Revisiting the Obsolescing Bargain in Post-Crisis Argentina: Investor Portfolios and Regulatory Outcomes

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Infrastructure and utilities underpin economic growth and human development. Many developing countries privatized in these sectors during the 1990s, but their weak institutional environments make them prone to crises that generate incentives for governments to renege on their original contractual commitments to investors. The existent literature shows that asset specificity and institutional variation help explain cross-sector and cross-country variation in regulatory policies affecting private sector investment in capital-intensive sectors. Existing theory, however, is less well equipped to explain within country and within sector variation. We address this gap, examining variation in the conditions for and longevity of private investment in thirty electricity and water utilities in Argentina after a deep crisis that triggered 'obsolescing bargains.' We argue that investors' prior choices regarding portfolio structure affect their post-crisis experiences. Not only sunk investments in physical capital, but also reputational costs shape investor incentives to exit projects. Additionally, their capacity to achieve compensatory policies depends on whether they possessed diverse assets in the contract jurisdiction prior to acquiring privatization contracts. We provide qualitative and quantitative evidence for this argument, which contributes to a growing literature on supports for property rights in weak institutional environments.

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Infrastructure and utilities—electricity, telecommunications, transportation, and water and sanitation systems—provide essential underpinnings for economic growth and human development.[1] During the 1990s, dozens of developing countries privatized utilities and infrastructure services, expecting that multinationals would bring much-needed funds and technology: 133 low- and middle-income countries privatized state enterprises in the telecommunications sector, 107 in the energy sector, 82 in transportation, and 61 in water and sanitation between 1990 and 2009.[2] Governments typically structured these privatizations as long-term contracts, so as to allow investors sufficient time to recoup their significant upfront expenditures in system upgrading and expansion.

The political economy literature has long focused on the risks faced by investors in capital-intensive sectors in developing countries. Kindleberger and Vernon famously argued that foreign investors in infrastructure face an "obsolescing bargain" in which governments can renege on original commitments once firms have invested in fixed capital.[3] It is the immobility of their assets that exposes investors to regulatory expropriation. Political scientists subsequently made a more general version of this argument, suggesting that investors whose assets are immobile cannot credibly threaten to exit, and as a result exert little policy influence.[4] The institutionalist literature explains cross-national variation in the extent to which the "obsolescing bargain" holds for capital-intensive sectors by focusing on institutional checks and balances that sustain 'credible'

[1] E.g. Modi et al. 2005; Rodrigue, Comtois, and Slack 2009; UNICEF-WHO [World Health Organization and United Nations Children's Fund Joint Monitoring Programme for Water Supply and Sanitation (JMP)] 2008, 2.
[2] PPIAF-World Bank 2011.
[3] Kindleberger 1969, 149–151; Vernon 1971, 46–53.
[4] Lindblom 1977, 180; Bates and Donald Lien 1985, 61; Winters 1996; Jensen 2006, 3.

governmental commitments to protect property rights, including through regulatory institutions.[5] Taken together, these arguments suggest that infrastructure and utilities privatization contracts in weak institutional environments are likely to be particularly vulnerable to the "obsolescing bargain."

While these political economy approaches rightly suggest such investments are vulnerable, our research suggests there is significant variation in investor experiences following major crises within single countries and sectors. During the 2001-2002 Argentine crisis, the government suspended all utility contracts and nullified the exchange rate guarantees they contained. The post-crisis status quo thus marked a decided setback relative to the pre-crisis period for all investors in privatized utilities. However, in the water and sanitation and electricity distribution sectors—both characterized by large sunk costs—we observe surprising variation in investors' willingness to continue operating in the country and ability to secure compensatory policies that helped them adjust to post-crisis realities. For instance, one-third of the lead investors operating in the electricity and water sectors remained in the market until the end of 2009. Meanwhile, one-quarter of the investors in both sectors eventually reached comprehensive agreements with government authorities providing for rate increases, reductions in investment obligations, and state investment subsidies designed to compensate them for the changes in contractual terms contractual changes governments had made directly following the crisis.

[5] This logic applies to economic growth (e.g., North and Weingast 1989; Acemoglu et al. 2003., as well as narrower processes such as foreign direct investment Henisz 2002. ; Daude and Stein 2007.) and investment in regulated industries, such as utilities and infrastructure Levy and Spiller 1994; Levy and Spiller 1996; Henisz 2002; Manzetti and Rufin 2006, iii.

Argentina's post-crisis experience is by no means unique. The Asian crisis, for example, inflicted similar difficulties on the Indonesian economy and populace, and prompted the government to revisit electricity generation contracts with private investors. One also observes variation in investor experiences during post-crisis negotiations regarding changes in power prices. Five consortia chose to exit and file international arbitration claims when the government pushed generators to lower prices, six agreed to shut down their projects, while fourteen negotiated with government ministers, arriving at revised contracts workable for both parties.[6]

In light of this variation, we argue that to fully understand the circumstances under which the "obsolescing bargain" occurs, it is important to consider not only levels of capital-intensity and institutional configurations, but also how investor portfolios prior to acquiring a privatization contract affect their subsequent probabilities of exiting the market and their success in negotiations with host governments in the aftermath of a shock. We highlight the importance of two particular aspects of portfolio structure: *reputational exit costs* and *cross-sector diversification* within the contract jurisdiction.

Consistent with existing theory, we posit that exit costs increase investor patience and willingness to stay in the market, even in the absence of renegotiation agreements addressing their concerns. However, whereas the literature focuses on sunk costs in the form of physical capital, we highlight the importance of the reputational costs of exit, which can vary significantly within capital-intensive sectors. That is, investors for whom country assets comprise a large share of their asset portfolio or whose brand names would suffer from exit should exhibit greater patience while waiting for policy concessions or

[6] Wells and Ahmed 2007, 267–9.

an opportunity to sell their assets than other investors. Such reputational costs associated with exit, as well as reputational costs more generally, have received insufficient attention within the international political economy literature.[7]

Second, *diversification across sectors* within the political jurisdiction that granted their contract contributes further to investor patience while providing greater flexibility for bargaining relative to one's peers. Prior diversification allows investors to entertain a wider set of negotiating outcomes, including compensation for their losses through side-payments that benefit other operations. Hence, diversified investors are more likely to achieved compensatory policies than investors that are not diversified in the contract jurisdiction. The latter argument implies that some form of 'crony capitalism' may be associated with the survival of privatization contracts in weak institutional contexts

Hence, whereas reputational exit costs increase the patience of investors facing crises that generate *regulatory dominance*--regulatory policymaking providing consumers with short-term benefits at the expense of private investors[8]--locally diversified portfolios endow investors with a greater ability to secure policy concessions that help them cope with post-crisis conditions. By highlighting these dynamics, our study contributes both to our understanding of the politics of investment in infrastructure sectors, and more generally of investment in weak institutional environments, prevalent in much of the developing world.

We provide an initial assessment of our argument's explanatory power in Argentina following its 2001-2002 economic crisis. We analyze the experiences of fifty-

[7] The concept of reputational costs have been applied more frequently to investor concerns to avoid corruption allegations (e.g. Wells and Ahmed 2007, 264) and develop reputations for responsibility and good behavior (see Jackson and Brammer 2014 for a review).
[8] Murillo 2009, 41.

four investors holding majority stakes at some point in time in the thirty provincial and national contracts in the electricity distribution and water and sanitation sector. The national and provincial governments' decision to suspend existing contracts following the crisis served as a common prompt for investors to reconsider their commitment to the Argentine market: investors desired contract renegotiations that would relieve them of some of the burden of post-crisis adjustment and considered exit if agreements were not quickly forthcoming. Because contract renegotiations followed a common template and concluded agreements unequivocally benefited firms, this period provides a rare opportunity to examine how portfolio characteristic affect the probability of pro-investor agreements and investors' decisions regarding market exit that is uncomplicated by thorny questions of how to measure whether or not renegotiation outcomes benefit firms.

We assess the explanatory power of our argument through case studies and quantitative analysis. Our case studies allow us to examine directly the relationships between investors' portfolio structure, contract renegotiation, and exit decisions whereas the statistical analyses provides an initial test of its comparative scope across two sectors and many provinces in Argentina.

In the next section we present our theoretical framework. Section two explains our research design and data collection strategy. The following section presents four case studies, while the fourth and fifth sections analyze patterns of market exit and contract renegotiation for all provincial and national electricity distribution and water and sanitation concessions in Argentina. The last section concludes.

I. BARGAINING UNDER DURESS

Economic shocks are very common in the developing world. Weak political institutions in these countries accentuate levels of economic volatility and susceptibility to crisis.[9] By dramatically worsening voter's incomes and living conditions, economic shocks tend to force elected officials to focus on their political survival in the short run. Investors in utilities and infrastructure are particularly vulnerable following shocks because their services are consumed by the majority of the population.[10] Interest groups can capitalize upon crisis environments, developing coalitions in favor of revising contractual terms to the detriment of firms.[11] In sum, crises reduce investor leverage while encouraging politicians to modify contracts in ways that help compensate for declines in consumer living conditions.

Following crises that generate *regulatory dominance* investors seek policies that improve their post-crisis situation. Given the scope and salience of utility rates for the general population and the weak de facto independence exercised by regulatory agencies, these policies must be secured through direct negotiations with elected officials or their appointees rather than regulatory officials, whose role is usually limited to technical assistance. Elected officials prefer renegotiation agreements that are low visibility (e.g. that avoid immediate and large price hikes), not reached during competitive elections, and that avoid transferring responsibility for politically risky services back to the public sector. Investors' portfolio structures are crucial to explaining variation in the investor-government interactions that ensue.

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[9] Acemoglu et al. 2003.
[10] Levy and Spiller 1994; Savedoff and Spiller 1999.
[11] Henisz and Zelner 2005, 370.

Portfolio Structure and "Forced Loyalty"

Political economy scholarship suggests that there are two ideal typical strategies for spreading risk: across countries and across sectors within the same country. Multinationals tend to manage risk by diversifying across countries while specializing in particular sectors.[12] This strategy is particularly prevalent in capital-intensive sectors characterized by high sunk costs and thus more subject to country-specific political risks.[13] Large firms of the developing world, such as Latin America's business groups, instead tend to diversify across sectors, particularly within their home market. Cross-sector diversification helps them insure against political and economic volatility within their home country.[14] Any particular firm may mix these strategies—as recent expansion efforts by developing country firms suggest. The particular portfolio structure adopted by investors, we argue, affects their willingness to continue negotiating with host governments (rather than exiting their projects) and their ability to secure policy concessions following shocks.

a) *Reputational Exit Costs and Market Exit*

The political economy literature tends to assume that investors in capital-intensive industries have high exit costs due to their sunk investments in physical capital.[15] Exit costs in capital-intensive sectors, however, can actually vary significantly. Analytically, it is useful to distinguish between how prior organizational choices affect the *financial* and

[12] Vernon and Wells 1986, 10; Ghosal and Westney 2005, 4.
[13] Shafer 1994.
[14] Schneider 2008; Schneider 2009; Khanna and Yafeh 2007.
[15] The obsolescing bargain literature starts from this assumption. See also Frieden 1991; Shafer 1994.

reputational costs of exit.[16] The financial costs of exit are high when the impact of writing down losses associated with a particular project on a firm's broader portfolio are higher when sunk costs—including entry costs and accumulated liabilities—are significant relative to the size of a firm's portfolio in the country and region. Yet investors also face significant non-financial impacts when exit could affect the political environment or public opinion surrounding their other operations in the country. Additionally, they may worry exit could negatively affect their brand name. Such reputational costs can very important to investors in sectors of varying levels of capital intensity, yet have not been explored sufficiently in the international political economy literature on the obsolescing bargain.

Considering reputational exit costs thus allows us to improve our understanding of within-sector variation in investor decisions to exit privatization contracts at times of regulatory dominance. Whereas financial losses can be written down following crises—and investors may recoup additional funds through international arbitration rulings—it is harder to achieve compensation for reputational exit costs through existing institutional mechanisms.[17] Exit carries strong reputational consequences in international markets when a large fraction of the investor's overall portfolio falls within that country or if the firm has a strong brand name in the sector in question. Exit can also affect a firm's reputation with domestic politicians, and thus affect a firm's other regulated assets in a country—even in other jurisdictions when contracts are regulated at the subnational level.

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[16] On firms' intangible reputational assets, and their importance for capital markets, see Clark and Wrigley 1997.

[17] Over the last thirty years, most developing countries consented to international arbitration for foreign investors in the event of investment disputes through bilateral investment treaties, domestic investment law, and individual contracts.

Strong reputational exit costs thus generate a *forced loyalty* that makes investors less likely to exit and therefore more subject to continuing *regulatory dominance*, while at the same time granting them more time to attract a buyer for their assets.[18] High reputational costs of exit thereby increase investors' propensity to remain in their contracts even without a successful renegotiation agreement helping them adjust to post-crisis realities, thus pointing to a dimension on investor vulnerability that has not been sufficiently analyzed by the existing literature.

b) Diversification and Policy Concessions

Whereas a focus on reputational exit costs helps explain exit decisions, we must turn another aspect of portfolio structure to understand the likelihood of securing compensatory policies. Holding diverse assets within the jurisdiction of one's contract increases the probability of reaching a settlement offering improvements upon the status quo with host governments because it affords flexibility in negotiations. First, having other assets at stake in the jurisdiction extends investor time horizons in negotiations, which allows governments and firms to wait for politically opportune moments with lower electoral competition to reach agreements. Cross-sector diversification in the contract jurisdiction also generates a wider set of potential negotiating outcomes. Having other assets at stake also makes investors more willing to accept benefits staggered over time, or that are more modest, which in turn increases the probability of reaching an

[18] Wells and Ahmed (2007: 267–272) show how other investments in Indonesia increased the cost of exit and the willingness to renegotiate contracts for investors fearful of the impact of their actions in other developing countries.

agreement.[19] Diverse local holdings—especially of regulated assets—also increase the range of settlements that investors can reach—including deals that span multiple sectors and in areas that may be less salient for voters.[20] (Depending on the legislation in place, such informal deals may or may not be legal.)

The implications of an argument focusing on cross-sector diversification vary depending on whether contracts are granted by national or subnational governments. When contracts are granted at the national level, we would expect conglomerates with diverse assets in a country to be more likely to secure policy concessions and to stay in the market. When contracts are granted at the subnational level, *only* firms with diverse holdings in the subnational jurisdiction that granted their contract will be likely to obtain policy concessions and stay longer.

While existing theory suggests that lower exit costs—and by implication, lower reputational exit costs of the sort we examine here—would increase investor leverage in firm-government negotiations, and thus increase investors' chance of obtaining compensatory policies, we do not expect to observe a strong relationship between reputational exit costs and post-crisis renegotiation outcomes for two reasons. First, lower reputational exit costs should be associated with lower levels of patience in firm-government negotiations. Lower patience would mean that investors would be less willing to wait for opportune political moments, such as periods of low political

[19] Ibid., 267; Chan and Levitt 2011, 317–19, argue that lead investors possessing other significant interests in a country are more likely to accede to contract renegotiations rather than pursue international arbitration, but do not spell out their logic in terms of time horizons and the staggering of benefits.

[20] For a fuller treatment, see Post 2014. This logic runs counter to Frieden 1991, 33., who contends that diversification will reduce lobbying incentives, and decrease firms' policy influence. For reviews of theories of "issue linkage" within the field of international relations, see Alt and Eichengreen 1989; Eichengreen and Frieden 1993; Lohmann 1995; Davis 2004.

competition or non-election years, to conclude agreements, than investors with higher exit costs. Second, lower reputational exit costs do not provide for alternative means of compensating investors outside of the sector in which the investor holds its contract, thus restricting negotiating outcomes to a smaller set of possible negotiation agreements, many of which involve potentially contentious elements such as consumer rate increases.

In short, cross-sector diversification increases the probability of obtaining compensatory policies representing an improvement upon the status quo, while both cross-sector diversification and reputational exit costs are likely to increase the likelihood firms will remain in the market, even in the absence of a negotiation agreement.

II. Research Design

This study compares the explanatory power of our framework with that of competing arguments by analyzing the relationship between investors and host governments in thirty privatization contracts in two sectors, electricity distribution and water and sanitation, in Argentina following its 2001-2 crisis. Focusing on investors' experiences in post-crisis Argentina offers a number of analytical advantages. The Argentine privatization program was more extensive than most in Latin America, and also occurred at the subnational level.[21] Following federal government efforts to privatize utilities servicing the Buenos Aires metropolitan area, fourteen of Argentina's twenty-four provinces privatized their electricity distribution systems and thirteen provinces privatized their urban water and sanitation systems. All privatizations followed a common policy template promulgated

[21] For data on the number of contracts granted within other countries within both sectors, see PPIAF-World Bank (2013).

by the international financial institutions and national government technocrats: the concession contract model, which kept infrastructure assets in state hands while assigning private sector operators investment and operational responsibilities for services.[22] In all cases, privatization contracts for both electricity distribution and water and sanitation systems were designed as geographic monopolies because of the important economies of scale associated with network development. Provinces set up formally independent regulatory agencies to monitor the providers' compliance with contractual goals.[23] Because provincial governments adhered closely to national and templates, this yielded an unusually large set of comparable contracts in both sectors. Focusing on varied investor experiences within the country allows one to hold constant cultural factors, the national political environment, privatization program design,[24] the macroeconomic context, and foreign investor access to international arbitration, while still analyzing a large number of cases (30 contracts and 54 lead investors). Including both electricity distribution and water and sanitation in our analysis helps us ensure that our findings generalize beyond one infrastructure sector.

Just as importantly, the conceptualization, measurement and interpretation of our two outcomes of interest—policy concessions and market exit—is unusually straightforward in post-crisis Argentina because policies adopted immediately following the crisis provided a common prompt for renegotiation and exit. Most concession contracts included exchange rate guarantees that would have triggered large increases in consumer rates following the January 2002 devaluation, which effectively reduced the

[22] In both the water and electricity sectors, consultants adapted standard contract and regulatory agency templates promulgated by the national government to local socio-economic conditions.
[23] Only the electricity concessions in San Luis and San Juan were regulated by agencies that were formally dependent on the provincial administration.
[24] See Murillo 2009 for a study of the divergent features of national privatization programs.

value of concessionaires' revenue by two-thirds relative to the dollar.[25] Following the crisis, rate increases of this magnitude were clearly politically impossible.[26] (In February 2002, 81% of the population opposed providers' demands to "adapt" public service prices to the new cost structure created by the devaluation.) In response, the national government and provincial governments suspended existing contracts and froze consumer rates at levels existing prior to the 2002 devaluation. Subsequent contract renegotiations focused on compensating firms for this shock and can be universally interpreted as improvements for investors as they permitted consumer rate increases to partially compensate for inflation, and provided state subsidies for consumer rates or investments.

Our analysis triangulates between different types of evidence. We first present two paired comparisons of firm-government negotiations in the water and sanitation and electricity distribution sectors. We examine two matched electricity cases where investors possessed different reputational exit costs and two water cases that are similar except with respect to investor diversification. Our analysis of these cases uses process tracing to highlight the mechanisms outlined in our theory. They also allow us to address potential concerns regarding endogeneity and selection bias.

We then conduct duration analyses of the association between our main variables of interest and the timing of contract renegotiation accords and investor exit for the full set of contracts. This allows us to examine the extent to which our theory is consistent with general trends in both sectors and provide a preliminary assessment of alternative explanations derived from other theoretical perspectives. While we deliberately control

[25] The Argentine peso had been pegged to the U.S. dollar since 1991.
[26] In 2002, electricity consumption dropped by 6.8% and pay arrears reached 60%. See Foster 2004.

for these factors in our case studies, they vary in the broader data set.[27] The economics literature on regulatory incentives, for instance, suggests that regulatory institution and policy design should affect expropriation incentives.[28] Institutionalist approaches to regulatory credibility emphasize the importance of examining whether varying levels of checks and balances in the contract jurisdiction affect regulatory outcomes.[29] In addition, scholars have argued that investor country of origin should matter. Developing country firms possess comparative advantages in infrastructure sectors in the developing world because they have context-appropriate "political capabilities" (rather than portfolio structures that position them to negotiate effectively, as we argue).[30] In addition, the Varieties of Capitalism literature implies that investors from coordinated market economies (CMEs) should be better able to maintain incomplete and relational contracts involving renegotiation than investors from liberal market economies (LMEs).[31]

III. Data and Coding

The analysis in this paper rests on a significant amount of original data collection on the thirty provincial and national-level concession contracts in Argentina in both sectors in place after the 2001-2002 crisis. Because a number of investors sold their stakes to new entrants, we are able to code renegotiation outcomes and exit decisions for fifty-four consortia of investors in the post-crisis period (2002 – 2009). Our analysis

[27] This analysis can only provide us with a preliminary assessment because we do not have enough cases to utilize standard statistical techniques to address the possibility of selection or non-equivalence of treatment and control groups, such as matching or selection models.
[28] Laffont and Tirole 1993.
[29] Levy and Spiller 1994; Henisz 2002.
[30] Holburn and Zelner 2010.
[31] Hall and Soskice (2001: 8). While this argument is typically used to examine firm behavior in the home market, analysts have begun to examine the extent to which they apply to behavior in foreign markets. Geppert *et al.* (2006) reviews this literature.

focuses on the lead investors, or those possessing at least 50 percent stakes in the concessions, as they typically served as the technical operators and managers of the concessions. For several concession contracts, ownership was split 50/50 between two lead investors. In such cases, we have collected data for each of these lead investors and weighted each by 0.5 in the quantitative analysis. The data itself, as well as coding information, is provided in the paper's online appendix.

Our dependent variables are investor exit and contract renegotiation. For investor exit, we compiled annual data on the lead investor in place in each contract and whether or not it exited in that year. We group together exits via two avenues: a) sale of a lead investor's equity stake in a concession to another investor (a change that required the permission of governmental authorities); and b) contract cancellation by the host government, investor, or both parties, which culminated in government takeover of services. It is reasonable to group these together because contract cancellation typically followed a decision by the investor to leave and unsuccessful firm and government efforts to find suitable investors willing to take over controlling stakes in the concessions.

Our second dependent variable is renegotiation outcomes. Negotiation processes between the provincial and national governments and concessionaires followed a common sequence. Discussions first focused on a set of easier, less controversial topics such as the reciprocal forgiveness of debts and state subsidies to finance reduced rates for poor consumers. Following the signing and legislative ratification of what was termed a "partial" or "transitory" accord, negotiations proceeded to more difficult topics: revisions to the formulae used to calculate consumer rates and investment commitments—i.e., the full set of policies that would adapt the concessions to post-crisis economic and political

realities. An agreement covering these topics was termed a "comprehensive" or "integral" accord in the legislation used to ratify the renegotiation agreements. We documented whether or not lead investors were able to achieve either (or both) types of accords, as well as the dates agreements were reached, based on regulatory documentation, ratifying legislation, provincial news coverage and Azpiazu *et al*.[32] We then created two dichotomous dependent variables. The first reflects whether or not investors and host governments were able to achieve a full accord in a given year. As a robustness check, we coded a second dependent variable capturing whether or not both parties achieved a partial accord.[33]

Based on primary source evidence, we scored each lead investor for the portfolio characteristics in our framework. We first score lead investors' reputational and financial *exit costs* prior to post-crisis negotiations. The *reputational*, or non-financial, cost of exit is coded as low, medium, or high based on whether or not Argentine assets comprised at least 10% of the investor's overall portfolio at the time of the crisis, whether or not the investor possessed a strong brand name in the sector, and whether or not the investor possessed other holdings in regulated industries in Argentina. Each of the components is weighted equally in the index. In several cases, we adjust our score for the first component—the importance of Argentine assets for the investor—based on case knowledge of additional reasons investors might value their Argentine holdings. We document the source materials used to score each component, as well as the rationale for adjustments, in the online appendix. The *financial* costs of exit are coded as low, medium, or high based on the ratio of the investor's sunk costs in a project relative to the

[32] Azpiazu, Bonofiglio, and Nahón 2008.
[33] Because partial accords were always achieved prior to full accords, this includes cases in which full accords were subsequently reached.

size of its overall portfolio; the trichotomous coding best reflected clustering in the data. In contrast, the "diverse local holdings" variable is dichotomous, and reflects whether or not the lead investor possessed significant holdings in other sectors within the jurisdiction that granted their concession contract—either a province or the national government—at the time of market entry. We did not observe borderline cases that were difficult to place in either cell. Our measure of local diversification captures whether investors have assets in other sectors in the contract jurisdiction; because provinces granted most contracts, this means that many investors with significant Argentine holdings across multiple sectors were not diversified within the province in question.

We also coded an annual variable indicating whether or not the lead investor is publicly listed to control for the impact of this feature on management capacity to negotiate informally with the government. Additionally, we categorized each concession contract as small, medium, or large based on the number of consumers, consumption levels, and the affluence of the concession areas so that we could control for the attractiveness of contracts to investors; for electricity contracts, we use 2000 and 6000 Gigawatt hours as thresholds, whereas for water—where residential consumption is rarely metered—we use thresholds of 500,000 and 1 million consumers. To assess alternative explanations emphasizing that variation in institutional checks and balances can affect regulatory outcomes, we utilize Giraudy's dataset on "dispersion of authority" in the Argentine provinces (Giraudy 2010). We extend Gervasoni's dataset on gubernatorial alignment with the Argentine national executive, to generate a proxy for

access to federal funds by governors as a control variable (Gervasoni 2010).[34] Sources for all variables, as well as descriptive statistics, are presented in Table A.I (appendix).

IV. Case Studies of Market Exit and Contract Renegotiation

In this section, we present four of the thirty case studies of individual concession contracts we compiled for this project to illustrate the causal process suggested by our theoretical framework. We have selected cases in which our main independent variables vary, but which are similar with respect to market size, which should affect the attractiveness of the market for investors, and domestic/foreign investment, which affects whether or not firms can resort to international arbitration.

a) Reputational Exit Costs and Investor Exit: Electricity Distribution Case Studies

We first compare the contrasting experiences of two publicly listed US investors in medium-sized electricity markets (approximately 270,000 users); both investors entered the concessions after buying from the original bidders, but had different reputational exit costs. Both concessions attracted a similar number of domestic and international bidders when they were privatized—American, Spanish, and Chilean MNCs competed in both cases. Both contract were won by American companies with low reputational exit costs who subsequently sold to other US investors before the crisis. These newcomers, however, possessed different levels of reputational exit costs prior to the crisis, which helps explain why one investor exited shortly after the crisis while the other continued until the end of the period we study.

[34] See the appendix and on-line appendix for details.

i. Low Reputational Exit Costs

The experience of the American Public Service Enterprise Group (PSEG), which controlled the province of Entre Rios' electricity distribution company (Edeersa), illustrates the dynamics of post-crisis renegotiation when investors expect market exit to impose few reputational costs. Four years after Edeersa was privatized by the Peronist governor of Entre Rios province, Jorge Busti, the lead investor—American firm CMS (Consumer Energy) —abandoned all its regional holdings and sold its shares in Edeersa to the US corporation PSEG. PSEG was trying to establish a position in Argentina while preparing for bids in upcoming privatizations in neighboring Córdoba and Santa Fe provinces. PSEG's Edeersa assets were severely affected by the crisis because the concessionaire possessed a US$78 million, dollar-denominated debt. After the devaluation, interest rates skyrocketed relative to revenues, especially because the province required the Edeersa to accept payment from consumers in provincial bonds not accepted by Edeersa suppliers.

PSEG perceived its reputational exit costs to be low in this context. First, its plans to acquire contracts in Córdoba and Santa Fe were frustrated when the provinces chose not to privatize. It had also sold its shares in the three distribution companies of the province of Buenos Aires and its minority shares in two generation plants (San Nicolas and Parana) to AES in 2001. Hence, by January 2002 the firm's Argentine holdings—comprised solely by Edeersa—were small relative to its overall portfolio, which was concentrated in the US.[35]. Moreover, the company had shifted its focus to renewable

[35] According to Business Week, PSEG is a publicly traded diversified energy company (NYSE: PEG), with 2008 annual revenues of $13.3 billion. PSEG ranks 101 on Forbes magazine's 400 Best Big Companies list for 2008.

energy in the US, further reducing the reputational cost of abandoning its Edeersa concession.

Instead of focusing contract renegotiations, PSEG instead sought to exit Edeersa, starting its search for buyers in October 2002. Failing to find any, PSEG transferred its Edeersa shares and the concessionaire's large debt to a trust and handed over ownership of the trust to the company's workers in 2003. In reaction, the provincial regulator rejected the transfer, the labor union lodged a legal complaint against the firm, and a judge issued an injunction against PSEG's action because the workers did not possess the capital or technical skills required of system operators under the concession contract.

In response to PSEG's abandonment of the concession, Radical Governor Jorge Montiel decreed provincial government takeover of the company in 2003. However, he failed to secure the legislative approval necessary to convert his decree into law because of divisions within his own party opposition by Peronist legislators. That same year, he was succeeded by former privatizing Peronist Governor Jorge Busti, who searched unsuccesfully for alternative private investors with sufficient technical expertise before submitting a bill that would become the law returning Edeersa to provincial control.

ii. High Reputational Costs of Exit

PSEG's experience with post-crisis negotiations while facing low reputational exit costs contrasts with the post-crisis orientation of its former partner AES Corporation, another American company with much larger international holdings in Latin America and, especially, in Argentina. This difference is illustrated by the case of Edelap, the

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(http://investing.businessweek.com/research/stocks/private/snapshot.asp?privcapId=1049561). Accessed April 2, 2010.

distribution company serving the city of La Plata and its suburbs, in the province of Buenos Aires. Edelap had been part of a national state-owned enterprise that served the Buenos Aires metropolitan area and its suburbs, SEGBA, and therefore the federal government handled its 1992 privatization, granting the concession to a consortium led by US Houston Power. Along with the two other companies that were part of the former state distribution company—Edenor and Edesur in the city of Buenos Aires—Edelap was regulated by the federal electricity regulator.

Before the crisis, Houston Power sold the controlling stake in the concession to the U.S.-based AES, a publicly-owned company. AES subsequently bought from PSEG an additional minority stake in Edelap as well as two other distribution companies in the province of Buenos Aires and a generation utility in another part of the country regulated by the same federal agency.[36] After the crisis, and although suffering the freeze on prices and the impact of the devaluation, AES remained committed to the Argentine market as it faced higher reputational costs than PSEG given its large international exposure and the fact that Argentina anchored its Latin American portfolio, a major focus for the firm since the early 1990s. An exit from a high-profile Argentine project not only promised to affect its reputation in the international market, but was also likely to affect the investors' ongoing negotiations with the federal government and the national electricity regulator regarding its other Argentine holdings. AES was particularly concerned about regulatory policy affecting its still-profitable electricity generation assets, which were helping it cope with losses in its distribution companies.[37]

[36] Business News Americas 2003.
[37] AES has ten generation utilities based on water, carbon, natural gas, diesel and biodiesel. See AES 2013.

While AES's reputational exit costs encouraged it to stay in the market, they also provided incentives to continue with contract renegotiations, which ultimately bore no fruit. AES demanded rate hikes of 30 to 35% in 2002, adding force to its demands by initiating international arbitration proceedings against Argentina with the International Centre for the Settlement of Investment Disputes (ICSID). The federal government did not give in to this pressure. A small, "emergency" rate hike of 9% decreed by interim President Eduardo Duhalde in 2002 was blocked by the courts. The Néstor Kirchner administration adopted a more aggressive stance after coming to power in 2003. Meanwhile, AES—acknowledging that its threats to sue Argentina had yielded no results, and suffering from mounting losses—moderated its demands.[38] Moderation allowed Edelap to reach its first, successful renegotiation agreement with the federal government, which was sanctioned by Congress in 2005. The accord established a rate hike effective until a new general renegotiation of the rate structure came into effect in 2006, in return for AES' retraction of its ICSID claims and an agreement to finally pay fines levied by the regulatory agency. Although the agreement was approved by both chambers of Congress and the President and AES suspended its ICSID claim, Kirchner blocked implementation of the agreement, leaving the contract in legal limbo. However, AES retained its controlling stake in Edelap and another distribution utility regulated by the province of Buenos Aires (Edes) while granting control of the third distribution company to its creditors.[39]

[38] Not-for-attribution interviews confirmed this change in attitude. Edelap remained in the red between 2003 and 2008, according to the company. See *La Nación* 2008.
[39] It sold Eden, another concession in Buenos Aires province, to Ashmore Energy in 2006. AES' patience with Edelap finally paid off in November 2011, when the federal government agreed to transfer the the concession from the federal jurisdiction to the province of Buenos Aires. This

These case studies show how high reputational exit costs encouraged AES to stay in the Edelap concession, whereas a lack of similar concerns meant PSEG saw few reasons not to pull out after the crisis. Importantly, factors emphasized by alternative theories appear to be doing little work. Both consortia were controlled by American firms without domestic joint venture partners.[40] The regulatory agency in Entre Rios enjoyed greater formal autonomy than the agency regulating Edelap, but this clearly did not yield better outcomes; PSEG decided to pull out even before contract negotiations with the executive branch got underway. The results also appear not to stem from a selection process in which investors with a larger portion of their portfolio in Argentina, and thus higher reputational costs of exit, obtained more favorable contracts given the similar characteristics among the original investors, and number and country origin of the original bidders. PSEG actually was pursuing a wider strategy of investment in Argentina at the time of entry and its reputational exit cost declined as it failed to acquire other distribution companies, sold other assets, and abandoned its international focus before the crisis.

Local Diversification and Contract Renegotiation: Case Studies of Water and Sanitation

Comparing the post-crisis negotiating trajectories of two investors in Argentina's water and sanitation sector allows one to more concretely illustrate the ways in which local diversification contributes to firms' ability to successfully conclude contract renegotiations. This section will compare the post-crisis negotiating trajectories of two

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change allowed AES to implement two succesive tariff hikes of 35% and 22% that had been granted in Buenos Aires province—and which had benefited its other distribution company.

[40] In both cases, the lead investor controlled 90% of the shares, with the remainder allocated to the union.

domestic investors holding contracts of similar size located in two remote, low-income provinces in Argentina: Corrientes and Formosa.[41]

i. Domestic Investor with Diverse Local Holdings Concludes Renegotiation

The experience of the Chamas Group, lead investor in the water and sanitation concession in Corrientes province (Aguas de Corrientes), illustrates the ways in which investor diversification in their contract jurisdiction increased the likelihood of concluding a contract renegotiation successfully in the post-crisis period. While provincial officials originally granted the concession contract for the provincial water and sanitation system in 1991 to a group led by the Buenos Aires-based Macri Group—which possessed a minimal presence in the provincial economy—these outside investors grew frustrated after finding it difficult to work with provincial authorities. They sold their stakes in 1996 to the Chamas Group, a local, privately owned economic group that possessed diverse local operations in agriculture, construction, engineering, media, and real estate at the time it acquired the concession shares.

The 2001-2 Argentine crisis ushered in major challenges for the Corrientes concessionaire, as it did for concessionaires in other provinces. The devaluation brought about a tripling in the cost of imported inputs and eroded substantially consumers' ability and willingness to pay for services, while high inflation affected important input costs. The provincial government, like other provinces, adhered to the national economic emergency law, suspending the firm's existing contract and launching renegotiation proceedings.

[41] Each of the concessions had a service area of less than 500,000 people, whereas concessions in large metropolitan areas in Argentina serviced millions ENOHSA-COFES 1999, 100, 111, 231.

The Chamas Group's diverse local holdings in the provincial economy influenced how it approached negotiations with the provincial establishment. The group's local ties offered owners access to local officials, but also forced them to moderate their requests.[42] With other investments and social relationships at stake in the province, the owners refrained from legal appeals to provincial courts, which would heighten tensions with political authorities. It also did not make the sorts of public threats to exit the concession commonly made by multinationals in other provinces. Rather, discussions proceeded incrementally and informally, the firm pushing for—and finally obtaining—annual rate increases of roughly 10% following the crisis, an amount that partially compensated for inflation. Small, repeated requests for rate increases proved much more palatable to provincial authorities than the "take-it-or-leave-it" demands for increases of 50-60% typically demanded by foreign investors without a strong local presence in other provinces. Importantly, the firm kept investing as negotiations proceeded.

During this protracted set of negotiations with multiple governors, the lead investor's diverse holdings in the province offered it opportunities to find mutually agreeable settlements. Although agreements did not include consumer rate increases large enough to fully address changes in the firm's cost structure, the lead investor's diverse holdings in the province offered the government opportunities to allow it to earn returns outside of the concession itself: 2005 legislation establishing a provincial fund for investments in water and sanitation did not prevent the concessionaire from contracting with related companies, and the province actively involved the firm in other state contracts. For example, the provincial government awarded the Chamas group a contract

[42] Interview with Pablo Chamas, President of Aguas de Corrientes, June 2010.

to improve the management of the provincial electricity service in December 2007.[43] Government-funded rate subsidies for low-income consumers also raised collections for the firm. Importantly, the Chamas Group managed to achieve these accords within a very difficult political context: they negotiated effectively with governors of different political parties and levels of alignment with President Kirchner. The Chamas Group remained in control of the concession at the end of 2013.

ii. Domestic Investor without Local Holdings Fails to Secure Agreement

Analyzing post-crisis negotiations between provincial authorities and the Argentine Sielecki Group, lead investor in the water and sanitation concession in Formosa province, reveals the extent to which investors *without* diverse local holdings faced greater difficulties than investors possessing diverse local operations. In August 1995, Formosa awarded a concession contract for the province's water and sanitation system to Sagua S.A., the subsidiary of the Buenos-Aires based Sielecki Group. The Sielecki Group, a family-owned economic group that worked in sectors as diverse as petrochemicals, pharmaceuticals, viniculture, and banking, did not possess significant holdings in other sectors in the province.

Conditions for both provincial residents and the concessionaire worsened considerably with the 2001-2 crisis. In addition to the problem of lower consumer payment rates and input cost inflation experienced in other provinces, the provincial government became so strapped for cash that it paid its employees in provincial bonds trading at roughly 70% of the value of the peso in 2002 and early 2003. The government

[43] The group was first granted a consulting contract, which was converted into a management contract, which gave them 30% of the returns earned by the provincial electricity company. See: El Litoral 2006a; El Litoral 2006b; Corrientes al Día 2008.

required Aguas de Formosa to accept these bonds as payment. When the worst of the crisis subsided, however, contract renegotiations finally got off the ground.

Negotiations between Governor Insfran's administration and the Sielecki Group, however, failed to produce a full accord of the sort reached in Corrientes. While the group was essentially trapped in the province, given the lack of buyers for underperforming water concessions at the time and its desire to avoid having an open conflict affect its relations with other provincial governments where it held water contracts, the fact that this was the firm's only asset in the province led it to pursue different negotiating strategies than the Chamas Group in Corrientes. The group chose not to transfer additional funds to the concession to finance investment, which—given that the concession was operating at a loss after the crisis—meant that the concessionaire was unable to maintain and improve system infrastructure during the post-crisis period. With few other holdings, the Sielecki Group also did not possess alternative assets that would provide less public means by which the administration could compensate the firm for losses incurred by Aguas de Formosa. To make matters worse, in 2005 Insfrán managed to secure federal funding for a new water treatment plant for the capital city due, in part, to his political alignment with the Kirchners, further obviating the need to rely on the private sector for infrastructure investment.[44] All in all, Aguas de Formosa only managed to secure minor compensatory policies—such as a subsidy for low-income residents—that were insufficient to allow it to cover operating costs, much less investment.[45]

[44] La Mañana 2006.
[45] Gubernatorial decree 91, 2005.

Given that the firm would face court battles that would generate negative national press coverage about its operations in Formosa were it to pull out without provincial approval, the only option available in Formosa was to let services deteriorate to such a point that the provincial government was prompted to take them over when the political timing was opportune for the administration. Sagua finally withdrew from the concession in 2008 on amicable terms, after the federally funded water treatment plant had been completed. Overall, the Sielecki Group's failure to secure a workable post-crisis agreement and the investor's subsequent exit offers a stark contrast with the experience of the Chamas Group in Corrientes; the Buenos Aires-based investor in Formosa made much less headway despite the fact it had dealt with a single governor, rather than multiple governors.

These contrasting trajectories were not driven by factors highlighted by alternative explanations. Regulatory agencies in both provinces lacked formal independence; decisions could be appealed to the executive branch. "Checks and balances" scores for both provinces are virtually identical. The description of the sequence of events in the Corrientes case also alleviates concerns about endogeneity: the lead investor in the concession possessed diverse holdings *before* entering the contract and beginning post-crisis contract renegotiations, even if it did receive new business opportunities in other sectors during the negotiation process. These divergent trajectories also do not reflect a selection process by which investors with diverse local holdings secured better contracts because of local knowledge and connections. A domestic investor with diverse local holdings also bid for the Formosa contract originally, while the Corrientes concession was originally secured and managed by a domestic firm

without significant local operations, which eventually pulled out after failing to work well with the provincial government.[46]

In summary, the four case studies illustrate the dynamics described in our theoretical framework. In the two medium-sized electricity concessions, US multinational corporations displayed differing levels of patience in the market. The greater weight of the assets on its total portfolio and fear of consequences for its other regulated assets endowed AES with greater patience or "forced loyalty" than PSEG, inducing AES to wait for a politically opportune moment to push for compensatory policies. (Though AES ultimately achieved a renegotiation accord, it was never implemented). In the two water cases, renegotiation outcomes varied in quite similar environments. While the local investor in the Corrientes concession, which possessed a diverse portfolio in the province, was able to reach agreements that incrementally improved operating conditions, a domestic investor without additional local holdings in Formosa Province was unsuccessful.

V. Patterns of Investor Exit from Argentina

To what extent are the dynamics highlighted in these case comparisons visible in the broader set of contracts in Argentina? Our quantitative analysis of the full set of contracts first examines the association between investors' prior choices regarding portfolio structure and the length of time they are willing to wait before exiting their contracts, if they choose to exit at all, using repeated events Cox proportional hazard models.[47]

[46] Further documentation on both cases can be found in Post 2014.

[47] Duration models model the time until an event, and can accommodate censoring. The Cox proportional hazard model, a semi-parametric duration model, allows one to estimate the extent to which particular explanatory variables are associated with the risk of "failure." The advantage of

Repeated events models accommodate cases in which multiple "failures" occur for a given unit, in our case a concession contract. This approach allows us to capture the fact that when investors exit via a share sale, another investor can enter the same contract, and can in turn also exit during the study period. We utilize a "conditional gap time" version of the repeated events model, in which the counter re-sets following each "failure" and units are only at risk of a second failure after experiencing a first.[48] We employ this particular version of the repeated events approach because one set of majority investors cannot enter a given contract until the previous set of investors has left. Observations correspond to an investor-year in a given concession contract. Results are very similar when a conditional frailty model, rather than a conditional gap time variance correction model, is used (results available upon request).

Table 1 presents results from a number of specifications, all of which cluster standard errors by province and contract and stratify by utilities sector.[49] (Tests for nonproportionality of hazards examining the correlation between the scaled Schoenfeld residuals and each covariate do not suggest problems for any of these specifications.) The first specification, Model 1, examines the association between investors' prior choices

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the Cox over other types of duration analysis is that one need make fewer assumptions regarding the functional form of duration dependence. In cases where an investor exit culminates in a contract cancellation rather than sale to a new investor before the end of our study period and no renegotiation agreement has been reached, cases are treated as censored, following King et al. 1990.

[48] Box-Steffensmeier and Zorn 2002; Box-Steffensmeier and Jones 2004 provide an overview of the different approaches to modeling repeated events using the Cox proportional hazard model and detailed discussions of the conditional gap time model.

[49] Conditional gap survival models by definition involve clustering standard errors by the units containing multiple "failures": individual concession contracts in our case. Following Primo, Jacobsmeier, and Milyo 2007., we also cluster standard errors by province because we expect provincial observations to exhibit interdependence, and also include provincial-level variables in the analysis. When the province-clustered standard errors are dropped from the specification, however, the results are almost identical. Sector is not statistically significant if included as an independent variable.

about their portfolios and their willingness to persist in their concession contracts. High reputational costs of exit and investor diversification in the contract jurisdiction are associated with longer durations in the market. The models suggest that the association between reputational exit costs and persistence is very strong in substantive terms: a one-unit increase in the exit cost score (e.g. from "low" to "medium") is associated with more than a twofold decrease in probability of exit at a given point in time. Similar patterns are evident in raw data on exit rates conditional on reputational exit costs, displayed in Table 2. Financial exit costs, on the other hand, are associated with higher rates of exit, suggesting that many investors are able to cope with such costs through political risk insurance and international arbitration.

[INSERT TABLES 1 & 2 ABOUT HERE]

The effect of reputational exit costs and local diversification remains large and significant even after adding variables capturing investor origin (CME, LME or the baseline category, developing country origin) and whether or not investors are publicly listed (Model 2). While private ownership is associated with lower probabilities of exit, as the literature suggests, investors from different types of home markets do not exhibit strong differences.[50]

Our results are robust to the inclusion of other control variables. When we include our measure of the size and attractiveness of the market, the coefficients for reputational exit costs and diversification remain large and significant.[51] The association between reputational exit costs and longer durations in the market persists when we include our

[50] The AIC score for a model including the portfolio variables and the private term is similar to that reported for model 2.

[51] Private is interacted with the log of the years since the Argentine crisis to ensure that hazards are proportional, following Box-Steffenmeier and Zorn (2002).

measures of formal regulatory independence—no formal provisions for appeals of regulatory decisions—and local institutional checks and balances (Giraudy's "dispersion of authority" index) as well (Model 4 and 5).[52]

Model 7 examines the association between time-varying factors and investor persistence. The coefficient for gubernatorial alignment with the national government is insignificant. The effective number of parties, our proxy for electoral contestation, meanwhile, appears to be unrelated to investors' exit decisions. Finally, contract renegotiation is not a strong predictor of investors' willingness to stay in the market.[53] This last result suggests that the full accords reached in Argentina, though significant, were not sufficiently generous to sway investors' decisions regarding whether or not to leave the market. Importantly, the results presented here are quite robust (see the table notes and online appendix). We now turn to analyzing which investors were more likely to reach such agreements.

VI. Contract Renegotiation in Argentina

This section examines the respective explanatory power of our portfolio-based approach and alternative theoretical perspectives for understanding overall patterns of contract renegotiation. Because achieving an agreement earlier rather than later is preferable to investors, and renegotiation processes were still underway by the end of our study period in some cases, we conduct duration analysis using a Cox proportional hazard model. Results for Cox proportional hazard models predicting full accords are presented

[52] "Dispersion of authority" also fails to achieve statistical significance when investor characteristics are excluded from the model.
[53] In Model 7, this variable measures whether or not a full accord has been reached by a given year. Another model including the achievement of partial, instead of full, accords yields similar results.

in Table 4. Regressions are stratified by sector, allowing hazard rates for each variable to differ by sector.[54]

Model 1 shows that cross-sector diversification in the contract jurisdiction is strongly associated with the achievement of full renegotiation accords. According the model, an investor with diverse local holdings more than three times more likely to conclude a full accord in a given year than an investor without local holdings, holding all other variables at their means. This is consistent with the higher rates of contract renegotiation observed among diversified investors in both sectors in the raw data (Table 3).

[INSERT TABLES 3&4 ABOUT HERE]

Model 2 and 3 add variables reflecting private ownership and investor home market characteristics (CME, LME, or developing country origin, the baseline category). The coefficient for local diversification remains significant when these variables are included. The conditional relationship between private ownership (i.e. not allowing one's stock to be publicly traded) and contract cancelation is insignificant (Model 2), while control by a CME investor is.[55] While the literature suggests that developing country firms would be more likely to negotiate effectively with host governments than firms from the developed world, we would not expect CME firms to be at a disadvantage relative to LME firms. The strong, negative effect observed here reflects the fact that no CME investor achieved a full renegotiation agreement in either sector in Argentina during our study period.

[54] Sector is insignificant when included as an independent variable, and worsens model fit when included.
[55] Note that the size of the CME coefficient reflects the fact that no full renegotiation agreements were concluded by investors from CMEs.

The positive association between local diversification and the achievement of full accords is robust to the inclusion of a number of environmental controls. Model 4 includes a variable capturing the size of the local market, which is insignificant. Our proxy for institutional checks and balances in the contract jurisdiction is also not associated with renegotiation, suggesting that the sorts of arguments used to understand cross-country variation in the enforcement of property rights are less useful here (Model 5). Meanwhile, our indicator of formal regulatory independence—the absence of provisions for appeals of regulatory decisions to the executive branch—is not associated with the achievement of a full accord (Model 6). A measure of the competitiveness of the provincial party system, the effective number of parties competing in elections to represent the province in Congress, is also insignificant (Model 7).

Models 8 assesses whether a post-treatment control variable, political alignment between the sitting governor and the president, is associated with the achievement of accords. The coefficient for alignment is large, significant, and negative, suggesting that aligned governors were far less likely to conclude full accords with investors.

In summary, our aggregate analysis of post-crisis contract renegotiation in Argentina suggests that investors with diversified holdings in their contract jurisdiction were more likely to secure compensatory policies more rapidly. At the same time, control by a CME investor was negatively correlated with reaching agreements at a given point in time, contrary to expectations from the literature. Agreements were more difficult to reach when governors were aligned with the national government. As a

robustness check, we ran our models with partial accords as the dependent variable and obtain very similar results (online appendix).[56]

Overall, the results of both analyses provide support for our argument. First, we found that diversification within the local jurisdiction is strongly associated with higher probabilities of contract renegotiation at a given point in time in both sectors. Second, we find that reputational—but not financial—exit costs are associated with lower rates of investor exit across both sectors. In other words, our theory complements prior insights about the advantages of developing country investors and the existence of veto players by focusing on investor-specific characteristics that can vary within sectors and within countries, and which are especially influential for investor-government relations in weak institutional environments.

VII. Conclusion

This article introduces a new explanation of variation in the regulatory experience of infrastructure investors facing "obsolescing bargains," which emphasizes the impact of investors' prior choices regarding portfolio structure on their subsequent regulatory experience. Higher reputational exit costs, and especially having a large fraction of one's assets in the country, induce "forced loyalty" among investors, which discourages them from leaving the market, even in the absence of compensatory policies. "Loyal" investors' ability to secure favorable policies under such circumstances, in turn depends upon whether or not they possess diverse operations in their contract jurisdiction.

[56] These models include concession contracts in which investors ultimately reach full accords, but simply model the probability of reaching the partial accords reached before the full accords. Logit, ordered logit and OLS models were also estimated using one observation per investor (online appendix). These also show a strong association between diverse local holdings and contract renegotiation.

Diverse assets provide both patience and greater flexibility in negotiations, and thereby increase the probability of securing favorable policies.

Our empirical assessment of the argument focuses on two utilities sectors in Argentina following its 2001-2 macroeconomic crisis, which allowed us to control for capital-intensity and national institutional environment. It also permitted us to collect, code, and analyze granular data about firm characteristics and contract renegotiation outcomes for a set of fifty-four investors in thirty contracts. We expect future research on other cases to assess its broader comparative scope.

This study makes a number of contributions to the existing literature on property rights and development, with its emphasis on asset specificity and institutional effects. In particular, we identify conditions that explain variation in regulatory outcomes within or across countries with weak institutions that promote regulatory instability. Our argument regarding the effects of investors' prior organizational choices provides an explanation of project-level variation in capital-intensive sectors in weak institutional environments. In presenting this argument, we join a small but growing group of scholars outlining investor strategies that affect corporate fortunes in context of weak property rights, the identification of which could provide avenues for strengthening property rights.[57]

Our study also contributes to growing literature on corporate risk management strategies in developing countries. As others have noted, the diversified economic groups that dominated developing country economies prior to liberalization efforts in the 1990s adapted readily to their new context.[58] Scholars have shown that business groups seized

[57] See for example Frye 2006; Holburn and Zelner 2010; Markus 2012.
[58] Schneider 2008; Schneider 2009.

upon privatization programs as an opportunity to further diversify their holdings.[59] Other research suggests that during the same time period, developing country business groups also expanded into other developing country markets, sometimes retaining their diverse operations at home.[60] There is, however, little scholarship examining how cross-sector diversification and strong regional portfolios affect firms' regulatory experience, especially following economic shocks. Our paper also highlights the importance of not just equating capital intensity and high exit costs, but considering how reputational concerns, which can vary independently from physical assets, may factor into exit decisions. More broadly, our work suggests that theoretical work on the obsolescing bargain should devote more attention to reputational costs. Our findings also suggest that while the standard "policy substitutes" for strong property rights protections, provisions for international arbitration, may help investors cope with financial losses incurred following policy changes after crisis, they will not compensate firms for important reputational costs. Further research should examine whether reputational exit costs affect investment decisions in less capital-intensive sectors and more generally patterns of comparative advantage in emerging markets.

The implications of our findings for infrastructure investment in development in developing countries, and consumer interests more specifically, are less clear. Agreements reached by more "flexible" locally diversified investors are more likely to secure post-crisis renegotiations that include rate increases for consumers, albeit phased in over time. These rate increases certainly represent a loss in the short-run for consumers—even if they are not large enough to return rates to pre-crisis levels or even

[59] Manzetti 1999; Guillén 2001.
[60] Schneider 2009; Ramamurti and Singh 2009.

keep up with inflation. This being said, higher consumer rates mean that concessionaires have more funds for investment and maintenance, which if spent efficiently rather than paid out as dividends or squandered, may benefit consumers in the long run. Negotiation agreements with locally diversified investors are also more likely to involve side payments that come at the public's expense. We leave an assessment of the net effect of these short-run costs and long-run benefits, as well as comparisons of within sector benefits to outside costs, to future research.

Table 1. Conditional Gap Time Cox Proportional Hazard Analysis of Investor Exit from Electricity and W&S Contracts, 2003 – 2009

	Core model (portfolio variables)	Core + additional investor traits	+ environmental controls				+ time varying covariates
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Reputational exit costs	-1.14*** (0.24)	-0.82** (0.33)	-1.24*** (0.21)	-1.18*** (0.21)	-1.05*** (0.31)	-1.16*** (0.22)	-0.93*** (0.33)
Financial exit costs	0.27 (0.27)	1.06*** (0.34)	0.63** (0.25)	0.77*** (0.26)	0.89*** (0.31)	0.71** (0.33)	0.81*** (0.26)
Investor diversified in contract jurisdiction	-0.94* (0.51)	-1.15* (0.62)	-1.12* (0.63)	-0.99 (0.62)	-1.30** (0.56)	-1.35* (0.72)	-0.89 (0.57)
CME Investor		0.28 (0.87)					
LME Investor		1.15 (0.71)					
Privately-owned investor		-1.10** (0.50)	-14.56*** (5.55)	-13.77*** (5.07)	-1.14*** (0.43)	-13.94*** (4.78)	-1.07** (0.47)
Log(Years since Crisis)			-4.83** (2.23)	-3.97** (1.84)		-4.47** (2.18)	
Private * log (Years since Crisis)			8.57*** (3.25)	7.90*** (2.87)		8.19*** (2.80)	
Market size			0.38 (0.24)			0.11 (0.35)	
Formal regulatory independence				0.15 (0.27)			
Checks and balances					-0.78 (0.64)		
Governor aligned							-0.49 (0.35)
Effective number of parties						0.12 (0.17)	-0.31 (0.29)
Contract renegotiation concluded							-0.41 (0.42)
N	235	235	235	235	192	210	210

Wald test	29.24 on 3 df, p=1.99e-06	45.48 on 6 df, p=3.757e-08	54.4 on 7 df, p=1.964e-09	66.49 on 7 df, p=7.535e-12	52.4 on 5 df, p=4.469e-10	45.47 on 8 df, p=2.997e-07	48.79 on 7 df, p=2.493e-08
AIC	94.87	94.98	86.38	87.31	73.92	78.60	85.18

Notes: Positive coefficients indicate that an increase in risk, or a decrease in duration, is associated with a particular variable. All models are stratified by sector. (Sector is insignificant if included in the models.) Robust standard errors are clustered by concession and province. For cases in which ownership is split 50/50 between two main investors, observations are created for each investor and weighted by 0.5 in the analysis. (In R, the weight function applies sampling weights (Therneau and Grambsch 2000: 163). Results are similar without weighting and without clustered standard errors. The ENP score in Model 5 and model 7 is a time series variable corresponding to the effective number of competing parties in provincial elections for national legislative representatives. (Scores correspond to elections in that year and the subsequent one. The period average is not used in model 5 because it introduces nonproportionality.) The private variable is interacted with the log of years since the crisis in several models in order to address nonproportionality. Model 4 includes fewer observations because the Giraudy dataset is missing scores for the province of Catamarca and the national government, which regulated a W&S concession and three electricity concessions for the Buenos Aires Metropolitan Area. Similarly, Models 5 and 7 contain fewer observations because the Effective Number of Parties score is calculated based on provincial elections for national legislators, and thus does not include observations for the cases regulated by the national government. Analysis of dfbetas to identify observations with disproportionate influence upon the coefficients for key variables of interest (reputational exit costs, diversification) do not reveal problems; the most influential observations are depressing, rather than increasing, the absolute value of the coefficients. Results are similar when another version of our additive reputational exit cost measure, which does not incorporate case-specific considerations affecting the importance of Argentine assets for a firm's portfolio (see the online appendix).

Table 2. Rates of Exit for Investors with Varying Reputational Exit Costs (2003 – 2009)

		Exits	Total cases
Electricity Sector	*High* Reputational Exit Costs	1	11
	Medium Reputational Exit Costs	4	5
	Low Reputational Exit Costs	15.5	17.5
Water Sector	*High* Reputational Exit Costs	3	6
	Medium Reputational Exit Costs	5	6
	Low Reputational Exit Costs	1.5	1.5

Note: One observation per lead investor. Observations weighted by 0.5 when ownership was split 50/50 between investors. (This reduces the total number of lead investors from 54 to 47.)

Table 3. Rates of Contract Renegotiation for Diversified vs. Non-diversified Investors (2003 – 2009)

		Cases w/ Full Accord	Total cases
Electricity Sector	Diversified in Contract Jurisdiction	3	6
	Not Diversified	3	23.5
Water Sector	Diversified in Contract Jurisdiction	2.5	4
	Not Diversified	1.5	8.5

Note: One observation per lead investor. Observations weighted by 0.5 when ownership was split 50/50 between investors. (This reduces the total number of lead investors from 49 to 42; note that the totals are smaller than in table 2 because we do not include cases in which new lead investors took over contracts following a full accord.)

Table 4. Cox Proportional Hazard Analysis of Contract Renegotiation (Full Accords) for Electricity and W&S Contracts, 2003 – 2009

	Base Model (portfolio variables)	Base + other Investor traits		+ environmental controls				+ time varying covariates
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Investor diversified in contract jurisdiction	1.44** (0.57)	1.76*** (0.62)	1.90*** (0.68)	2.42*** (0.68)	3.11*** (0.85)	1.90*** (0.70)	3.93*** (1.20)	2.86*** (0.63)
Reputation-al exit costs	-0.15 (0.52)	-0.02 (0.51)	-0.86** (0.44)	-0.50 (0.56)	2.71 (0.64)	-0.79* (0.43)	0.54 (0.51)	
Financial exit costs	0.55 (0.39)	-0.04 (0.48)	-0.18 (0.44)					
CME investor			-21.26*** (0.77)	-20.19*** (0.85)	-17.76*** (2.01)	-21.11*** (0.61)	-17.41*** (1.36)	-19.23*** (0.63)
LME investor			-1.11 (0.79)	-0.50 (0.77)	0.30 (1.01)	-1.20* (0.65)	0.95 (1.14)	
Privately-owned investor		1.37 (0.86)						
Market Size Score				-0.81 (0.50)			-0.31 (0.71)	-1.21** (0.48)
Formal regulatory independence						0.97 (0.60)		
Checks and balances					-2.51 (2.70)			
Governor aligned								-1.82*** (0.61)
Effective number of parties							-0.74 (0.66)	
N	188	188	188	188	145	188	163	188
Likelihood ratio test	6.55 on 3 df, p=0.08779	8.73 on 4 df, p=0.06832	14.06 on 5 df, p=0.01524	15.35 on 5 df, p=0.008978	15.68 on 5 df, p=0.007828	15.32 on 5 df, p =0.009069	17.43 on 6 df, p=0.007838	19.46 on 4 df, p=0.0006382
AIC	45.37	45.12	41.85	40.56	36.21	40.58	37.03	34.45

Notes: Positive coefficients indicate that an increase in risk, or a decrease in duration, is associated with a particular variable. All models are stratified by sector. Standard errors are clustered by concession and by province. For cases in which ownership is split 50/50 between two main investors, observations are created for each investor and weighted by 0.5 in the analysis. (In R, the weight function applies sampling weights. See Therneau and Grambsch (2000: 163). Results are similar, though somewhat weaker, without weighting. Likelihood ratio, rather than Wald Test statistics are presented because for models containing the investor nationality variable, Wald test statistics are invalid because there are no positive cases of renegotiation for cases involving CME investors. Coefficient estimates and standard errors are similar without clustered standard errors, except that the coefficient for CME investors becomes insignificant in most

cases. Model 5 includes fewer observations because the Giraudy dataset is missing scores for the province of Catamarca and the national government, which regulated a W&S concession and three electricity concessions for the Buenos Aires Metropolitan Area. Similarly, Model 7 contains fewer observations because the Effective Number of Parties score is calculated based on provincial elections for national legislators, and thus does not include observations for the cases regulated by the national government. Model 8 drops the reputational exit cost variable because including it results in incorrectable problems of nonproportionality. Including that variable, however, yields a similar coefficient for diversification but makes alignment insignificant. A dummy variable for CME investor is included rather than the categorical variable for all three investor types (LDC, LME, CME) in order to address nonproportionality as well. Analysis of dfbetas to identify observations with disproportionate influence upon the coefficients for key variables of interest (diversification, gubernatorial alignment) do not reveal problems; the most influential observations are depressing, rather than increasing, the absolute value of the coefficients.

Table A.I. Variables Used in the Exit and Renegotiation Analysis

Variable	Definition	Source	Min.	Max.	Mean	St. Dev.
Investor Exit (DV)	Dichotomous variable reflecting whether or not lead investor exits market in given year (2003 – 2009)	Coded by authors*	0	1	0.14	0.35
Full Contractual Renegotiation Concluded (DV)	Dichotomous variable reflecting whether or not lead investor concludes full accord with host government in given year (2003 – 2009)	Coded by authors*	0	1	0.06	0.25
Market Size	Low(1)/ Medium(2)/ High(3) score. For water, based on population served in 2001 and provincial GDP per capita; for electricity, based on Gwh of consumption in 2004.	Coded by authors*	1	3	1.63	0.77
Investor Locally Diversified	Dichotomous variable reflecting whether prior to concession award lead investor possessed holdings in other sectors in contract jurisdiction	Coded by authors*	0	1	0.29	0.46
Reputational Exit Costs	Low(1) /Medium(2) /High(3): additive score reflecting: a) whether at least 10% of holdings in AR; b) whether or not lead investor possesses brand name in sector; c) and whether or not lead investor holds other regulated assets in the country.	Coded by authors*	1	3	2.26	0.79
Financial Exit Costs	Low(1) /Medium(2)/ High(3) score reflecting size of lead investors' liabilities for contract relative to size of overall portfolio	Coded by authors*	1	3	1.82	0.76
LDC Investor	Dichotomous variable reflect whether or not lead investor from developing country	Coded by authors*	0	1	0.54	0.50
Privately-owned Investor	Dichotomous variable reflecting whether or not lead investor	Coded by authors*	0	1	0.44	0.50

	publicly listed					
Formal Regulatory Independence	Dichtomous variable reflecting whether regulatory decisions could be formally appealed to executive branch	Azpiazu et al. 2008	0	1	0.33	0.47
Checks and Balances	Dispersion of authority score, based on average tenure of provincial supreme court justices, a measure of government patronage, and a measure of the governor's level of fiscal discretion. Average for 1983 – 2006.	Giraudy 2009	0.22	0.67	0.49	0.12
Governor Aligned	Dichotomous variable reflecting whether governor of province was aligned with the Kirchners (2003 - 2009)	Author extension of Gervasoni (2010) coding*	0	1	0.78	0.41
Effective Number of Parties	Laakso-Taagepera index for number of parties competing in Argentine provincial elections for national deputies in given year. (Score for previous year applied to following if no election.)	Ministry of Interior, Argentina	1.65	10.85	3.75	1.72

*Further documentation in online appendix. Note that minimums, maximums, and standard deviations were calculated for the full dataset (annual observations 2003 – 2009) except for contract renegotiations. While the investor exit analyses utilize all of this data, the contract renegotiation analyses use a subset because contracts leave the analysis once a renegotiation is concluded.

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