and the ECT provide similar protection for foreign investors, they also differ in some

[13] This effectively allows for IIAs to enhance asset value by up to 25 percent ($10 million/$8 million = 1.25)

ways.[14] In our sample, most IIA-protected transactions are through BITs (87%). Thus, we restrict the next model to only protection from BITs and include its interaction with Reserve Size and Foreign State Ownership. In Model 6, we observe a pattern of results similar to that reported using the IIA dummy although the results are significant only at the 10% level.

Another concern is that our results reflect unobserved differences between domestic and cross-border transactions, as our primary specifications compare IIA-protected cross-border investments against both non-IIA protected FDI and domestic transactions. While IIAs do not protect domestic investment, we may nonetheless be confounding the comparison set. Thus, we restrict our sample to cross-border transactions (those in which the buyer's home country is different from the country in which reserves are located). Model 7 shows that the results are substantively similar to those reported above, although the Foreign State Ownership interaction is no longer significant.[15]

Finally, many of the countries in our sample have very few transactions. With one or two transactions per country, our results may be driven by cross-national differences rather than the difference in IIA protection. Thus, in Model 8, we restrict our sample to those countries in which five or more transactions are reported. This reduces the number of host countries in our sample from 45 to 18. However, the results are consistent with those reported for the full sample.

Taken together, our results support the argument that IIAs provide investor protection, but this effect is moderated by a firm-wide reserves and foreign state ownership; IIA protection enhances value only for firms with large reserves, and those not owned by a foreign state.

[14] BITs do not protect domestic investment. The ECT is less clear; e.g., foreign shareholders brought a claim (not resolved at this writing) against the Russian government after it expropriated domestic company Yukos.
[15] We repeat this test including cross-border transactions occurring in North America, and find similar results

Discussion

IB scholarship has largely neglected the role of international institutional arrangements as potential safeguards for FDI. Yet international institutions for trade and investment are rapidly proliferating; the World Trade Organization, Regional Trade Agreements, and Bilateral Investment Treaties are all examples of international institutions that have significantly altered the rules of international commercial transactions. As noted by Westney (2011: 380), we are witnessing "a profound transformation of regulatory patterns, involving the decline of the state-centered regulation that MNCs have become so adept at managing, in favor of an array of new regulatory modes" shaped by states, international organizations, and civil society. Thus, in studying MNE strategy, we need to extend our analysis beyond country-specific institutions (Ramamurti, 2001; Chan, Isobe & Makino, 2008).

Our analysis takes a step down this path. Building on studies in international law on sovereign rights and obligations, and global governance research in political science, this study examines a topic at the heart of international business – political risk and its mitigation. The interdisciplinary approach here leads to insights that contribute to the different literatures. In departing from the traditional IB focus on home and host institutions, we offer empirical tests of the effectiveness of IIAs in protecting FDI. We demonstrate that MNEs value assets protected by IIAs higher than similar unprotected assets. In doing so, we are able to examine an institutional mechanism by which foreign firms may obtain an advantage of foreignness.

Our approach and results also contribute to the political science literature that has primarily examined the relationship between IIAs and aggregate FDI flows, with mixed results. We find that the effect of IIAs to be moderated by a firm's reserves and ownership. Since IIAs are effective in risk mitigation only for certain types of firms, aggregation may lead to incomplete inference. Finally, our approach also complements the primarily theoretical approach in legal scholarship.

Our findings are in contrast to recent survey evidence suggesting that managers may be unaware of IIAs or view them to be insignificant in investment decisions (Yackee, 2010; Poulsen, 2010). This difference is likely due to the sample of industries surveyed. Investments in natural resources or regulated industries with large, upfront capital costs and high political salience are especially prone to political risks. Thus, managers in these industries may be particularly sensitive to political risk, and options for its mitigation. While raising the issue of generalizability of findings, single-industry studies offer researchers a powerful arena for testing propositions. Thus, utilizing a market approach to shed light on the role of IIAs across multiple industries remains open for future research.

In future work, we would like to explore how a country's history and reputation in international arbitration influences investors' expectations of property rights protection. Although the number of investment-treaty disputes have risen sharply in the last decade to over 300 (UNCTAD, 2009), the jurisprudence and enforceability of resulting awards is still in its infancy (Yackee, 2008), and concerns have been raised about the effectiveness of the protective dispute resolution system. Uncertainty over implementation of IIAs may reduce their value to investors.

Finally, we acknowledge an important limitation of this study – our explanations are based on inference from indirect evidence. We attribute the positive and significant effects of IIAs we find in the econometric analysis to increased property rights protection for foreign investors without directly observing property rights mechanisms. Thus, a more granular approach – examining specific motivations of asset valuation coupled with qualitative analysis – would greatly enhance our understanding of the micro-processes and mechanisms that influence the strategic choices of foreign investors.

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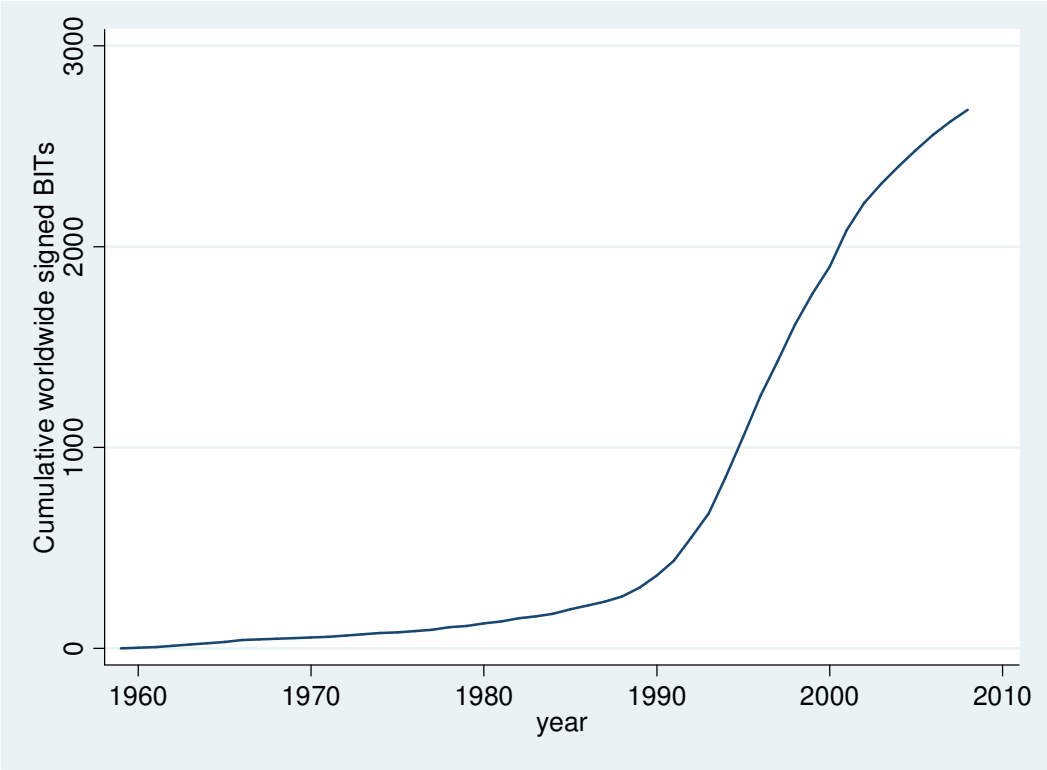
Figure 1: Worldwide cumulative number of BITs signed, 1959-2008



Source: UNCTAD

Table 1: Host Countries for petroleum reserves transactions in the sample

Total number of transactions = 409

Asset Location	Total Transactions	Asset Location	Total Transactions
Algeria	6	Kazakhstan*	24
Angola	3	Libya	3
Argentina	19	Mongolia*	1
Australia*	33	Netherlands*	5
Azerbaijan*	5	New Zealand	6
Bangladesh	3	Nigeria	1
Brazil	3	Norway*	25
Cameroon	2	Oman	3
China	11	Pakistan	3
Colombia	10	Papua New Guinea	3
Congo	9	Peru	1
Croatia*	1	Philippines	3
Denmark*	5	Romania	1
Ecuador	6	Russia*	77
Egypt	11	Sudan	4
France*	3	Thailand	4
Gabon	4	Trinidad and Tobago	4
Germany*	1	Tunisia	5
Guatemala	1	Turkey*	1
India	3	Ukraine*	2
Indonesia	34	United Kingdom*	54
Ireland*	1	Venezuela	4
Japan*	1		

Note: * indicates ECT signatory country

Table 2: Summary Statistics and correlation table for the main variables

		-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-
	Mean	1.50	0.31	0.68	0.12	0.43	0.64	3.78	0.30	0.36	0.04	19.55	0.35	0.02	0.03	0.14	0.03	0.03	0.01
	SD	1.16	0.46	0.47	0.33	0.32	0.48	0.48	0.46	0.48	0.19	34.78	0.48	0.15	0.17	0.35	0.18	0.18	0.10
	Min	-2.92	0	0	0	0	0	2.99	0	0	0	0	0	0	0	0	0	0	0
	Max	4.15	1	1	1	0.87	1	4.50	1	1	1	100	1	1	1	1	1	1	1
1	ln(V/R)	1.00																	
2	IIA	0.04	1.00																
3	Reserve Size	-0.20	0.04	1.00															
4	Foreign State Ownership	0.02	0.26	0.20	1.00														
5	Host Polcon	0.25	-0.05	0.09	-0.07	1.00													
6	Crossborder	0.17	0.50	-0.02	0.28	0.03	1.00												
7	ln(Oil Strip Price)	0.35	-0.04	-0.33	-0.10	-0.14	-0.02	1.00											
8	M&A	0.06	0.02	-0.11	-0.12	-0.10	-0.04	0.15	1.00										
9	Proved + Probable	-0.22	-0.01	-0.02	-0.05	0.03	-0.04	0.22	-0.13	1.00									
10	Heavy Oil	0.05	0.11	-0.02	0.11	-0.03	0.05	0.01	-0.05	-0.12	1.00								
11	% Gas of proved reserve	0.04	0.02	0.03	0.05	0.26	0.02	-0.13	0.08	-0.42	-0.11	1.00							
12	Buyer report	0.03	-0.06	-0.17	-0.11	0.04	-0.01	0.23	-0.08	0.09	-0.02	-0.12	1.00						
13	Coal Bed	0.05	-0.10	-0.04	-0.06	0.20	-0.17	0.14	0.08	-0.04	-0.03	0.25	0.03	1.00					
14	LNG	-0.16	0.04	0.12	0.07	0.02	0.07	-0.13	-0.11	-0.04	-0.04	0.25	-0.10	-0.03	1.00				
15	Shallow Water	0.24	-0.07	-0.09	-0.07	0.21	0.06	0.29	-0.14	0.21	-0.08	-0.03	0.10	-0.06	-0.07	1.00			
16	Deep Water	0.00	-0.07	0.10	0.13	0.13	0.08	0.10	-0.12	0.20	-0.04	-0.04	0.09	-0.03	-0.03	-0.08	1.00		
17	Frontier	-0.17	0.09	0.03	-0.03	-0.16	-0.04	0.01	0.06	0.04	-0.04	-0.10	-0.05	-0.03	-0.03	-0.07	-0.03	1.00	
18	Diversified	0.07	-0.01	0.02	-0.04	-0.04	-0.03	0.07	0.10	-0.02	-0.02	0.03	-0.07	-0.01	-0.02	-0.04	-0.02	-0.02	1.00

Table 3: OLS models with robust standard errors

Dependent variable = ln(Transaction value of petroleum reserves, per barrel)

	-1-	-2-	-3-	-4-	-5-
IIA (H1)		0.2716*	-0.0649	0.3007*	-0.0328
		(0.133)	(0.214)	(0.139)	(0.216)
Reserves Size	-0.1014	-0.0948	-0.2396+	-0.0915	-0.2432+
	(0.103)	(0.102)	(0.126)	(0.103)	(0.125)
IIA * Reserves Size (H2)			0.5044*		0.5389*
			(0.238)		(0.238)
Foreign State Ownership	0.2163	0.1467	0.0902	0.241	0.265
	(0.160)	(0.170)	(0.168)	(0.316)	(0.308)
IIA * Foreign State Ownership (H3)				-0.154	-0.2919
				(0.352)	(0.347)
Host Polcon	0.1023	-0.0798	-0.1574	-0.0661	-0.1368
	(0.506)	(0.519)	(0.505)	(0.521)	(0.506)
Crossborder	0.1159	-0.0217	-0.0026	-0.036	-0.0282
	(0.100)	(0.114)	(0.116)	(0.112)	(0.114)
ln(Oil Strip Price)	1.0050*	1.0250*	0.9402*	1.0213*	0.9274*
	(0.432)	(0.432)	(0.429)	(0.431)	(0.425)
M&A transaction	0.1783+	0.1675+	0.1495	0.1688+	0.1508
	(0.100)	(0.101)	(0.098)	(0.101)	(0.099)
Proved + Probable Dummy	-1.0233***	-1.0521***	-1.0667***	-1.0537***	-1.0707***
	(0.117)	(0.121)	(0.119)	(0.121)	(0.119)
Heavy Oil	-0.198	-0.1953	-0.2219	-0.1888	-0.2113
	(0.218)	(0.212)	(0.219)	(0.212)	(0.220)
% Gas of Proved Reserve	-0.0060***	-0.0061***	-0.0061***	-0.0063***	-0.0064***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Buyer Report	-0.2067*	-0.2060*	-0.2001*	-0.2057*	-0.1992*
	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)
Coal Bed	-0.5369+	-0.5681*	-0.6020*	-0.5630*	-0.5946*
	(0.279)	(0.271)	(0.263)	(0.270)	(0.264)
Liquefied Natural Gas (LNG)	-0.5929+	-0.5955+	-0.6276+	-0.5771	-0.5950+
	(0.354)	(0.353)	(0.358)	(0.354)	(0.359)
Shallow Water	-0.0243	-0.0002	-0.0312	-0.003	-0.0386
	(0.152)	(0.148)	(0.148)	(0.148)	(0.147)
Deep Water	0.0678	0.1233	0.0906	0.1235	0.0888
	(0.307)	(0.311)	(0.326)	(0.312)	(0.329)
Frontier	-0.0968	-0.1417	-0.1612	-0.1439	-0.1665
	(0.301)	(0.299)	(0.297)	(0.300)	(0.299)
Diversified	0.6189+	0.6355*	0.6648*	0.6396*	0.6745*
	(0.318)	(0.285)	(0.290)	(0.284)	(0.287)
Host Country Dummies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Constant	-1.9917	-1.9361	-1.5483	-1.9267	-1.5041
	(1.406)	(1.411)	(1.410)	(1.405)	(1.395)
Number of Transactions	409	409	409	409	409
R-sq	0.6	0.61	0.61	0.61	0.62

Note: Robust standard errors in parantheses

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Figure 2a: Interaction Effect of IIA and Firm Reserves

(Based on Model 3 in Table 3)

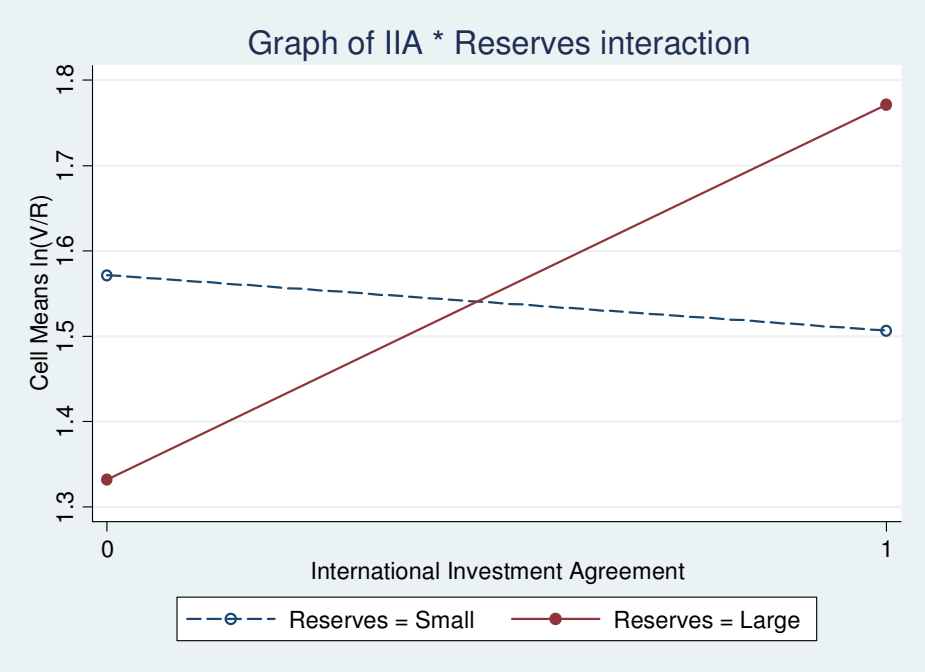


Figure 2b: Interaction Effect of IIA and Foreign State Ownership

(Based on Model 4 in Table 3)

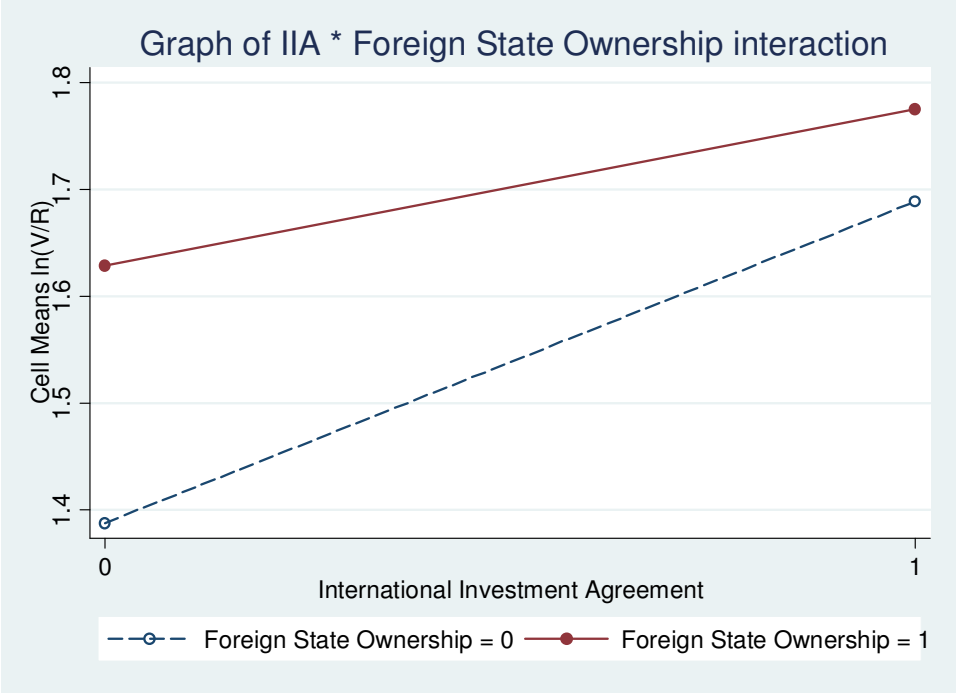


Table 4: Effect of Change IIA = 0 to IIA = 1
(Based on Models 3-5 of Table 3)

	Model 3	Model 4	Model 5
Reserves Size = Small	-0.06		-0.06
	(0.21)		(0.21)
Reserves Size = Large	0.43**		0.46***
	(0.14)		(0.14)
Foreign State Ownership = 0		0.3*	0.33*
		(0.13)	(0.13)
Foreign State Ownership = 1		0.14	0.04
		(0.33)	(0.32)

Note: Standard Errors in Parantheses
+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 5: Probit for Heckman Two-Stage Model

Dependent variable = Presence of an IIA (0/1)

	All countries
Average of dyad POLCON scores	1.0436***
	(0.028)
Vertical FDI - ln(abs diff of GDP/C of dyad)	0.0227***
	(0.004)
Horizontal FDI - ln(sum GDP of dyad)	0.4537***
	(0.009)
Horizontal FDI - ln((dyad GDP difference)^2)	-0.0691***
	(0.003)
Total worldwide BITs	0.0003***
	(0.000)
Total worldwide ECT members	0.0079
	(0.005)
ln(distance between dyad countries)	-0.7414***
	(0.008)
Constant	-4.7422***
	(0.218)
Number of observations	95,888
Pseudo R-square	0.29
Log likelihood	-33790.64
Chi-square	18,059.39

Note: Standard errors in parantheses

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 6: Robustness Tests – Second stage OLS model with robust standard errors

Dependent variable = ln(Transaction value of petroleum reserves, per barrel)

	-1-	-2-	-3-	-4-
Inverse Mills Ratio (from first stage)	-0.0138	-0.001	-0.0119	0.0035
	(0.181)	(0.178)	(0.181)	(0.178)
IIA	0.2704*	-0.065	0.2996*	-0.0325
	(0.131)	(0.213)	(0.137)	(0.215)
Reserves Size	-0.0953	-0.2396+	-0.0919	-0.2431+
	(0.102)	(0.126)	(0.102)	(0.125)
IIA * Reserves Size		0.5043*		0.5390*
		(0.238)		(0.238)
Foreign State Ownership	0.1493	0.0904	0.243	0.2644
	(0.171)	(0.168)	(0.316)	(0.308)
IIA * Foreign State Ownership			-0.1536	-0.2921
			(0.353)	(0.348)
Host country level controls:				
Host Polcon	-0.0825	-0.1576	-0.0685	-0.1361
	(0.517)	(0.503)	(0.520)	(0.505)
Transaction level controls:				
Crossborder	-0.1501	-0.0118	-0.1467	0.0042
	(1.689)	(1.665)	(1.688)	(1.661)
ln(Oil Strip Price)	1.0229*	0.9401*	1.0195*	0.9279*
	(0.435)	(0.431)	(0.433)	(0.427)
M&A transaction	0.1676+	0.1496	0.1689+	0.1508
	(0.101)	(0.099)	(0.101)	(0.099)
Buyer Report	-0.2063*	-0.2001*	-0.2060*	-0.1991*
	(0.092)	(0.092)	(0.093)	(0.092)
Reserve level control	Yes	Yes	Yes	Yes
Host Country Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Constant	-1.7885	-1.5377	-1.7995	-1.5413
	(2.392)	(2.357)	(2.398)	(2.363)
Number of Transactions	409	409	409	409
R-sq	0.61	0.61	0.61	0.62

Note: Robust standard errors in parantheses

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 7: Robustness tests, OLS models with robust standard errors
Dependent variable = ln(Transaction value of petroleum reserves, per barrel)

	-1- Lower non-IIA threshold	-2- Large Reserves	-3- Small/ Medium Reserves	-4- Foreign State Owned	-5- Non Foreign State Owned	-6- BIT	-7- Crossborder	-8- >=5 Transactions
IIA	-0.031	0.5146**	-0.2162	0.7423	0.3104*		-0.1818	0.0244
	(0.214)	(0.176)	(0.331)	(1.030)	(0.145)		(0.241)	(0.240)
BIT						-0.0831		
						(0.229)		
Reserves Size	-0.2176+			-0.9268	-0.0606	-0.2155+	-0.271	-0.2064
	(0.129)			(1.122)	(0.107)	(0.122)	(0.182)	(0.136)
IIA * Reserves Size	0.5120*						0.5566*	0.4488+
	(0.239)						(0.274)	(0.258)
BIT * Resources						0.5036+		
						(0.259)		
Foreign State Ownership	0.2572	-0.0825	1.8943**			0.3632	0.2275	0.2122
	(0.295)	(0.193)	(0.559)			(0.303)	(0.309)	(0.391)
IIA * Foreign State Ownership	-0.2826						-0.1498	-0.1939
	(0.335)						(0.356)	(0.425)
BIT * Foreign State Ownership						-0.4468		
						(0.363)		
Host country level controls:								
Host Polcon	-0.125	-0.1331	0.1713	-2.0876	0.2516	-0.0627	-0.4405	0.0957
	(0.506)	(0.607)	(1.255)	(2.147)	(0.635)	(0.504)	(0.619)	(0.542)
Transaction level controls:								
Crossborder	0.0032	-0.0662	0.147		-0.0318	0.0427		-0.0374
	(0.119)	(0.156)	(0.254)		(0.115)	(0.110)		(0.118)
ln(Oil Strip Price)	0.7587	1.0942*	0.7782	2.1058	0.9574*	0.9099*	0.9073	0.8258+
	(0.462)	(0.512)	(0.747)	(2.545)	(0.449)	(0.431)	(0.555)	(0.443)
M&A transaction	0.1618	0.1746	0.1694	1.1078	0.136	0.1547	0.3250*	0.1638
	(0.098)	(0.141)	(0.223)	(1.529)	(0.103)	(0.099)	(0.130)	(0.106)
Buyer Report	-0.2204*	-0.1954	-0.2765	-0.7828	-0.2295*	-0.2118*	-0.2674*	-0.2451*
	(0.093)	(0.129)	(0.193)	(0.702)	(0.097)	(0.092)	(0.115)	(0.099)
Reserve level controls:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Constant	-1.0002	-2.2202	-1.5842	-4.9642	-1.8989	-1.549	-1.2896	-1.3283
	(1.484)	(1.682)	(2.432)	(9.383)	(1.444)	(1.410)	(1.795)	(1.464)
Number of Transactions	416	278	131	51	358	409	263	345
R-sq	0.61	0.63	0.68	0.92	0.62	0.61	0.63	0.6

Note: Robust standard errors in parantheses

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001