

The Association of Economic Crises and Investor-State Arbitration Cases

Abstract

The number of investor-state arbitration disputes has been on the rise since the mid-1990s, but their determinants are still not fully understood. This study empirically examines the association of economic crises with investor-state arbitration claims. Economic crises frequently lead to regulatory changes which, in turn, may breach protection standards provided to international investors by international investment agreements (IIAs). We use a unique country-dyadic dataset containing 961 investor-state arbitration claims over the 1987-2017 period. We find that episodes of economic crises are positively associated with the number of investor-state arbitration cases. Furthermore, our results indicate that strength and timing of the crisis impact varies across different types of economic crisis and across countries with weak and strong institutions. Inflation and exchange rate-based crises show a lower time lag compared to economic growth crises. The impact of sovereign debt crisis is strongest. Taken together our investigation suggests that governments risk paying compensation to foreign investors for their actions in times when public spending is needed in other areas.

Keywords: Economic crises / International Economic Law / Investment Agreements / International Arbitration / International Relations

JEL Codes: Financial Crises / International Investment and Long-Term Capital Movements / International Institutional Arrangements / International Law

1. Introduction

In order to stimulate investment, governments resort to general policy measures improving the locational quality (e.g. material infrastructure), to policy measures addressing domestic and foreign firms through fiscal measures directed at certain industries or firms (e.g. subsidies and tax arrangements), to investor – state contracts and concessions (e.g. in water and energy supply; resource oriented investment) and to protection standards in international investment agreements (IIAs), notably Bilateral Investment Treaties (BITs).

Concerning the latter, from an investor’s point of view, “the most important aspect of the international protection of investments is the settlement of investment disputes” (Schreuer (no year), para 109) via investor – state arbitration. Procedural standards in IIAs grant foreign investors access to ISDS (investor state dispute settlement), designed to solve conflicts between foreign investors and host country governments over the rights of investors (e.g., Simmons, 2014). Arbitration cases arise when investors perceive that protection standards are violated by government actions.

Filing of arbitration claims is paired with substantial costs for both claimant (firm) and defendant (host country). Claims may lead to negative reputation effects, a loss of foreign investment and they may spoil the relationship between the claimant firm and the host country. Possible retaliation of home countries of foreign investors also imposes costs. Filing claims is also paired with substantial direct monetary costs for not only the claimant firm but also the host country (e.g., Allee and Peinhardt, 2011; Aisbett et al., 2018; Jensen et al., 2019).¹

To date more than 950 treaty-based arbitration cases are known. Treaty-based cases start to emerge in 1987, and around 1996 a steep and lasting surge sets in. The surge in arbitration cases happens with a time lag after the considerable increase in BITs signed and put in force from the 1990s onwards.²

Against this background the question arises about the economic, political and institutional factors contributing to the (perceived) non-compliance of governments with agreements they have concluded and to the willingness of foreign investors to bring a case before an international tribunal.

¹ ISDS is not just costly, outcomes are also unpredictable. As tribunals are not bound to follow each other’s rulings and as there is no real possibility for appeal, decisions have been inconsistent, sometimes even contradictory (Bonnitcha et al., 2017, p. 28).

² According to UNCTAD, about 70 per cent of cases initiated in 2018 relied on IIAs signed in the 1990s or earlier. <https://investmentpolicy.unctad.org/news/hub/1625/20190930-isds-navigator-update-980-known-investment-treaty-cases-by-31-july-2019>

Few studies delve empirically into the factors that shape the development in international investment disputes. The empirical literature is consistent with the view that investor-state arbitration claims are predominantly a phenomenon in countries with bad governance, a weak rule of law in particular.³

However, recent case studies for individual countries (see, e.g., Islam, 2018; Scherrer, 2010) and systematic qualitative analyses by scholars in international law (e.g., van Aaken and Kurtz, 2009; Binder and Janig, 2019) emphasize the role of economic crises as triggers of arbitration cases. For sure, the mere existence of an economic crisis does not entail any liability for the host country. However, such a liability may arise in case the host state, in reaction to the economic crisis, implements regulatory measures that adversely interfere with foreign investors' rights (Brower and Schill, 2009). From an economic policy perspective, investigating the relationship between economic crises and the number of international investment disputes is of crucial importance as economic crises are exactly those situations when government interventions in the market process are desirable from a social welfare perspective.

To advance our understanding of the statistical association between treaty-based arbitration cases and economic crises we compile a country-dyadic dataset comprising 961 investor-state arbitration claims for over the period 1987-2017. We conduct count data regression analyses and find that episodes of economic crises are positively associated with the number of investor-state arbitration cases even after controlling for a vast array of other potential drivers of arbitration cases. We also uncover indications that the type of economic crisis as well as the institutional quality of a host country have an impact on the strength and / or the timing of this association.

We proceed as follows: In section 2 we outline host governments' incentives to breach IIAs in the wake of an economic crisis. Section 3 includes a summary of related empirical evidence. In section 4 we describe the empirical methodology as well as the variables and data used in the analysis. We discuss main results of the analysis in section 5 and conclude the study with section 6.

2. Economic Crises and Host Governments' Willingness to breach IIAs

As outlined by Freeman (2013) a theory of how arbitration disputes arise may be based on the concepts of *opportunity* and *willingness* of host countries to breach IIAs and of firms to bring a case before an international tribunal, respectively. In line with previous literature, we argue that economic

³ The online appendix contains a summary of this literature.

crises increase the willingness of host governments to implement measures even in the case these measures breach standards of IIAs.

Our argument resonates with Nelson (1994)'s observation that acute economic crises are a facilitating factor for policy action as a strong popular desire for containment of the emergency is generated. Likewise, Dupont et al. (2016) stress that in times of economic crisis "political, economic and social domestic actors use all available institutionalized channels [...] in order to push for the adoption of immediate, and sometimes radical, policy responses to the crisis." (p. 143) Thus, since severe macroeconomic turmoil "hurts pretty much everyone" (Rodrik, 1996), the benefits of governments from implementing regulatory measures in times of crisis are high even if these measures violate IIAs. It is well established that in times of severe economic turmoil, the likelihood of re-election is low as voters care much about the economic situation (e.g., Jensen et al., 2019) and, thus, being active in crisis management is a precondition for governments to stay in office.

Of course, rational host country governments also take the costs of breaching an IIA into consideration. But these costs are uncertain, and most will occur only later in time. In times of crisis, discount factors of decision makers tend to be rather low. Hirsch (2009) observes that "states which encounter a major crisis (whether economic, security, or political) are more concerned with present exigencies and have lower discount rates regarding future incentives. Investment treaties are therefore more likely to be breached during major crisis." (ibidem, p. 869) Likewise, Ostrom (1990) states that discount rates are affected by the levels of physical and economic security. In case of high uncertainty and turmoil, decision-makers tend to discount future returns heavily when traded off against increasing the likelihood of surviving the turmoil at present (ibidem, p. 35). In addition, recent experimental evidence on decision-making also suggests that people tend to exhibit preferences biased towards the present. In case they are confronted with long-term challenges and opportunities they "systematically underweight the costs of action in favor of its desirability and thus are prone to wishful thinking." (Krebs and Rapport, 2012, p. 2)

Yet, it is questionable if host country decision-makers are aware of the costs of breaching an IIA. Indeed, empirical survey evidence implies rather low levels of awareness regarding the content of IIAs as well as the risk of arbitration claims by foreign investors (e.g., Bonnitcha et al., 2017, ch. 6). This implies that even in case decision-makers had high discount factors, they will not give up present benefits to achieve an end to which they assign little value (Krebs and Rapport, 2012).

A government's time-horizon may also be too short to fully internalize future costs arising from breaching an IIA, for example, if it expects a loss of power in the future. Hence, political and economic costs of breaching an IIA will be paid by future governments (Blake, 2013). Finally, even if governments

understand well the costs of a breach, foreign investors could become scapegoats for host governments and may be blamed to have brought on the economic crisis (Freeman, 2013).

Taken together, these considerations are consistent with the view that in times of crisis host governments perceive the benefits from regulatory intervention to be high and – in case these policy interventions breach an IIA – the arising costs to be low. As regulatory measures for economic crisis management tend to be broad-based, covering the entire economy or whole economic sectors, this gives rise to the possibility of a large number of foreign investors being affected by these measures, and hence to a potentially large number of arbitration cases.

3. Economic crises and arbitration cases: Some empirical evidence

Foreign investors predominantly allege indirect expropriation and / or the breach of the “Fair and Equitable Treatment” (FET) standard before arbitration tribunals (Echandi, 2019). As of end of 2019, UNCTAD reports 406 alleged breaches of indirect expropriation and 483 breaches of FET (including minimum standards of treatment).

Indirect expropriations deprive an investor of the “use or the reasonably-to-be-expected economic benefit of property [...]” (Binder and Janig, 2019, p. 661). Indirect expropriations include, for example, sudden discriminatory or confiscatory taxes on property, fines, currency devaluations paired with the forced conversion of assets and liabilities into the national currency, limitations on profits, mandatory conversion of deposits into bank equity (“bail-ins”), withdrawal of licences and permits, the rewriting of power and water contracts, introduction of controls on capital outflows or the change of ordered public utility rates (e.g., Hajzler, 2012; Dupont et al., 2016; Jensen et al., 2019; Binder and Janig, 2019). Likewise, the FET standard can be engaged in many circumstances, including “the frustration of ‘legitimate expectations’, the lack of stability of legal / business framework, harassment / coercion or bad faith”. (Binder and Janig, 2019, p. 662)

Given the broad scope and the vague definitions of indirect expropriations and the FET standard, it is conceivable that regulatory measures implemented by governments in the wake of an economic crisis may be perceived by investors as breaches of their treaty-based rights. It is well documented that governments implement a variety of policy measures to cope with an economic crisis (e.g., Mahmalat and Curran, 2018). The crisis-begets-reform literature differentiates between measures for macro-stabilization (“emergency measures”) and structural economic reforms (Rodrik, 1996). The latter comprise not only product-, labor- and financial-sector reforms but also structural consolidations in public taxation and spending (“fiscal measures”).

It is not difficult to find examples for arbitration cases which are triggered by crisis-related policy measures. Argentina is a frequently mentioned example for an increase in arbitration cases induced by the adoption of emergency measures (e.g., elimination of the Peso peg; tariff freeze) to combat economic crises (e.g., Hopwood, 2018 and Islam, 2018 for details on the various cases). Structural regulatory measures in the financial sector in the wake of an economic crisis also led to arbitration cases, for example, Peru (De Levi v. Peru: restructuring of banking sector) or Paraguay (Olguín v. Paraguay: Suspension of bank operation). In addition, several investor-state arbitration cases relate to regulatory measures adopted in the wake of the recent banking and sovereign debt crisis in the EU. For instance, Belgium (Ping An v Belgium: Bailout of financial institution), Czech Republic (Saluka vs. Czech Republic: bank bailout in response to banking crisis), Cyprus (Adamakopoulos and others v. Cyprus: Bailout of financial institution) or Greece (Cyprus Popular Bank v. Greece: denial of liquidity support by Bank of Greece).

With respect to fiscal measures, Spain and Italy experienced a huge increase in arbitration cases, based on the retrospective abolishment of financial incentives for the production of electricity from renewable energies (see García-Castrillon, 2017 on Spain and e.g., Belenergia v. Italy: rollback of tariff incentives for solar power projects).⁴

In addition, several arbitration cases arose because governments could not fulfill their obligations vis-à-vis foreign investors in the wake of economic crises (see Islam, 2018): Mexico (Waste Management 02 v. Mexico: Mexican city fails to pay for services), Indonesia (Himpura v. PLN: State-owned company fails to fulfill contract) or Russia (UK Bank v Russia: default on sovereign bonds).

Dupont et al. (2016) is the only study which aims at exploring statistically the association between treaty-based arbitration cases and economic crises, but they are not able to establish a significant association between economic crises and arbitration cases. Dupont et al. (2016) put a question mark to their finding by stating that “the choice of GDP growth as indicator of possible severe economic conditions is clearly overly simplistic”. (p. 151) Indeed, the crisis-begets-reform literature shows that pinpointing severe macro-economic turmoil is not an easy task, not least because what constitutes a crisis in one country may constitute normal circumstances in other countries (e.g., Mahmalat and Curran, 2018).

While research so far has not established robust statistical associations between economic crises and treaty-based arbitration cases, Jensen et al. (2019) are able to associate economic crises with direct expropriations of foreign investors. Direct expropriations are paired with a transfer of ownership from

⁴ As fiscal measures like subsidies and tax incentives are often used to stimulate foreign investment, these examples show that equally they may be the basis for future arbitration cases.

the foreign investor to host governments (see Hajzler, 2012). Jensen et al. (2019) use data for 80 developing countries ranging from 1971 to 2006 and find that direct expropriations are less likely in times of economic crises. Jensen et al. (2019) argue that this is because governments become more sensitive to the reputational costs of direct expropriations in times of economic hardship.

However, direct expropriations are rare in general, are a phenomenon of less developed economies and happened mostly in the 1960s and 1970s (see Hajzler, 2012; Jensen et al., 2019). Direct expropriations constitute only about 6 percent of all alleged breaches of BITs (Echandi, 2019, Fig. 15) and, thus, the findings of Jensen et al. (2019) are not representative for the economic crisis impact on treaty-based arbitration claims.

4. Empirical Methodology, Variables and Data

4.1 Empirical Methodology

In section 2 we discuss the association of economic crises and arbitration cases from the viewpoint of governments' willingness to breach IIAs. However, it is also necessary to consider the willingness of foreign investors (claimants) to file an arbitration case. Many factors shape the willingness of investors to sue a host country in the wake of a (perceived) breach of an IIA. Some of these factors are non-host-country related. For instance, investors' past experiences with arbitration, their knowledge of the local economy and the legal system, which likely is determined by geographic and cultural distance, or the strength of the investor's home country in international relations may play a role.

As we base our analysis on aggregate data, we are not able to explicitly model the willingness of specific firms to file a claim. But our database on arbitration cases is dyadic in nature which opens the possibility to model statistical associations over three dimensions (i.e., host country, home country and bilateral) and allows us to capture to some extent non-host country-related factors which shape the willingness of firms to file a case (*cf.* Table 1).

Specifically, we assume that the number of arbitration cases a country-dyad records in a particular year follows a conditional Poisson distribution (e.g., Wooldridge, 2010, ch. 18):

$$E \left[\frac{Cases_{ijt}}{\alpha_{ij}, \vartheta_t, X_{ijt}, Z_{it}, W_{jt}} \right] = \exp(\alpha_{ij} + \vartheta_t + \beta'_1 X_{ijt} + \beta'_2 Z_{it} + \beta'_3 W_{jt}) \quad (1)$$

where i = host (defendant) country, j = home country (of claimant firm), ij = country-dyad; t = year; $Cases_{ijt}$ signifies the number of cases a dyad reports; α_{ij} and ϑ_t are dyad- and year-fixed effects. X'_{ijt} , Z'_{it} and W'_{jt} include variables that are associated with $Cases_{ijt}$ and that vary across time and country-dyads (ijt), across time and host countries (it) and time and home countries (jt), respectively.

An advantage of the fixed-effects Poisson estimator is its robustness to a variety of misspecifications like deviations from the Poisson distribution or time dependence in arbitration cases, but the application of a fully robust variance-covariance estimator is recommended (Wooldridge, 2010, pp. 763). We cluster standard errors at the host country level as our variable of main interest is defined at the host country level (e.g., Abadie et al., 2017) and as country-dyadic clusters likely are not independent.

We believe that including dyadic-fixed effects is important for our application as they capture *inter alia* time-invariant, non-host-country-related factors which shape the willingness of firms to file a case. Host country i and home country j may share social values including the perception of what represents a breach of an IIA, which, in turn, may determine the willingness of investors to sue a host country. In addition, historical ties and common cultural traits may make it easier to find alternative modes of dispute settlement, like the diplomatic intervention by home governments. Geographical closeness may determine the willingness to sue a host country due to longer-lasting interests in this country as investment location. Moreover, country-dyad fixed effects also absorb host and home country-fixed effects. Host country-fixed effects capture time-invariant institutional features of the host country (e.g., autocracy vs democracy; type of political system). Home-country fixed effects capture the fact that some home countries may structurally provide investors with “a particular broad set of options available to address a concern with foreign governments [...]” (Dupont et al., 2016, p. 149), which, in turn, impacts on the willingness of investors to file a claim.⁵

4.2 Variables and Data

4.2.1 Dependent Variable ($Cases_{ijt}$)

Data on arbitration cases until 2014 are compiled by Wellhausen (2016). We add data for the years 2015 – 2017 using UNCTAD’s Investment Arbitration database. In addition, for completeness, we include all those cases up to 2014, which the latter database includes but which are not contained in Wellhausen (2016). Figures OA1 to OA3 and Tables OA1 – OA2 in the online appendix provide

⁵ Dyadic-fixed effects also capture the impact of NAFTA-membership on arbitral disputes. This is important given that there is a substantial number of arbitral claims between NAFTA members (also see Williams, 2018).

descriptive evidence for the arbitration cases contained in our sample. We have 961 investor-state arbitration cases from 75 home (claimant) and 132 host (defendant) countries over the 1987 to 2017 available. Arbitration claims are by no means evenly distributed across countries. Especially countries in Latin America as well as in Central and Eastern Europe report claims filed against them. But Western European and North American countries also face a substantial amount of cases. These countries are also by far the most important home countries of claimants.

4.2.2 Economic Crisis Variables (in Z'_{it})

Most studies testing the crisis-begets-reform hypothesis use inflation-, currency- or real economic growth-based indicators of economic crisis (see Mahmalat and Curran, 2018 for a synthesis) and hence these are also applied in the present study. Episodes of economic crisis are often measured as deviations from threshold values of the underlying macroeconomic variables. Yet, while surpassing a specific threshold value might imply severe turmoil in countries that are used to solid macro-economic conditions, such situations might constitute “normal circumstances” in other countries. We therefore apply crisis measures that not only consider a certain threshold of the underlying macroeconomic variable, but which also take recent changes in the macro-economic environment in a host country into account. We use the following operationalizations of episodes of economic crises:

1. *Inflation Rate Crisis* = 1 if the inflation rate for country i in year t is > 20 percent (see, Reinhart and Rogoff, 2010, ch. 1; Agnello et al., 2015) and the increase in the inflation rate from $t-1$ to t is > 100 percent (see, Mahmalat and Curran, 2018 for a similar operationalization used by Tornell, 1998);
2. *Exchange Rate Crisis* = 1 if in year t a host country's currency depreciates by on average by more than 15 percent against the US-Dollar⁶ (see, Reinhart and Rogoff, 2010, ch. 1; Agnello et al., 2015) and the change in the growth rate of the exchange rate from $t-1$ to t is > 100 percent;
3. *Economic Growth Crisis* = 1 (i) if the growth rate of real GDP for country i in year t is < 0 after at least two consecutive years of positive economic growth rates (see, Bjørnskov, 2016); in addition, this variable has entry 1 (ii) if real economic growth is already negative in $t-1$ but the drop in the economic growth rate from $t-1$ to t is > 100 percent.

⁶ To avoid losing the USA, *Exchange Rate Crisis* variables are evaluated against the Euro for the USA.

In addition to these three measures we use an indicator for the occurrence of sovereign debt crises (*Sovereign Debt Crisis*), defined as the first year of sovereign debt defaults and debt restructuring measures. Sovereign debt crises often signal deeper macro-economic problems, like a sustained lack of economic activity (e.g., Jensen et al., 2019). Sovereign debt-crises often lead to capital flight of domestic and foreign investors and to the implementation of capital outflow controls and deposit freezes (e.g., IMF, 2003) from which investor-state arbitration cases may emerge. Debt restructuring may also violate the fair and equitable treatment standard in BITs (Waibel, 2007). And, if sovereign debt crises indicate structural problems of a country's financial markets (e.g., Laeven and Valencia, 2018), some policy interventions in the aftermath of a sovereign debt default may ultimately hit foreign portfolio investors as well.⁷

Sovereign Debt Crisis is operationalized by combining the information provided in Laeven and Valencia (2018) on the initial year of sovereign default and on the initial year of sovereign debt restructuring. *Sovereign debt crisis* has entry 1 if the government defaults on its outstanding debt obligations in a given year t or if it restructures the outstanding debt in year t (or both).

We also derive an "overall" crises indicator (*Crisis*) which has entry 1 whenever at least one of the above four crisis measures has entry 1 in a specific year.

We include the various economic crisis indicators with lags up to 4 years. First, it may take time until a government reacts with policy measures to an economic crisis. It also may take some time until firms fully understand the likely impact regulatory measure have on their investor rights. Second, in case of a perceived breach of an IIA, firms may try to settle the dispute amicable with the government. Only in case such an amicable solution fails, investors may opt for arbitration claims. Third, many IIAs mandate a cooling-off period which forces firms to wait for some months after notifying the government of the intention to file a claim before an arbitration case can be filed (Dupont et al., 2016).⁸

4.2.3 Control Variables

Besides the various indicators of economic crises and dyad- and year-fixed effects, we employ a rich set of control variables capturing the willingness and the opportunity of host countries to not-comply

⁷ Indeed, investor-state arbitration cases exist where an ICSID arbitration tribunal declared its jurisdiction concerning financial asset holders' mass claims (see Nakajima, 2018).

⁸ Dupont et al. (2016) estimate that crises impact on arbitration cases with a lag of up to 3 to 4 years. In our estimations the five-year lag indeed is statistically insignificant.

with IIAs and of firms to file an arbitration claim. Table 1 provides an overview. Control variables enter equation (1) with a one-year lag. This assumption seems reasonable given that many control variables show rather low time-variation (see Dupont et al., 2016 for a similar reasoning).⁹

[Table 1 here]

a. Control variables in X'_{ijt}

The main variable contained in X'_{ijt} is *Bilateral Investment Treaty* which signals that a Bilateral Investment Treaty is in force in year t between home country j and host country i. This variable determines the opportunity of foreign investors to bring an arbitral dispute before an arbitration council. BITs *per se* may have different legal content along several dimensions (e.g., Berge, 2018). However, due to the Most Favored Nation clause more favorable provisions from other IIAs can be “imported” to any BIT. Thus, a fine-grained disaggregation of BITs along legal dimensions is not of predominant importance for our application.

Besides BITs, foreign investors frequently invoke the Energy Treaty Charter as the basis for their arbitral claims. This requires that both home and host country have signed and put in force this treaty. Variable *Energy Charter Treaty*, a binary variable with entry 1 in case home and host country are members of the treaty, aims to model this possibility.

b. Control variables in Z'_{it}

Domestic legal institutions are a potential alternative to international arbitration. Perceiving the decisions of domestic courts as impartial, transparent and fair is a necessary condition for foreign investors to opt for the domestic route of dispute settlement. In addition, independent and impartial domestic courts set constraints for host government conduct and, thus, also shape the opportunity of host countries to violate international law (Hirsch, 2009; Freeman, 2013). We use the rule of law indicator (*Rule of Law*) developed by Kaufmann et al. (2011) to capture the quality of domestic institutions.

We argue that arbitration cases emerge due to regulatory measures taken by governments in the wake of an economic crisis. To capture changes in the regulatory environment, we add a variable that signifies the quality of regulation (*Quality of Regulation*) also advanced by Kaufmann et al. (2011). This variable captures the incidence of market-unfriendly policies, inadequate bank supervision as well as

⁹ In a sensitivity check we relax this restriction and add lags up to t-4 to equation (1).

perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development (Teorell et al., 2017).

As *Quality of Regulation* is highly correlated with *Rule of Law*, we use the residuals from a regression of *Quality of Regulation* on *Rule of Law* and, thus, use the part of quality of regulation which is unrelated to the rule of law in our analysis (see, Bénassy-Quéré et al., 2007). Higher values of *Rule of Law* and of *Quality of Regulation* indicate better domestic institutions and more market-friendly regulation. We expect a negative association of these variables with the number of arbitral disputes.

Governments facing greater political constraints may be less likely to implement policy measures that trigger arbitral disputes (Williams, 2015 and 2018). We use the Polcon3 index (Henisz, 2002) to capture veto points and the (in)feasibility of policy change (*Infeasibility of Policy Change*). Higher values of Polcon3 indicate more veto points. We expect a negative association of *Infeasibility of Policy Change* with the number of arbitration cases.

We also include a measure of GDP per capita (in constant 2010 US-Dollars; variable *Log of GDP per Capita*) to broadly capture the quality of domestic institutions in a country. We expect low economic development to be related to higher opportunities for disputable behavior of governments.

On the one hand, having conducted Foreign Direct Investment (FDI) in a host country (variable *Log of FDI Stock*) usually forms the basis for foreign investors to file arbitration claims. Hence, the more FDI a country hosts, the larger is the potential for arbitral claims (Freeman, 2013). On the other hand, a large stock of FDI may imply that a host country heavily relies on this source of capital. In turn, the willingness of a government to breach an IIA may be low (e.g., Williams, 2015). Therefore, the sign of *Log of FDI Stock* is ambiguous *a priori*.

Policy changes and arbitral claims may also arise in the wake of major armed conflicts and of changes in the political regime. We model such instances of “political crises” using two variables: One indicates episodes of wars (variable *War*). Episodes of war are defined as years with at least 1000 battle-related deaths. Data are derived from Eck and Pettersson (2018). The second variable indicates regime durability. *Regime Durability* counts the years since the most recent regime change. Data are taken from Marshall et al. (2017). We expect that more durable regimes report fewer arbitration cases.

Jensen et al. (2019), based on Wellhausen (2015), argue that home countries defend their investors against direct expropriation by linking firms’ treatment by the host government to aid and voting at international organizations and, thus, the more dependent a host country is on assets provided by foreign political actors, notably the IMF and the World Bank, the less likely is direct expropriation. We hypothesize that this mechanism is also valid for treaty-based cases and we suggest that regulatory

changes which interfere with investors' rights are less frequent in case a country receives assets from foreign parties. As in Jensen et al. (2019) we measure assets provided by foreign actors via the public debt extended by the World Bank (variable *Log of World Bank Loans*), including loans from the International Bank for Reconstruction and Development and credits from the International Development Association. *Log of World Bank Loans* is measured in current US-Dollars.¹⁰

c. *Control variables in W'_{jt}*

Variable *Cumulated Cases of Home Country* counts the cumulated number of arbitration cases which emerge from a particular home country. This variable captures the awareness of foreign investors from a country of the possibility to bring a case against a particular host country before an arbitration council. The higher *Cumulated Cases of Home Country* the more willing investors from this home country should be to file a claim against a specific host country. However, if – as stressed by Elkins et al. (2006) – the filing of cases indicates information asymmetries, one could expect that the number of cases emerging from a home country falls as investment arbitration becomes better known and information asymmetries become less important (Dupont and Schultz, 2013). Thus, the sign of *Cumulated Cases of Home Country* is ambiguous *a priori*.

Tables A1 in the appendix includes descriptive statistics and Table A2 details data sources.

5. Regression Results

5.1 Base Results

Columns (1) to (4) of Table 2 display regression results when we include our four crisis indicators individually in equation (1). Column (5) shows findings when the four crisis indicators are jointly included in equation (1) and Column (6) displays results based on *Crisis*. Taken together, Table 2 demonstrates that episodes of economic crises are positively and significantly associated with the number of investor-state arbitration cases.

A comparison of findings for the various crisis indicators in Columns (1) to (4) reveals some differences as to the timing of the crisis impact. It appears that inflation and exchange rate-based economic crises lead to rather fast filing of arbitration cases, while the time lag is higher for sovereign debt crises (two-years lag) and for economic growth crises (three- and four-years lags).

¹⁰ We add one before applying the log transformation to avoid losing observations.

The strongest – in terms of size – impact is exerted by *Sovereign Debt Crisis*. The coefficient of 0.73 transforms into a semi-elasticity of 108 percent¹¹ which implies that on average the number of investor-state arbitration in a country-dyad cases goes up *ceteris paribus* by 108 percent after two years from the start of the sovereign debt crisis.

Column (5) paints a rather similar picture to Columns (1) to (4). The only exception is that inflation rate-based crises unfold their impact on arbitration cases at a higher lag than they do in Column (1). More importantly, however, is that Column (5) still indicates that different types of economic crises impact differently on the number of arbitration cases a country will report.

From Column (6) we see that in the event of any type of economic crisis, on average the number of investor-state arbitration cases goes up *ceteris paribus* by 36 percent (t-1). While an increase in cases by more than 30 percent appears high at first glance, one needs to bear in mind that the mean value of total cases per country-dyad in the estimation sample is low (0.09; *cf.* Table A1). Assuming that a host country has IIAs in force with each of the 75 home countries, a semi-elasticity of 36 percent implies that the number of arbitration claims increases by $0.09 \times 0.36 \times 75$, that is by about 2.4 cases in the year after the economic crisis hits the economy.

[Table 2 here]

Turning to control variables in Table 2 BITs in force as well as the membership in the Energy Charter Treaty are positively associated with arbitration cases. A BIT in force (Column 6) increases the number of arbitration cases by almost 555 percent. Presumably as the Energy Charter Treaty is sector-specific and compared to BITs there is a difference in the regional coverage - the Energy Charter Treaty is based primarily on European and Asian membership -, its impact is weaker when compared to *Bilateral Investment Treaty*.

An increase in the rule of law index by one unit reduces the number of arbitration cases by about 52 percent. In contrast, *Quality of Regulation*, while showing the expected negative sign, is statistically unrelated with arbitration cases. Likewise, a lower GDP per capita does not lead to increases in the number of arbitration cases.

Log of FDI stock carries a positive coefficient which supports the claim that the more FDI a country hosts, the larger is the potential for arbitral claims. However, the coefficient falls short of statistical

¹¹ Calculated as $100 \times (\exp(\text{coefficient}) - 1)$.

significance. The negative association of political constraints and the number of arbitration cases signals that for political systems which are characterized by many veto-points the probability of implementing disputable policy measures is lower. However, the estimated coefficient, too, is not statistically significant. While episodes of war are positively related to arbitration cases, regime durability does not seem to matter for the number of arbitral disputes.

We isolate a negative association between the amount of World Bank Loans extended to a country and the number of arbitration cases it reports. In accordance with the assertion and findings of Jensen et al. (2019) we interpret this finding as being indicative for host countries' reluctance to breach IIAs to avoid retaliation of home countries of investors through voting at international organizations. Finally, the negative sign of *Cumulated Cases of Home Country* lends support to Elkins et al.'s (2006) claim that with a reduction of information asymmetries the number of arbitration claims should go down.

5.2 Sensitivity Analysis

The fixed-effects Poisson estimator neglects information contained in country-dyads which never record an arbitration case ("pacific dyads"). This implies that pacific dyads lack arbitration cases because of some unmodeled idiosyncratic features of these dyads (Beck and Katz, 2001). To investigate whether using pacific dyads in our estimations substantially alters our conclusions, we exclude dyad-fixed effects from equation 1 to derive results based on the entire data sample.

The Zero-Inflated Poisson (ZIP) estimator copes with the arising zeros-inflation by assuming that zero counts arise in two ways (Cameron and Trivedi, 2005, p. 681): (1) as a realization of a binary process (e.g., Logit) which models that a country-dyad never records an arbitration case and (2) as a realization of a Poisson process.

We assume that the ZIP model has the following conditional expectation (see, Cameron and Trivedi, 2009, p. 587):

$$E \left[\frac{Cases_{ijt}}{\vartheta_t, \varepsilon_j, \theta_i, X_{ijt}, M_{ijt}, Z_{it}, Y_{ij}, W_{jt}} \right] = \left\{ 1 - G_1 \left(\frac{0}{M_{ijt}} \right) \right\} \exp(\vartheta_t + \varepsilon_j + \theta_i + \beta'_1 X_{ijt} + \beta'_2 Z_{it} + \beta'_3 W_{jt} + \beta'_4 Y_{ij}) \quad (2)$$

where $\left\{1 - G_1\left(\frac{0}{M_{ijt}}\right)\right\}$ is the probability that the Logit process variable equals 1 (i.e., probability of never recording an arbitration case in a country dyad).

The Poisson process excludes dyadic-fixed effects but otherwise includes the independent variables also contained in equation 1. We substitute dyadic-fixed effects by home and host country-fixed effects (ε_j and θ_i) as well as bilaterally defined, time-invariant, variables capturing the bilateral distance between capital cities (*Log of Distance Capital Cities*) and variables indicating the presence of a common official language in i and j (*Common Official Language*) and common historical ties of i and j (*Common Historical Ties*).

The Logit process includes *Bilateral Investment Treaty*. Freeman (2013) stresses that this variable is a natural candidate for modelling the probability of never experiencing an arbitral dispute as BITs are the prime vehicle of foreign investors to sue host countries. In the Logit process we also include variable *Time* and its squared ($Time^2$) and cubic ($Time^3$) extensions. *Time* has entry zero in the year after at least one instance of arbitration is recorded and it increases linearly until the year the next instances arise in a country-dyad. Inclusion of the latter three variables is done to deal with the possibility of time dependence in the binary process which leads to a downward bias in standard errors (Carter and Signorino, 2010).

From the upper part of Table 3 we see that the ZIP-based results support our base results in Table 2. Economic crises show a positive association with the expected number of arbitration cases a country reports and strength and timing of the impact vary across the various crisis indicators. The gravity-type variables (*Distance Capital Cities*, *Common Official Language*, *Common Historical Ties*) show a significant relationship with arbitration claims. The signs imply that the closer the cultural ties, the larger the number of claims, while the opposite tendency is established for geographical distance. Turning to the lower part of Table 3 we see that, as expected, a BIT in force significantly reduces the probability of never recording an arbitration case in a specific country dyad.

[Table 3 here]

Our base results are derived under the assumption that lagged arbitration cases do not matter for the number of arbitration cases in a particular year. To investigate whether the one-year lag of *Cases* significantly determines the number of cases reported in year t, we apply the dynamic correlated random effects Poisson Estimators developed by Wooldridge (2005). In equation (1), we include the

one-year lag of *Cases* and substitute dyadic-fixed effects (α_{ij}) by time averages of the regressor variables as well as the initial condition for the dependent variable¹². We apply the random effects Poisson estimator. From Column (1) of Table 4 we see that while the coefficient of *Cases* ($t-1$) has a positive sign, it also carries a very high standard error. *Crisis* variables keep their positive association with the number of arbitration cases. However, the statistical significance of *Crisis* ($t-1$) is somewhat reduced.

Our base results also assume that the first lag of regressor variables is sufficient to capture the impact of control variables on arbitration cases. To investigate the sensitivity of findings wrt lag-length, in Column (2) of Table 4 we display results when we include all regressor variables with lags of up to $t-4$ in equation (1). Findings for our variable of main interest, *Crisis*, are also robust to this extension of the empirical model (cf. Column 2 of Table 4).

The fixed-effects Poisson estimator relies on the assumption of strict exogeneity of *Crisis* conditional on dyadic-fixed effects. A simple test of this assumption adds *Crisis* ($t+1$) to equation (1) (Wooldridge, 2010, p. 764). Column (3) of Table 4 shows that *Crisis* ($t+1$) is statistically insignificant while *Crisis* ($t-1$) keeps it statistically significant positive association with *Cases*. This result strengthens our confidence that shocks in the number of arbitration cases in a specific country-dyad do not predict future economic crises in the host country.

The final two columns of Table 4 show findings when we split host countries in those with an average of *Rule of Law*¹³ below and above zero (which is roughly the average value of *Rule of Law* in the sample). The findings indicate that economic crises are paired with an increase in the number of arbitration cases in both country groups. Put differently, the association between economic crises and arbitration cases is not confined to countries with a weak institutional environment. Interestingly, the timing of the impact varies markedly between the two groups. While filing of cases by investors is rather quick in weak institutional environments, the time lag is longer in countries with above average institutional quality.

One reason for this difference in time patterns could be that inflation and exchange rate-based crises as well as sovereign debt crises are relatively more frequent in countries with weak institutions, while economic growth rate-based crises are slightly less frequent.¹⁴ Recall that Table indicates a different

¹² The initial condition in our case is the cumulated sum of arbitration cases reported in a country-dyad from 1987 to 1996.

¹³ The average is taken for each host country over the years 1997 to 2017.

¹⁴ Means for *Inflation Rate Crisis* / *Exchange Rate Crisis* / *Economic Growth Crisis* / *Sovereign Debt Crisis* are 2.6 / 11 / 8.8 / 2.3 percent in the sample of countries with weak institutions and they are 0 / 7 / 9.1 / 0.3 percent in the sample of countries with good institutions.

time pattern of the impact across these crisis measures. We speculate that the different patterns are also indicative for investors to resort immediately to international arbitration in case of defendants with weak institutional environments, while they first resort to other means of conflict resolution in the opposite case. Investigating the deeper reasons for these different time patterns is an interesting avenue for further research.

[Table 4 here]

Table 5 shows findings when we substitute our stricter crisis measures by standard operationalizations of episodes of economic crises. In Table 5, *Inflation Rate Crisis* has entry 1 if the inflation rate for country i in year t is > 20 percent and is 0 otherwise and *Exchange Rate Crisis* is 1 if in year t a host country's currency depreciates on average by more than 15 percent against the US Dollar and 0 otherwise (see, e.g., Reinhart and Rogoff, 2010, ch. 1; Agnello et al., 2015). *Economic Growth Crisis* has entry 1 if the growth rate of real GDP for country i in year t is < 0 and is 0 otherwise (see, e.g., Bjørnskov, 2016). Applying these standard operationalizations of episodes of economic crises lead to same conclusions as before only wrt *Exchange Rate Crisis* ($t-1$). *Inflation Rate Crisis* turns insignificant throughout and *Economic Growth Crisis* turns out to be positively significant also at the two-year lag. Thus, results are somewhat sensitive to the measurement of episodes of economic crises. However, the findings displayed in Table 5 also support our conclusion that economic crises and the number of arbitration cases are positively associated.

[Table 5 here]

Our variables of main interest are defined at the host country level. In a final sensitivity check we investigate whether and how our results change in case we define our endogenous variable as the aggregate sum of arbitration cases a host country faces in a particular year ($Cases_{jt}$). As we essentially drop the home country level from the analysis, we need to drop variable *Cumulated Cases of Home Country*. In addition, *Bilateral Investment Treaty* is replaced by the number of BITs a host country has in force (*Number of BITs in force*) and *Energy Charter Treaty* is substituted by a binary variable which indicates whether a host country is member of the Energy Charter Treaty (*Member of Energy Charter Treaty*). Dyadic-fixed effects are replaced by host country-fixed effects.

Table 6 contains the corresponding findings. Results are remarkably similar in size, sign and statistical significance to those shown in Table 2. The only exception is *Log of FDI Stock* which achieves statistical significance in explaining the sum of arbitration case across all home countries of claimant firms. We conclude that while considering the home and the bilateral dimension in arbitration cases provides a more complete characterization of their determinants, non-host-country-related factors seem not to be correlated with economic crises and, thus, excluding them from the analysis does not bias findings.¹⁵

[Table 6 here]

6. Conclusions

The number of investor-state arbitration disputes has been on the rise since the mid-1990s, yet, their potential determinants are still not fully understood. We hypothesize that in the wake of economic crises the net benefits of governments from implementing policy measures for stabilizing the macro-economy are high, even if these measure breach IIAs. Foreign investors, then, file claims at an international arbitration tribunal.

We use a unique country-dyadic dataset containing 961 investor-state arbitration claims over the 1987-2017 period and find support for a positive association between the occurrence of economic crises and the number of arbitration cases reported by host countries. Furthermore, our results indicate that strength and timing of the crisis impact varies across different types of economic crisis and across countries with weak and strong institutions.

Our results are derived using a vast array of control variables and a country-dyad-fixed effects Poisson estimator. Nevertheless, as we are not able to fully model firms' willingness to file a claim, we cannot exclude the possibility of an omitted variable bias. Specifically, we cannot measure the financial burden the filing of a claim imposes on firms. In times of an economic crisis this burden may be higher than in normal times as firms likely face cash constraints. A higher burden, in turn, should lead to fewer arbitration cases as the willingness to sue a host government is lower. This gives rise to an omitted variable problem where the omitted variable ("dispute burden for firms") is negatively correlated with the endogenous variable and positively with the crisis variable. Taken together this

¹⁵ We re-estimate the specifications shown in Columns (1) to (4) and (6) of Table 2 by excluding the 12 most important defendant countries (*cf.* Table OA1) one by one from the analysis. Dropping single countries leaves our conclusions unchanged, even though the coefficient of *Inflation Rate Crisis (t-1)* switches to a negative sign and becomes statistically insignificant in case Argentina is dropped.

implies that our estimated impact of economic crises on the number of claims may be estimated with a downward bias. Thus, the semi-elasticities derived should be interpreted as a conservative estimate of the true positive association between economic crises and the number of arbitration cases.

Moreover, some crisis-related arbitration cases have been initiated a rather long time after crisis-related policy measures have been introduced by the host government. For example, UNCTAD's arbitration case # 2 /2015 refers to a government's decision to freeze tolls for highways taken already in 2003. This is possible as the majority of BITs do not prescribe a time limit for claims. As we include only lags up to four years, we are not able to capture the impact of such cases.

ISDS still is the primary conflict resolution mechanism in international investment, even if a vivid reform debate has emerged recently. The empirical evidence put forward in this paper lends support to the view that emergency measures implemented to combat an economic crisis should be excluded from the application of ISDS so that host governments cannot be held accountable by foreign investors for measures in the public interest.¹⁶ However, even for emergency measures one has to bear in mind that "a crisis is just an extreme instance of policy failure" (Rodrik, 1996, p. 27) and emergency measures thus usually comprise reactions to host government failure.

In contrast to emergency measures, economic crisis induced structural policy reforms usually are subject to lengthy political debates (Agnello et al., 2015). This suggests that structural policy measures that breach IIAs should not be excluded from ISDS, as governments should be able to engage in structural planning and at the same time checking the compatibility of structural measures with obligations to foreign investors in general and with IIAs in particular. Governments may counter the risk of large compensation payments by setting up rainy day funds during non-crisis times.

¹⁶ For example, the Republic of Korea-Japan BIT (2002) states in its Article 17 that nations may violate transfers provisions. (a) in the event of serious balance-of-payments and external financial difficulties or threat thereof; or (b) in cases where, in exceptional circumstances, movements of capital cause or threaten to cause serious difficulties for macroeconomic management, in particular, monetary or exchange rate policies.

7. References

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8. Tables

Table 1: Regressor Variables included in the Analysis

Foreign Investor's View	Expected Sign	Host Government's View	Expected Sign
Opportunity to file an arbitration claim		Opportunity to breach an IIA	
(1) <i>Bilateral Investment Treaty</i>	+	(5) <i>Rule of Law</i>	–
(2) <i>Energy Charter Treaty</i>	+	(7) <i>Infeasibility of Policy Change</i>	–
(3) <i>FDI Inward Stock</i>	+	(8) <i>GDP per Capita</i>	–
Willingness to file an arbitration claim		Willingness to breach an IIA	
(4) <i>Cumulated Cases of Home Country</i>	?	(3) <i>FDI Inward Stock</i>	–
(5) <i>Rule of Law</i>	–	(9) <i>Economic Crises</i>	+
(6) <i>Quality of Regulation</i>	–	(10) <i>Political Crises</i>	
		(10a) <i>War</i>	+
		(10b) <i>Regime Durability</i>	+
		(11) <i>World Bank Loans</i>	–

Notes: Own compilation based on Freeman (2013). Dyadic-fixed effects *inter alia* capture time-invariant factors that shape the willingness of firms to sue host governments (see main text).

Table 2: Base Results

	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Rate Crisis (t-1)	0.930*				0.233	
	(0.488)				(0.324)	
Inflation Rate Crisis (t-2)	0.296				0.033	
	(0.350)				(0.371)	
Inflation Rate Crisis (t-3)	0.372				0.591*	
	(0.265)				(0.345)	
Inflation Rate Crisis (t-4)	0.018				0.221	
	(0.372)				(0.382)	
Economic Growth Crisis (t-1)		0.198			0.101	
		(0.156)			(0.154)	
Economic Growth Crisis (t-2)		0.129			0.005	
		(0.246)			(0.176)	
Economic Growth Crisis (t-3)		0.446**			0.561***	
		(0.180)			(0.197)	
Economic Growth Crisis (t-4)		0.497**			0.463*	
		(0.229)			(0.243)	
Exchange Rate Crisis (t-1)			0.381**		0.277**	
			(0.161)		(0.138)	
Exchange Rate Crisis (t-2)			0.052		0.087	
			(0.140)		(0.148)	
Exchange Rate Crisis (t-3)			-0.452***		-0.689***	
			(0.172)		(0.249)	
Exchange Rate Crisis (t-4)			-0.251		-0.308	
			(0.275)		(0.263)	
Sovereign Debt Crisis (t-1)				-0.230	-0.249	
				(0.157)	(0.219)	
Sovereign Debt Crisis (t-2)				0.733***	0.735***	
				(0.159)	(0.153)	
Sovereign Debt Crisis (t-3)				-0.027	-0.034	
				(0.203)	(0.230)	
Sovereign Debt Crisis (t-4)				-0.202	-0.284	
				(0.293)	(0.299)	
Crisis (t-1)						0.306**
						(0.132)
Crisis (t-2)						0.287
						(0.191)
Crisis (t-3)						0.159
						(0.167)
Crisis (t-4)						0.255
						(0.206)
Bilateral Investment Treaty (t-1)	1.974***	1.889***	2.024***	1.870***	2.054***	1.875***
	(0.508)	(0.476)	(0.512)	(0.475)	(0.503)	(0.475)
Energy Charter Treaty (t-1)	1.062**	0.936*	1.161**	1.218*	1.462	0.889*
	(0.540)	(0.481)	(0.557)	(0.718)	(0.928)	(0.492)
Rule of Law (t-1)	-0.742**	-0.807***	-0.849***	-0.792**	-0.726**	-0.838***
	(0.376)	(0.281)	(0.318)	(0.332)	(0.338)	(0.300)
Quality of Regulation (t-1)	-0.566	-0.493	-0.566	-0.570	-0.398	-0.521
	(0.393)	(0.317)	(0.366)	(0.355)	(0.352)	(0.346)
GDP per Capita (t-1)	-0.162	-0.013	-0.291	-0.303	0.192	-0.083
	(0.676)	(0.590)	(0.728)	(0.729)	(0.535)	(0.638)
Log FDI Stock (t-1)	0.244	0.330	0.329	0.319	0.226	0.376
	(0.190)	(0.238)	(0.250)	(0.258)	(0.174)	(0.264)
Infeasibility of Policy Change (t-1)	-0.362	-0.374	-0.562	-0.627	-0.418	-0.459
	(0.387)	(0.393)	(0.400)	(0.413)	(0.433)	(0.412)
War (t-1)	0.429	0.514**	0.509**	0.556**	0.471*	0.453*
	(0.280)	(0.259)	(0.230)	(0.219)	(0.272)	(0.265)
Regime Durability (t-1)	0.001	0.000	0.000	-0.000	0.001	0.002
	(0.007)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Log of World Bank Loans (t-1)	-0.060***	-0.074***	-0.053***	-0.059***	-0.066***	-0.060***
	(0.020)	(0.020)	(0.019)	(0.020)	(0.018)	(0.019)
Cumulated Cases Home Country (t-1)	-0.012***	-0.012***	-0.012***	-0.012***	-0.011***	-0.012***

	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Constant	-6.083	-8.500*	-5.375	-4.945	-9.629*	-8.388
	(6.395)	(5.046)	(6.438)	(6.410)	(5.086)	(5.316)
Observations	9308	9462	9428	9458	9231	9506

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; results from a fixed-effects Poisson estimator are shown; dyadic-fixed effects and year-fixed effects are included; cluster-robust (host country level) standard errors in (); number of host countries = 121.

Table 3: Results from ZIP Estimator

	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Rate Crisis (t-1)	0.856** (0.430)				0.310 (0.295)	
Inflation Rate Crisis (t-2)	0.287 (0.312)				0.209 (0.343)	
Inflation Rate Crisis (t-3)	0.360 (0.254)				0.692** (0.340)	
Inflation Rate Crisis (t-4)	-0.183 (0.410)				0.014 (0.426)	
Economic Growth Crisis (t-1)		0.200 (0.157)			0.088 (0.156)	
Economic Growth Crisis (t-2)		0.054 (0.244)			-0.076 (0.182)	
Economic Growth Crisis (t-3)		0.344** (0.172)			0.428** (0.186)	
Economic Growth Crisis (t-4)		0.337* (0.184)			0.332 (0.206)	
Exchange Rate Crisis (t-1)			0.319** (0.151)		0.213 (0.136)	
Exchange Rate Crisis (t-2)			0.023 (0.145)		0.051 (0.158)	
Exchange Rate Crisis (t-3)			-0.449** (0.184)		-0.676*** (0.249)	
Exchange Rate Crisis (t-4)			-0.256 (0.255)		-0.269 (0.241)	
Sovereign Debt Crisis (t-1)				-0.182 (0.163)	-0.212 (0.243)	
Sovereign Debt Crisis (t-2)				0.718*** (0.142)	0.671*** (0.155)	
Sovereign Debt Crisis (t-3)				-0.128 (0.203)	-0.124 (0.223)	
Sovereign Debt Crisis (t-4)				-0.339 (0.245)	-0.409 (0.284)	
Crisis (t-1)						0.235* (0.134)
Crisis (t-2)						0.197 (0.175)
Crisis (t-3)						0.083 (0.162)
Crisis (t-4)						0.135 (0.174)
Bilateral Investment Treaty (t-1)	0.525 (0.401)	0.626 (0.383)	0.582 (0.396)	0.587 (0.423)	0.523 (0.319)	0.604 (0.406)
Energy Charter Treaty (t-1)	0.113 (0.220)	0.106 (0.215)	0.140 (0.220)	0.117 (0.217)	0.084 (0.217)	0.107 (0.219)
Rule of Law (t-1)	-0.496* (0.277)	-0.659*** (0.229)	-0.654*** (0.237)	-0.575** (0.236)	-0.511* (0.292)	-0.657*** (0.231)
Quality of Regulation (t-1)	-0.500 (0.354)	-0.495 (0.305)	-0.534 (0.327)	-0.500 (0.318)	-0.400 (0.348)	-0.499 (0.313)
GDP per Capita (t-1)	-0.202 (0.547)	-0.088 (0.512)	-0.305 (0.575)	-0.319 (0.574)	0.075 (0.495)	-0.183 (0.528)
Log FDI Stock (t-1)	0.230 (0.172)	0.298 (0.198)	0.297 (0.206)	0.291 (0.208)	0.223 (0.166)	0.331 (0.219)
Infeasibility of Policy Change (t-1)	-0.212 (0.418)	-0.216 (0.419)	-0.381 (0.407)	-0.419 (0.413)	-0.351 (0.442)	-0.270 (0.425)
War (t-1)	0.384 (0.283)	0.488* (0.261)	0.454* (0.240)	0.493** (0.228)	0.458* (0.272)	0.436* (0.263)
Regime Durability (t-1)	0.002 (0.006)	0.002 (0.005)	0.002 (0.005)	0.002 (0.006)	0.002 (0.005)	0.003 (0.005)
Log of World Bank Loans (t-1)	-0.064*** (0.018)	-0.071*** (0.018)	-0.053*** (0.016)	-0.062*** (0.017)	-0.065*** (0.019)	-0.061*** (0.017)

Cumulated Cases Home Country (t-1)	-0.012*** (0.003)	-0.011*** (0.003)	-0.012*** (0.003)	-0.012*** (0.003)	-0.012*** (0.003)	-0.012*** (0.003)
Log of Distance Capital Cities (t)	-0.906*** (0.083)	-0.914*** (0.083)	-0.914*** (0.082)	-0.917*** (0.082)	-0.900*** (0.081)	-0.915*** (0.083)
Common Official Language (t)	0.823*** (0.158)	0.831*** (0.158)	0.815*** (0.156)	0.813*** (0.157)	0.827*** (0.158)	0.827*** (0.156)
Common Historical Ties (t)	0.658*** (0.176)	0.648*** (0.176)	0.668*** (0.174)	0.659*** (0.175)	0.652*** (0.176)	0.650*** (0.173)
Probability never report a case						
Bilateral Investment Treaty (t-1)	-1.409*** (0.522)	-1.279** (0.519)	-1.327*** (0.509)	-1.301** (0.557)	-1.467*** (0.417)	-1.294** (0.549)
Time (t)	0.465*** (0.128)	0.462*** (0.138)	0.455*** (0.123)	0.453*** (0.127)	0.474*** (0.120)	0.461*** (0.141)
Time ² (t)	-0.021*** (0.007)	-0.021*** (0.008)	-0.021*** (0.007)	-0.021*** (0.007)	-0.021*** (0.007)	-0.021*** (0.008)
Time ³ (t)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)
Observations	386280	389325	389180	388745	383380	390485

* p<0.10, ** p<0.05, *** p<0.01; results from a Zero-inflated estimator with host and home country-fixed effects as well as year-fixed effects are shown; cluster-robust (host country level) standard errors in ().

Table 4: Additional Sensitivity Checks

	Dynamic Model	Four Lags for All Regressor Variables	Strict Exogeneity	Below Average Rule of Law	Above Average Rule of Law
Cases (t-1)	0.299 (1.697)				
Crisis (t+1)			-0.108 (0.101)		
Crisis (t-1)	0.263 (0.196)	0.267** (0.136)	0.346*** (0.129)	0.393*** (0.133)	0.235 (0.295)
Crisis (t-2)	0.197 (0.359)	0.174 (0.157)	0.255 (0.201)	0.394** (0.197)	0.090 (0.238)
Crisis (t-3)	0.089 (0.286)	0.154 (0.198)	0.200 (0.168)	0.052 (0.171)	0.416* (0.225)
Crisis (t-4)	0.209 (0.233)	0.301 (0.197)	0.247 (0.211)	-0.036 (0.185)	0.601** (0.243)
Observations	9506	7810	8461	6233	3273

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Column (1) shows results from a dynamic correlated random effects Poisson Estimator (Wooldridge, 2005); Columns (2) to (4) are derived applying the dyadic-fixed effects Poisson Estimator; year-fixed effects are included; cluster-robust (host country level) standard errors in (); number of host countries = 121. Same control variables included as in Table 2, but detailed results are not shown for brevity. Column (1) also includes time averages of regressor variables and the initial condition of the dependent variable.

Table 5: Standard Economic Crisis Indicators

	(1)	(2)	(3)
Inflation Rate Crisis (t-1)	0.368 (0.326)		
Inflation Rate Crisis (t-2)	-0.232 (0.195)		
Inflation Rate Crisis (t-3)	0.133 (0.195)		
Inflation Rate Crisis (t-4)	-0.006 (0.211)		
Economic Growth Crisis (t-1)		0.243 (0.153)	
Economic Growth Crisis (t-2)		0.285* (0.170)	
Economic Growth Crisis (t-3)		0.455** (0.180)	
Economic Growth Crisis (t-4)		0.479*** (0.167)	
Exchange Rate Crisis (t-1)			0.325** (0.136)
Exchange Rate Crisis (t-2)			-0.100 (0.136)
Exchange Rate Crisis (t-3)			-0.331** (0.138)
Exchange Rate Crisis (t-4)			-0.170 (0.221)
Observations	9308	9462	9428

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; results from a fixed-effects Poisson estimator are shown; dyadic-fixed effects and year-fixed effects are included; cluster-robust (host country level) standard errors in (); number of host countries = 121. Same control variables included as in Table 2, but results are not shown for brevity.

Table 6: Endogenous Variable: Sum of arbitration cases across all home countries

	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Rate Crisis (t-1)	0.839*				0.216	
	(0.463)				(0.327)	
Inflation Rate Crisis (t-2)	0.251				0.034	
	(0.332)				(0.375)	
Inflation Rate Crisis (t-3)	0.342				0.603*	
	(0.247)				(0.334)	
Inflation Rate Crisis (t-4)	0.012				0.219	
	(0.375)				(0.370)	
Economic Growth Crisis (t-1)		0.147			0.065	
		(0.157)			(0.162)	
Economic Growth Crisis (t-2)		0.073			-0.023	
		(0.240)			(0.180)	
Economic Growth Crisis (t-3)		0.411**			0.538***	
		(0.181)			(0.199)	
Economic Growth Crisis (t-4)		0.472**			0.454*	
		(0.221)			(0.237)	
Exchange Rate Crisis (t-1)			0.340**		0.255*	
			(0.150)		(0.135)	
Exchange Rate Crisis (t-2)			0.014		0.058	
			(0.138)		(0.148)	
Exchange Rate Crisis (t-3)			-0.470***		-0.721***	
			(0.173)		(0.251)	
Exchange Rate Crisis (t-4)			-0.241		-0.319	
			(0.274)		(0.262)	
Sovereign Debt Crisis (t-1)				-0.215	-0.221	
				(0.165)	(0.232)	
Sovereign Debt Crisis (t-2)				0.701***	0.725***	
				(0.142)	(0.152)	
Sovereign Debt Crisis (t-3)				-0.014	-0.006	
				(0.181)	(0.221)	
Sovereign Debt Crisis (t-4)				-0.155	-0.246	
				(0.289)	(0.302)	
Crisis (t-1)						0.258*
						(0.133)
Crisis (t-2)						0.238
						(0.181)
Crisis (t-3)						0.131
						(0.167)
Crisis (t-4)						0.246
						(0.202)
Number of BITs in force (t-1)	0.033**	0.033**	0.037**	0.039**	0.024**	0.033**
	(0.014)	(0.014)	(0.016)	(0.016)	(0.012)	(0.015)
Member of Energy Charter Treaty (t-1)	0.955***	0.870***	1.070***	0.940**	0.932**	0.865***
	(0.288)	(0.293)	(0.291)	(0.378)	(0.415)	(0.300)
Rule of Law (t-1)	-0.712**	-0.767***	-0.792***	-0.739**	-0.712**	-0.790***
	(0.362)	(0.284)	(0.306)	(0.323)	(0.333)	(0.296)
Quality of Regulation (t-1)	-0.611	-0.557*	-0.607	-0.613*	-0.458	-0.573
	(0.400)	(0.329)	(0.379)	(0.370)	(0.361)	(0.355)
GDP per Capita (t-1)	-0.272	-0.154	-0.396	-0.405	0.084	-0.222
	(0.619)	(0.552)	(0.654)	(0.659)	(0.496)	(0.599)
Log FDI Stock (t-1)	0.332*	0.420*	0.400*	0.395*	0.324*	0.457*
	(0.181)	(0.223)	(0.227)	(0.234)	(0.169)	(0.247)
Infeasibility of Policy Change (t-1)	-0.343	-0.358	-0.525	-0.600	-0.384	-0.430
	(0.388)	(0.388)	(0.398)	(0.403)	(0.426)	(0.403)
War (t-1)	0.499	0.600*	0.588**	0.644**	0.526*	0.538*
	(0.328)	(0.308)	(0.287)	(0.278)	(0.320)	(0.311)
Regime Durability (t-1)	-0.000	-0.002	-0.002	-0.002	-0.001	-0.000
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)
Log of World Bank Loans (t-1)	-0.069***	-0.082***	-0.064***	-0.069***	-0.074***	-0.070***
	(0.020)	(0.020)	(0.019)	(0.020)	(0.018)	(0.019)

Observations	2446	2467	2466	2458	2421	2475
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* p<0.10, ** p<0.05, *** p<0.01; results from a fixed-effects Poisson estimator are shown; host country-fixed effects and year fixed effects are included; cluster-robust (host country level) standard errors in (); number of host countries = 121.

Appendix

Table A1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	Obs	Variable	Mean	Std. Dev.	Min	Max	Obs
<i>Cases</i>	0.09	0.36	0	9	9506	<i>Rule of Law (t-1)</i>	-0.21	0.82	-2.13	2.10	9506
<i>Inflation Rate Crisis (t-1)</i>	0.02	0.13	0	1	9308	<i>Quality of Regulation (t-1)</i>	0.06	0.36	-1.55	1.16	9506
<i>Inflation Rate Crisis (t-2)</i>	0.02	0.13	0	1	9308	<i>Log of GDP per Capita</i>	8.33	1.27	4.81	11.07	9506
<i>Inflation Rate Crisis (t-3)</i>	0.02	0.14	0	1	9308	<i>Log of FDI Stock</i>	9.55	2.06	2.24	15.67	9506
<i>Inflation Rate Crisis (t-4)</i>	0.03	0.17	0	1	9308	<i>Bilateral Investment Treaty (t-1)</i>	0.70	0.46	0	1	9506
<i>Exchange Rate Crisis (t-1)</i>	0.10	0.29	0	1	9428	<i>Energy Treaty Charter (t-1)</i>	0.22	0.42	0	1	9506
<i>Exchange Rate Crisis (t-2)</i>	0.09	0.29	0	1	9428	<i>Infeasibility of Policy Change (t-1)</i>	0.33	0.21	0	0.73	9506
<i>Exchange Rate Crisis (t-3)</i>	0.07	0.26	0	1	9428	<i>War (t-1)</i>	0.04	0.21	0	1	9506
<i>Exchange Rate Crisis (t-4)</i>	0.08	0.27	0	1	9428	<i>Regime Durability (t-1)</i>	20.55	23.59	0	207	9506
<i>Economic Growth Crisis (t-1)</i>	0.09	0.28	0	1	9462	<i>Cumulated Cases of Home Country (t-1)</i>	19.50	31.14	0	167	9506
<i>Economic Growth Crisis (t-2)</i>	0.09	0.28	0	1	9462						
<i>Economic Growth Crisis (t-3)</i>	0.09	0.29	0	1	9462						
<i>Economic Growth Crisis (t-1)</i>	0.10	0.29	0	1	9462						
<i>Sovereign Debt Crisis (t-1)</i>	0.02	0.13	0	1	9458						
<i>Sovereign Debt Crisis (t-2)</i>	0.02	0.13	0	1	9458						
<i>Sovereign Debt Crisis (t-3)</i>	0.02	0.14	0	1	9458						
<i>Sovereign Debt Crisis (t-4)</i>	0.02	0.14	0	1	9458						
<i>Crisis (t-1)</i>	0.17	0.38	0	1	9506						
<i>Crisis (t-2)</i>	0.17	0.38	0	1	9506						
<i>Crisis (t-3)</i>	0.16	0.37	0	1	9506						
<i>Crisis (t-4)</i>	0.17	0.38	0	1	9506						

Table A2: Data Sources

Variable	Data Source
<i>Cases</i>	Wellhausen (2016) and UNCTAD's Investment Arbitration database
<i>Rule of Law</i>	Teorell et al., (2017): variable: wbg_i_rle (Kaufmann et al., 2011)
<i>Quality of Regulation</i>	Derived using data from Teorell et al., (2017): variables wbg_i_rqe and wbg_i_rle (see main text for details)
<i>GDP per Capita</i>	Teorell et al., (2017): variable: wdi_gdpcapcon2010 (WDI Database)
<i>FDI Stock</i>	UNCTAD's Foreign Direct Investment Database
<i>Bilateral Investment Treaty</i>	UNCTAD's International Investment Agreements Database
<i>Energy Charter Treaty</i>	International Energy Charter Organisation (data provided on their homepage)
<i>Infeasibility of Policy Change</i>	Teorell et al., (2017): variable: h_Polcon3 (Henisz, 2002)
<i>War</i>	Derived using data from Uppsala Conflict Data Program (UCDP), UCDP/PRIO Armed Conflict Dataset; conflicts with intensity = 2
<i>Regime Durability</i>	Derived using data from Teorell et al., (2017): variable p_durable (Marshall et al., 2017)
<i>World Bank Loans</i>	World Bank's World Development Indicators (WDI) Database
<i>Cumulated Cases of Home Country</i>	Derived from data on Cases
<i>Time</i>	Derived from data on Cases
<i>Distance Capital Cities</i>	CEPII Distance dataset
<i>Common Official Language</i>	CEPII Language dataset
<i>Common Historical Ties</i>	CEPII Language dataset
<i>Inflation Rate Crisis</i>	Derived using data from Teorell et al., (2017): variables: wdi_inflation and imf_inflich (WDI and IMF Databases)
<i>Exchange Rate Crisis</i>	Derived using data from Teorell et al., (2017): variable: pwt_xr (Penn World Tables) and Worldbank Global Economic Monitor data: variable: DPANUSSPB
<i>Economic Growth Crisis</i>	Derived using data from Teorell et al., (2017): variable: wdi_gdpgr (WDI Database)
<i>Sovereign Debt Crisis</i>	Derived using Laeven and Valencia (2018) database on Systemic Banking Crises
<i>Crisis</i>	Derived from Inflation Rate Crisis, Exchange Rate Crisis, Economic Growth Crisis and Sovereign Debt Crisis