Emerging from war: Public policy and patterns of foreign direct investment recovery in postwar environments

Robert J. Moore

Department of Management and Industrial Relations, Shidler College of Business, University of Hawaii at Mānoa, 2404 Maile Way, Honolulu, HI 96822, USA; The East-West Center, 1601 East-West Road, Honolulu, HI 96848, USA

Correspondence:

RJ Moore, Department of Management and Industrial Relations, Shidler College of Business, University of Hawaii at Mānoa, 2404 Maile Way, Honolulu, HI 96822, USA
e-mail: rjm777@hawaii.edu

Abstract

The postwar environment is different from those of active war and established peace, with risks of violence and political volatility existing alongside renewed commitments to stability and development. International aid organizations join governing institutions in guiding policies for postwar growth. Though investments here are risky, I argue that governments can clarify key uncertainties and accelerate the process of recovering FDI by strengthening policy in areas of information transparency, governing accountability, and engagement with international aid. These ideas are tested with a survival analysis of inbound FDI recovery using a worldwide sample of postwar periods from 1970 to 2008. I find that while transparency and accountability accelerate FDI recovery as expected, foreign aid tends to be associated with slower rates of recovery. Rather than encourage postwar FDI with a commitment to development, aid may be an indirect signal that the environment is yet unfit for private sector investment. Policymakers and aid organizations should not rely on aid alone to attract foreign investment in postwar environments. Structures that encourage investment for social responsibility, with a long-term market outlook, may be more successful in these contexts.

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INTRODUCTION

International companies can be a productive force toward building stability and economic growth in countries recovering from war. Investments add resources to the capital base, and operations can bring jobs, knowledge, technology, and new international linkages to aid the work of returning to normalcy (Bray, 2005; Forrer & Katsos, 2015). Companies may also take active roles in the peacebuilding process. Some have leveraged their valuable status as neutral parties to host peace negotiations, as in South Africa during the transition from the apartheid regime (Oetzel,

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Westerman-Behaylo, Koerber, Fort, & Rivera, 2010). Others have spearheaded initiatives for peaceful elections, as in Kenya in 2008 (Crawford, 2019). Businesses are often regarded as assets in these contexts (Oetzel et al., 2010; Westermann-Behaylo, Rehbein, & Fort, 2015).

International business research has made recent advances in the study of business phenomena in contexts of active war, but studies of the postwar transition remain rare. Driffield, Jones, and Crotty (2013) outline some common characteristics of firms found to be investing in warring environments, and Dai, Eden, and Beamish (2013, 2017) explore dimensions of subsidiary vulnerability to war-related risks. Oetzel and Getz (2012) describe stakeholder pressures and firms' responses when operating in contexts of active war.

The postwar transition is more common in studies of political science and economic development, as the work of postwar recovery is most directly framed as a policy challenge for governments, aid NGOs, and international banks. These studies recognize the potential of international companies and foreign direct investments to contribute to the process, and, indeed, increasing FDI has been a stated goal (Turner, Aginam, & Popovski, 2008; Boon, 2006). The gap here, though, is that the managerial perspective of postwar FDI is often overlooked or reduced to simple functions of incentive response (Rettberg, 2016). Investments from international business can aid in postwar recovery, but the environment presents a rich set of challenges to those making investment decisions.

The present study is aimed at the intersection of these two streams. The central research question is this: what features of the policy environment might be influential in driving the recovery of inbound foreign direct investment levels in countries recovering from war?

The question has a policy orientation, but its investigation is significant for theory in international business as well, characteristic of Lundan's 'double helix' illustration of IB and public policy (Lundan, 2018). Investing and operating in postwar zones is not 'business as usual.' The heightened risks perceived of these environments would typically suggest an avoidance strategy for MNEs (Mills & Fan, 2006; Slangen & Beugelsdijk, 2010). Investments are still made, however, and exploring them in this context can extend the scope and situational nuance of international business theory. This study takes its cues from the tradition of emerging economy business research, viewing policy

structures according to their potential to reduce different types of investment uncertainties facing firms. The emerging economy paradigm is especially valuable for its focus on the interactions between firms and their contexts. The present study draws on previous findings regarding information and accountability policy for FDI, and it extends the theory with a unique look at the context of international development aid, a prominent reality among nations rebuilding after war.

The study begins with a review of distinctive features of postwar environments for business and policy, heeding recent calls for thicker descriptions of operational context (e.g., Meyer, 2015). Hypotheses are then developed for three policy domains to aid the recovery of FDI inflows: information policy, accountability policy, and engagement with international development aid. An empirical analysis follows, testing associations between policy features and the rates at which countries recover their inbound FDI to average levels. The sample includes 111 postwar periods, worldwide, over the 38-year span from 1970 to 2008.

Hypotheses relating information and accountability policy to FDI recovery are supported, but a surprising result emerges concerning international development aid. Countries receiving aid from international development organizations tend to take longer to recover their FDI inflows rather than shorter, and the pattern is consistent with the level of aid received (more aid corresponds with longer recovery times). Aid organizations typically have a positive influence on the resources and knowledge available in recovery environments, but, as addressed in the discussion, they also contribute to the institutional complexity facing firms, and they tend to operate in places that have been especially hard-hit (Collier, Hoeffler, & Söderbom, 2008).

The study concludes with a discussion of policy implications and contributions to IB theory. Theory and policy are closely aligned here in matters of government transparency and accountability; results add support to well-established calls to strengthen independent oversight, distribute the policy-making process, and bolster market-facilitating institutions (e.g., Biglaiser & Staats, 2010; Henisz & Zelner, 2005). The context of international aid poses new considerations, as FDI is shown here to avoid locations where greater amounts of aid are received. The indirect message, that aid-heavy environments are poor for investment, may be coming through more strongly than the intended message, that the aid is building a

better environment. Policies that encourage MNEs to invest for social responsibility, with potential for long-term gain, may be more effective in this context than standard appeals to market strategy (Bray, 2005).

BACKGROUND: THE POSTWAR CONTEXT

War is defined by violence. The definition put forward by the Correlates of War project offers three criteria: “sustained combat, involving organized armed forces, resulting in a minimum of 1000 battle-related fatalities within a 12-month period” (Small & Singer, 1982). Postwar, then, is the time following its cessation (or reduction). This violence, and the power conflict among organized forces behind it, form the immediate backdrop for policy during the recovery period.

Legacies of violence are felt in the make-up of the population, with groups of people having fled, been diverted from jobs or education, and fallen victim in fighting (Davies, 2004). Violence degrades physical resources, infrastructure, and human systems, and this weakens the ability of organizations to implement new initiatives without first committing the time and investment to rebuild (Mills & Fan, 2006). Recent violence also brings with it the risk of relapse should the reconciliation effort fail. This is a valid fear, as over a third of postwar countries between 1960 and 2002 relapsed to renewed fighting within 10 years (Collier et al., 2008).

The tasks involved in building stable systems of policy and governance after a period of breakdown can be enormous. Priorities for peacebuilding include re-establishing the legitimacy and effectiveness of formal institutions, re-building security, and spurring economic development (Brinkerhoff, 2005; Luiz, Ganson, & Wennmann, 2019). Patterns of governance in immediate postwar environments often exhibit just the opposite, however, with entrenched informal power structures, weak oversight of security forces, broken systems for essential services (health, education, and rule of law), and fiscal arrangements that siphon public assets for favored elites (Alexander, 1997; Rose-Ackerman, 2008; Sawyer, 2008).

Despite complex challenges, building peace is not always a hopeless prospect. Policy and operations here are often characterized by practical initiatives for steadily navigating governance gaps: building coalitions around shared priorities, balancing security oversight among different groups, and leveraging basic economic demands to assist in

growth (Del Castillo, 2008). International businesses can contribute in this work as a stabilizing force, and the employment opportunities they bring can help reduce risks of further violence (Collier, 2009). Though environmental risks are high, they may also see strategic benefits in the process. Peacebuilding environments offer opportunities for institutional entrepreneurship and co-evolution, and MNEs can build local legitimacy by engaging in this process (Cantwell, Dunning, & Lundan, 2010). Postwar investments can provide companies access to new marketplaces, government incentives, preferred terms with suppliers and resources, and the potential to invest in undervalued firms (Biglaiser & DeRouen, 2007; Hacıoglu, Celik, & Dincer, 2012).

THEORY AND HYPOTHESES: POLICY FOR FDI

The postwar context is new to IB, but prior work in the field of business in emerging economies may be relevant in guiding its study. Emerging economies have long been recognized as environments with unique constraints and opportunities facing those who seek to do business within them. IB scholarship in this area has roots in studies of post-Soviet transition economies in the mid-1990s, and, through key works by Hoskisson, Eden, Lau, and Wright (2000), Meyer and Peng (2005, 2016), Xu and Meyer (2013), and others, it has developed into a consistent paradigm for investigating business phenomena in volatile, high-risk, and high-growth environments. Research in this tradition draws on a few different streams of management theory (including institutional theory, transaction cost theory, and resource-based theories), but what holds it together, and what makes it relevant here, is an active focus on the surrounding contexts for business, questioning assumptions of environmental stability, market efficiency, institutional capability, and policy efficacy (Peng, Wang, and Jiang, 2008; Wright, Filatotchev, Hoskisson, & Peng, 2005; Xu & Meyer, 2013).

Studies of emerging economies link host country policy environments with different kinds of uncertainty faced by foreign investing firms (Hoskisson et al., 2000). Policy structures influence the market-related information asymmetries facing these firms, which may be exacerbated by weak or biased national reporting systems, poor information infrastructures, and weak or absent formal market institutions. Policy structures may also influence investment uncertainties stemming from political

volatility, imposing (or failing to impose) accountability constraints to minimize abrupt or excessive rent-seeking behaviors from governing institutions. In the absence of effective policy systems, these uncertainties raise the search costs, transaction costs, and risks of loss facing firms considering investments in these locations (Meyer & Peng, 2016).

There are also prominent features of postwar contexts that have not yet been subject to thorough investigation in relation to business outcomes, and it is here where the theory may be extended. One feature concerns the presence of international development assistance. Rebuilding from war is often motivation for a concerted development agenda, with activity from international banks, foreign governments, and NGOs (Dobbins, Jones, Crane, & DeGrasse, 2007). Firms considering investments in these areas may consider the implications of these activities, as they may contribute to resolving investment-related uncertainties. Another factor of these contexts that should not be ignored is their experience of recent violence. Though not policy in the direct sense, the war legacy may still have wide-reaching effects for business and policy.

Information Policy

Policy structures to make high-quality market information widely available should facilitate inbound investment in postwar environments (Kelly & Souter, 2014). Information can assist MNEs to realize investment ideas, analyze opportunities, and formulate strategies for entry (He, 2002). Postwar environments often face information-related challenges (damaged distribution structures, untrustworthy sources, negative tone), and the availability of high-quality information from these places can vary widely (Kang & Meernik, 2005). The basic point that information is important in addressing uncertainty is well studied and intuitive (Amiram, 2012; Tan & Meyer, 2011), so here I focus more concretely on the kinds of information that may be important and their mechanisms for facilitating high-risk investment.

First, information should be relevant for firms to assess their task environment (Alon & Herbert, 2009; Hotho, Lyles, & Easterby-Smith, 2015). Beyond top-level information domains (macro-economic figures, government structures, trade regulations, social norms), there are targeted areas that can facilitate firms' assessments of investment opportunities. These include information about the

structure of different industries, including active firms and industry-specific stakeholders (guilds, ministries, accreditors), processes for acquiring resources (capital markets, labor pools, domestic commodities), and location-specific operating costs (tax and remittance structures, transportation, communication, and utilities). This strategically relevant information about postwar environments reduces asymmetries and allows investing firms to shift focus from the risk-forward initial connotations of recent conflict toward more familiar frameworks of strategic analysis.

Relatedly, information should be granular to differences across regions within the postwar country (Ma & Fitza, 2013). National homogeneity is an easy assumption to make, particularly for outsiders, but this obscures opportune conditions for investment in areas with operating environments far different from the national norm. These differences can occur in fully- or semi-autonomous regions, as in Kurdistan of Iraq or Somaliland of Somalia, or within the borders of special economic zones, found in Cambodia, Iran, Myanmar, Nigeria, and others (Farole & Akinci, 2011). Regional differences introduce more options to the investment decision. They shift the problem frame to the within-country level, and they demonstrate alternatives to the high-risk environment that might be perceived from war-related media coverage.

Note that information itself does not reduce the conditions of risk present in a postwar environment (more information will not give an investment in Sudan a similar profile to an investment in Finland). Rather, it should raise the probability for firm managers of high-risk or emerging market strategies to perceive an investment opportunity (through availability and exposure) and facilitate the process of analysis and communication among the decision team (through strategic relevance and granularity) (Buckley, Chen, Clegg, & Voss, 2016). Hypothesis 1 is thus framed around information availability:

Hypothesis 1: Countries with more market information available will take less time to recover their inbound foreign direct investment levels in the postwar years.

Accountability Policy

Accountability on governing institutions is another policy domain affecting inbound FDI (Busse & Hefeker, 2007). Governments influence the conduct of their economies through taxes, monetary

policy, the enforcement of property rights, and other policy levers, and their actions affect the value of foreign investments (Ring, Bigley, D'Aunno, & Khanna, 2005). Postwar governments are often volatile, having been recently established or challenged, and their potential for wide policy swings constitutes an uncertainty to which investing managers are especially sensitive (Henisz & Zelner, 2005). Elements of the policy environment that constrain the agency of individual political actors and signal a consistent operating environment can help mitigate these concerns for investors (Delios & Henisz, 2003).

Effective policies in this domain should constrain the ability of government executives to make large, sudden, or self-serving changes to the policy environment (Henisz, 2000). Policy structures that fill this role can include veto powers among different branches of government, distributed approval requirements, obligations for government representation from diverse parties, mandated transparency concerning public budgets and policy agendas, and the empowerment of a free press (Williams, 2015). Foreign investments often have large sunk costs and long payback periods, particularly in recovery environments, and firms must guard against the risks of rent seeking from volatile governing bodies (Henisz & Zelner, 2005). Structural accountability constraints are a way for governing institutions to signal credibility in the absence of long transaction histories.

Promoting strong formal accountability can be particularly challenging in a postwar context. Governments face legacies of recent organized violence, and the governing environment may include leaders accused of war crimes, active rebel groups, and political opposition who were recently battlefield opposition (Fanthorpe, 2006). The accountability mechanisms of interest to MNEs can be sidelined to the process of power consolidation and domestic postwar response. This trade-off between power and constraint is a complex challenge for all stakeholders to postwar recovery, and the ways in which postwar governments negotiate this struggle will be of strong interest to managers considering FDI decisions. Hypothesis 2 is thus framed around government accountability:

Hypothesis 2: Countries with a greater degree of accountability on governing institutions will take less time to recover their inbound foreign direct investment levels in the postwar years.

International Development Aid

Engaging with institutions that provide international development aid is another policy domain that can have great relevance for postwar foreign direct investment. Development aid may include monetary resources (grants, concessional loans), physical resources (food, construction of hospitals and schools), and services (election oversight, security training, policy consultation) (Dobbins et al., 2007). Aid is often a significant part of the postwar policy context, but, while it has received much attention in the scholarship of economics and international development, its relationship with international business has not yet been explored in detail (Garriga & Phillips, 2014). Here we develop the hypothesis that host country engagement with development aid should raise the probability of FDI, based on resource increases and institutional support structures to reduce investment-related uncertainties. The reality is complicated, however, and a negative trend might also be predicted.

Economic theories of development aid posit that countries can be trapped in cycles of poverty and lack the domestic resources to pull themselves out (Sachs, 2005). War, corruption, landlocked borders, and poor neighbors contribute to the cycle, eating away the means for economies to reach self-sustaining levels of growth. International aid is meant to be an infusion of resources (and, increasingly, knowledge) to lift an economy past the threshold of imminent relapse – the first round of seeds and fertilizer for a farm that can produce its own in the future. Aid is a cost for those giving it, but its benefits to welfare, stability, and growth are seen as equally or more valuable than its potential return on a competitive market (Degnbol-Martinsen & Engberg-Pedersen, 2005).

Institutions providing postwar development aid should be well positioned to address some of the uncertainties facing managers considering FDI, and aid operations may therefore facilitate investment in host countries. Liquidity from aid funds can provide greater purchasing power in domestic markets, increasing demand and the potential for returns to the firm (Mills & Fan, 2006). Aid is often tied to policy frameworks that promote liberal economic policy and transparent governance, and host countries' engagement with aid agencies can send the signal that they hold these values (Santiso, 2001). Postwar aid services fill voids in institutional functions that may have been weakened through

conflict. These have included provisions of public security, insurance against political risks, infrastructure support, human capital training, and others (Crane & Terrill, 2003; World Bank Group, 2006). Viewed this way, and absent other contextual information, engagement by the host country in international development aid should be associated with greater inbound FDI. This positive view of development aid leads to hypothesis 3a:

Hypothesis 3a: Countries with stronger engagement with international development aid will take less time to recover their inbound foreign direct investment levels in the postwar years.

Aid is controversial, however, both in theory and implementation, and its provision can just as easily signal caution to investing managers. Not all economists agree with the existence of the poverty trap nor the effectiveness of limited-term infusions of outside resources to spur sustainable growth (Easterly, 2006; Moyo, 2010). From this lens, aid contributes to cycles of dependence and undermines local efforts to craft solutions for sustainable growth for themselves (Djankov, Montalvo, & Reynal-Querol, 2008). Engaging with aid, then, becomes a signal of an impending crash for the host country rather than a promise of growth.

Efforts to reconcile these different views have led to rich scholarship on the contexts and conditions of aid for development, with insights emerging in the complicated middle (Banerjee & Duflo, 2011; Riddell, 2008). These studies have identified a few pitfalls in aid implementation that may raise risk perceptions in managers. Conditions of aid from foreign governments can be tied to self-serving agendas and may exacerbate existing international conflicts (Wardak, 2004). Even if offered in good faith, aid resources can be co-opted locally after disbursement and fuel local structures of corruption (Winters, 2010). Institution-driven development aid creates interfaces between disparate institutional systems – between donors and host and among different donors – and navigating the resulting complexity of governance can add to the costs of operations by international firms (Greenwood, Díaz, Li, & Lorente, 2010; Meyer, Mudambi, & Narula, 2011). Finally, even outside the sphere of its direct influence, receiving development aid can send the signal that the surrounding environment is in bad shape (by war-related destruction or dysfunction), is in need of help, and is unsuitable to

provide returns on investment (Paris, 2010). This negative view of development aid leads to hypothesis 3b:

Hypothesis 3b: Countries with stronger engagement with international development aid will take more time to recover their inbound foreign direct investment levels in the postwar years.

In the realm of postwar policy, then, development aid may have large influences on the FDI process, but the direction of association may not be as straightforward as that of the other factors discussed above. Here we seek evidence of a dominant international trend, positive or negative. This can inform directions for future international business study.

Controls: Other Factors for Postwar FDI

In cases of postwar countries containing large stocks of valuable natural resources, we might expect inbound FDI at higher levels than otherwise (Asiedu, 2006). These resources can be a motivating factor, changing the risk and reward calculations at the firm level. The influence of resource endowments on foreign investment has been long studied from the perspective of international trade, and, while the relationship is not always straightforward (see the resource curse; Robinson, Torvik, & Verdier, 2006; Mehlum, Moene, & Torvik, 2006), it is often in evidence. A measure of natural resource value is thus included in the analysis as a controlling factor – influential for FDI but separate from immediate policy engagement.

Two measures of regime fragility are included to control for the quality of governing institutions. Postwar governments are typically in a fragile state, but it can be important for FDI to distinguish those that might offer more longevity than others. Many indices of institutional quality combine measures of stability, information transparency, and accountability together, but these dimensions are dis-aggregated here to allow a closer investigation of the information and accountability policy domains.

FDI recovery might be influenced by levels of economic and humanitarian development. GDP is included here as a standard macroeconomic control for market size, and countries' pre-war levels of inbound FDI are included to control for general FDI attractiveness. Countries that have always attracted

higher levels of FDI may recover in different patterns than those that have not. Further, a measure of humanitarian development is included in the analysis, represented here by child mortality rates. This is an important control for assessing levels of international aid.

No study of war would be complete without a sense of the destruction it brings. Battle deaths are included as a controlling factor to represent the magnitude of destruction associated with each war. Heavily destructive wars should leave countries in a weaker state, and foreign investing firms' perceptions of destruction may independently influence their willingness to commit resources in the immediate postwar years. War destruction may be a common contributing factor to the quality of host-country policy structures, with particularly destructive wars resulting in poorer information, lower accountability, and potentially higher levels of international aid. Including battle deaths in the analysis helps control for an endogenous component effect of these institutional factors on postwar FDI, allowing each to be considered more independently than otherwise.

METHODS

Dependent Variable: Postwar FDI Recovery

Hypotheses are framed around the idea of postwar FDI recovery, an upward trajectory of FDI over time from depressed wartime levels to those more indicative of a country's normal operations. The dependent variable for this analysis, then, is the time-to-recovery: the number of years from the end of the war until inbound FDI is observed at or above the country's long-term average rate.

There are a few reasons for framing the analysis this way. Panel studies that reveal year-on-year associations between FDI and policy characteristics have already been done successfully (e.g., Busse & Hefeker, 2007; Daude & Stein, 2007), and a simple replication would not offer much contribution here. Recovery framing allows each country's multi-year postwar experience to be the level of focus. Policies take time to implement within host countries, to reach foreign investing decision-makers, and to generate successful and measurable inbound FDI. The process may also be influenced by destruction wrought previously during the active war years. Specifying the multi-year recovery process as the unit of analysis allows these factors to be incorporated more readily, as these do not fall

neatly into year-by-year variations. Postwar circumstances are temporary, ending either in a new war or an eventual new normal state, and factors that are associated with an acceleration of the process of reaching normal levels should be of practical interest for policy and governance.

What does it mean for a country to have recovered its inbound FDI? Recovery needs a threshold, and the one used in this study is each country's adjusted 38-year average yearly inbound FDI level, calculated from observations from 1970 to 2008. Recovery is determined when a country's single year FDI meets or exceeds its adjusted long-term average. More details about the recovery definition and calculation are described in "Appendix".

Though not as intuitive as a prewar/postwar FDI comparison, this method has some advantages. It can reflect each country's overall FDI tendency better than a single observation would – it guards against the criterion being influenced by a single-year economic shock. It also remains relevant for countries whose wars span many years. The magnitude of changes in the economies of these countries, their neighbors, and the rest of the world can reduce the relevance of any specific early-year observation.

FDI observations were accessed from the World Bank Indicators portal (data.worldbank.org), with source data from the IMF Balance of Payments database and supplemented by UNCTAD and other national sources. 'War' and 'postwar' years for each country are identified using the records at the Correlates of War project (Sarkees & Wayman, 2010).

As a final note, meeting this quantitative definition for FDI recovery does not mean a country has 'recovered' in the larger sense that it is conducting all business and daily affairs as if the war had never happened. FDI is only one dimension of the overall endeavor.

Independent Variables

Information policy

The degree to which relevant market information is available for each country is captured in an index put forth by Williams (2015). It is composed of three sub-indicators, together indicating the quantity of market information available, the quality of that information, and the infrastructure in place for its distribution. Data sources include the

International Monetary Fund, the Bank Disclosure Index, the Telecommunication Infrastructure Index, and others (see Williams, 2015 for a complete list).

Accountability policy

Governing accountability is indicated by an index of constraints on national governments, also calculated by Williams (2015). This index similarly contains three sub-indicators (political constraints, media freedom, and fiscal transparency), each aligning with theoretical constraints on the ability of governments to make sudden, self-serving, or harmful changes to the policy environment. Source data include reports from the International Development Association, Reporters Sans Frontières, Freedom House, and others (see Williams, 2015).

There are other prominent accountability indices available from the World Bank (World Bank Governance Indicators, or WGI), and from Transparency International (Corruption Perceptions Index, or CPI), but the present index is better suited for this study design. Its coverage extends earlier in time than WGI and CPI, with 1980 as its base year instead of 1996 (WGI) or 1995 (CPI). This aligns better with the FDI sample, and it allows for a longer period of analysis. Further, neither WGI nor CPI scores are consistently comparable over time in the years before 2008: WGI scores are constructed with a mean of zero for each year, obscuring country-level changes over time, and CPI scores were constructed using a matching percentiles technique prior to 2012, with the result that the scores are interpretable as country rankings rather than reflections of indicator values (Williams, 2015).

Engagement with international development aid

Two indicators are used for engagement with international development aid: net official development assistance (ODA) received from all sources (e.g., governments, banks, NGOs), and net ODA received from regional development banks. Regional bank ODA is considered separately because it represents a defined set of external development institutions with operations within and across national postwar settings. Source data for both come from the Development Assistance Committee of the OECD, accessed through the QWIDS interface (stats.oecd.org/qwids). Raw data are reported in current U.S. dollars, and natural log values are used in this analysis due to the wide range of the raw figures.

Control Variables

Natural resources

Natural resources are indicated by the total natural resource rents for each country as a percent of national GDP. Data were accessed from the World Bank Indicators portal, with source data also from The World Bank. The indicator is defined as “the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents” (World Bank Group, 2018).

State fragility

Two indicators are used to control for the fragility of the governments in this sample: the State Fragility Index from the Polity5 Project, and a marker of whether the war resulted in a regime change (Center for Systemic Peace, 2020a, b).

Pre-War FDI

A measure of the countries’ pre-war FDI is included to control for their previous level of economic development and FDI attractiveness. Raw data were reported by UNCTAD and were accessed through the World Bank Indicators portal (data.worldbank.org).

Under 5 mortality rate

This is included as a measure of the countries’ development along humanitarian dimensions. This is important in distinguishing the effects of international aid, as it helps tease apart aid for war recovery from other humanitarian concerns. Data were reported by the UN Inter-Agency Group for Child Mortality Estimation (www.childmortality.org).

GDP

GDP is included here as a macroeconomic control for market size (World Bank Group, 2018). Figures are reported in current US dollars (GDP) and transformed to the natural log.

Battle deaths

Battle deaths are defined as the number of deaths caused by the warring parties that can be directly related to combat. The largest source used in this study is the Uppsala Conflict Data Program Battle-Related Deaths dataset (UCDP BRD version 18.1; Pettersson & Eck, 2018), with raw data collected from three sets of sources: global newswire reporting, global monitoring of local news by the BBC,

and secondary sources like NGO reports, field reports, books, and others (Allansson & Croicu, 2017). Battle death estimates for wars outside the range of the UCDP dataset were collected by hand from news and field reports. The raw distribution of battle deaths in this sample is highly skewed, and this is addressed by transforming to natural log values.

Analysis

Survival analysis models can describe the timespan to an event in relation to the factors hypothesized to be influential in reducing (or extending) it (Kalbfleisch & Prentice, 1980). There are two common options for survival modeling: proportional hazards and accelerated failure time. Proportional hazards models estimate effects of explanatory variables on the underlying hazard rate (the probability that the outcome of interest will happen in each successive year, assumed to be proportional from year to year), whereas accelerated failure time models estimate the accelerating or decelerating effect of the explanatory variables on the full timespan. The accelerated failure time specification is used here, as it does not require the assumption that the underlying hazard rate is proportional from year to year. The observed distribution of recovery times, displayed in Figure 1 and discussed below, suggests a stronger probability of recovering in the first few years, with the successive probability dropping over time.

In the vocabulary of survival analysis, the observation of a successful FDI recovery constitutes a ‘failure’, as it signals that the duration of interest (recovery time) fails to extend past the criterion year (which, in this case, is good). Countries that

relapse back into war before recovering their FDI levels are treated as right-censored, as are those that have not yet recovered by 2008 (the last year of data availability). The accelerated failure time method is parametric, and the underlying distribution for recovery time is specified as the log-normal. This distribution matches the observed data well, with many recoveries in the first few years and fewer as the years extend, and it provides a better statistical fit to the data than other distributions according to AIC and log-likelihood values.

The accelerated failure time model estimates, via maximum likelihood, the effects of explanatory variables to accelerate or decelerate the time to recovery (‘failure’). Positive coefficients indicate longer recovery times, and negative shorter. The magnitude of the effect can be calculated by multiplying the baseline recovery expectation by $\exp(\chi \beta)$, where χ is the explanatory variable and β is the coefficient (Mills, 2011). In practice, this aligns closely to calculations of percent difference: a coefficient of 0.5 corresponds with a recovery time that is approximately 50% longer than otherwise expected.

Distributions and Correlations

The distribution of recovery periods, illustrated in Figure 1, offers some insights, as this is the first time that patterns of postwar FDI recovery have been described in a worldwide sample. The average time to FDI recovery after wars between 1970 and 2008 is 4.5 years, and experiences range from 1 to 19 years. Some of the longer-lasting successful postwar recovery periods are those in Uganda following the Ugandan Bush War (1986), and in Georgia following the Georgian Civil War (1994). Sixteen percent of countries relapse to a new war before reaching recovery threshold for FDI. The incidence of FDI recovery typically starts high, with 35% of countries recovering in 1 year, then drops off to a steadily lessening pattern of recovery durations from 2 to 19 years, experienced by the remaining 49% of countries. The large number of countries recovering in 1 year is interesting, and a specific study of this group may yield deeper insight in future research. It is not unexpected, however, and it aligns with postwar recovery patterns of GDP as described by Flores and Nooruddin (2009).

Table 1 presents correlations and descriptive statistics for all variables. Some correlations are interesting in their direction and significance. Aid from development banks is correlated negatively with accountability policy and GDP, suggesting

Figure 1 Distribution of postwar recovery times.

that these development institutions have a stronger presence in countries with poor environments for FDI. These relationships are hidden when combined within total development aid. Natural resources correlate positively with state fragility and negatively with accountability policy. These relationships might follow from environments with symptoms of a resource curse (more on this in the discussion).

Correlations are high between information policy and accountability policy, and between state fragility and under 5 mortality. Williams notes the theoretical connection between information policy and accountability policy in his indices; it tends to be the case that governments that value accountability also produce better information (Williams, 2015). The multicollinearity of these variable pairs contributes to a variance inflation factor of 4.5 when they are included simultaneously in the full FDI survival model. To address this source of error, the final model is estimated with one variable out of each correlated pair removed.

Results

Table 2 presents the survival models. Model 0 includes control variables only. Models 1–4 present coefficients for each independent variable separately: information policy, accountability policy, then both measures of international aid. Model 5 is the full model with all variables together, and Model 6 is the final, adjusted to account for multicollinearity among highly correlated variables.

Information and accountability

Measures of information policy and accountability policy predict faster FDI recovery, offering support for Hypotheses 1 and 2. Coefficients are negative, as expected, and they suggest a 2–3% reduction in FDI recovery time per degree of strength in these policy domains. This is observed both in their partial models (Models 1 and 2) and when information policy is included with development bank aid in the final model (Model 6). The effect of accountability loses significance when information and accountability are estimated simultaneously in Model 5, but this is likely a result of their high correlation. The effects are fairly small, but, with such a large potential for noise, it is notable that effects emerge consistently.

Table 1 Descriptive statistics and correlations

Variable	Mean	SD	Min	Max	0	1	2	3	4	5	6	7	8	9	10
0. Recovery duration	4.51	4.24	1	19											
1. Information avail.	42.09	14.03	5	80.50	– 0.05										
2. Accountability	33.75	16.30	10	77.50	– 0.03	0.63*									
3. International aid, all sources (log)	19.24	1.53	13.49	23.11	– 0.03	0.21*	0.33*								
4. International aid, development banks (log)	6.88	7.47	0	18.51	0.23*	– 0.13	– 0.23*	0.31*							
5. Natural resources	14.92	16.55	0	82.62	– 0.06	– 0.24*	– 0.36*	– 0.10	0.13						
6. Regime change	0.58	0.50	0	1	0.03	0.09	0.16	0.01	0.11	– 0.05					
7. State fragility index	15.70	5.43	3	25	– 0.16	– 0.46*	– 0.27*	0.19*	0.40*	0.25*	0.13				
8. Pre-war FDI (log)	18.30	2.60	9.21	24.46	0.14	0.37*	0.23*	0.08	– 0.09	– 0.05	– 0.07	– 0.25*			
9. Under 5 mortality	106.41	70.25	8.94	282.5	– 0.23	– 0.54*	– 0.31*	– 0.08	0.31*	0.21*	0.09	0.72*	– 0.28*		
10. GDP (log)	23.03	1.82	18.88	27.45	0.05	0.47*	0.28*	0.22*	– 0.20*	– 0.10	– 0.29*	– 0.40*	0.50*	– 0.46*	
12. Battle deaths (log)	8.19	1.48	4.96	13.00	0.02	– 0.14	– 0.11	0.07	0.12	0.07	0.09	0.16*	– 0.15	0.08	0.06

* $p < .05$

Table 2 Accelerated failure time models (log normal) for postwar FDI recovery associated with domains of public policy

Variables	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
1. Information policy (H1)		– 0.03** (0.01)				– 0.03* (0.01)	– 0.03** (0.01)
2. Accountability policy (H2)			– 0.02* (0.01)			0.00 (0.01)	
3. International aid (all sources) (H3)				– 0.02 (0.08)		– 0.13 (0.10)	– 0.17 (0.09)
4. International aid (development banks) (H3)					0.05*** (0.01)	0.05** (0.02)	0.05** (0.02)
5. Natural resources	0.00 (0.01)	0.00 (0.01)	– 0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	– 0.01 (0.01)	– 0.01 (0.01)
6. Regime change	0.05 (0.24)	0.31 (0.24)	0.22 (0.24)	– 0.05 (0.25)	0.07 (0.22)	0.14 (0.24)	0.12 (0.24)
7. Fragility index	– 0.01 (0.03)	– 0.04 (0.03)	– 0.04 (0.03)	– 0.01 (0.03)	– 0.03 (0.03)	– 0.04 (0.03)	
8. Pre-war FDI	0.06 (0.05)	0.06 (0.05)	0.05 (0.05)	0.05 (0.05)	0.04 (0.04)	0.06 (0.05)	0.05 (0.05)
9. Under 5 mortality	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00* (0.00)
10. Log GDP	– 0.06 (0.07)	0.01 (0.08)	– 0.04 (0.08)	– 0.07 (0.08)	– 0.05 (0.07)	0.01 (0.08)	0.03 (0.08)
11. Battle deaths	0.15* (0.07)	0.06 (0.07)	0.08 (0.07)	0.17* (0.07)	0.11† (0.06)	0.06 (0.07)	0.05 (0.07)
Time at risk (years)	536	519	519	499	536	482	482
Log likelihood	– 149.14	– 127.39	– 128.49	– 142.09	– 143.22	– 117.27	– 117.99
N	111	100	100	106	111	95	95

† $p < .1$ * $p < .05$ ** $p < .01$ *** $p < .001$

International aid

Somewhat surprising here is the result that international aid from regional development banks predicts a longer time to recovery (Model 4). This offers initial support for the alternate view of international aid, as described in Hypothesis 3b, that aid might signal caution more so than opportunity. The coefficient is positive, with a magnitude of about 5%, and the effect remains significant when estimated with other policy factors in the full and final models. An investigation of a binary measure of regional development bank aid is presented in the next section to explore the effect of its mere presence. Levels of net international aid aggregated from all donor sources (countries, banks, NGOs) show no significant association with postwar FDI recovery times. This may indicate a more complex set of relationships among aid agencies, donor governments, host governments, and foreign investing firms than this analysis allows.

Controls

Natural resources also fail to consistently predict FDI recovery rates in this analysis. This is surprising, and the result is addressed further in the discussion. There are likely still effects from natural resources in practice, but they may not be in the same direction from country to country. Other controlling factors show correlations in the expected directions (fragility and child mortality are negatively correlated with information and accountability policy; GDP and pre-war FDI are positively correlated), but they fall short of showing consistent effects on FDI recovery times in the models. State fragility and child mortality are issues that often overlap with policy and aid concerns in postwar states, and they should not be ignored. Wartime casualty levels predict longer FDI recovery in some models, and there remains the possibility for indirect effects through their influence on other explanatory variables. Wars with higher casualties may lead to weaker policy structures and higher levels of regional aid in the postwar period. This is explored further in the next section.

Repeat wars

A limitation of the survival analysis method is that it does not account for trends in recovery patterns that might be present from multiple wars for a single country; each war is assessed on its own. A few alternate estimations were conducted to investigate the possibility of within-country trends. As a first step, the original AFT survival analysis series

was applied to a sample restricted to each country's first war. This was followed by a similar analysis of each country's latest war. The effects of policy and aid variables maintained their direction and significance in these estimations, suggesting that the policy effects in the full model were not falsely achieved through within-country trends. *P* values were slightly higher in these models, but still significant, and this was likely due to the necessary reductions in sample size. As a final step, the same variables were estimated with a series of multi-level mixed effects regression models, with a group term added to account for error correlations at the within-country level (Hox, 2010). The limitation of this method, and the reason it was not used for the main presentation, is that it cannot accommodate censored observations, which in these data include all observations of relapse-before-recovery. Despite this limitation, the models again revealed policy and aid effects that were consistent in direction and significance with the main results. More details and full results of these alternate estimations are available from the author.

Further Analyses

Regional development bank aid

Not every country receives regional development bank aid in its postwar years. Does it matter more for FDI that they receive a certain level of aid or that they receive aid at all? I explore this by replacing the continuous aid variable in Model 4 with a binary variable representing aid receipt (1) or not (0). The result, presented in Table 3, is a much stronger effect for the aid receipt indicator (binary) than the aid level indicator (continuous). This suggests that recovering countries are grouped distinctively according to whether they receive regional aid, and those that do receive this aid tend to take about 73% longer to recover FDI levels.

Battle deaths

The wartime destruction associated with human violence may have an influence on the policy structures in these countries, and it may justify higher levels of regional development bank aid. As these circumstances are associated with longer FDI recovery times, they may facilitate an indirect effect between wartime casualties and FDI recovery rates.

To explore this possibility, I conduct a multiple mediation analysis with FDI recovery time as the dependent variable, battle deaths as the independent variable, information policy and regional

Table 3 AFT coefficients (lognormal) for postwar FDI recovery associated with international aid receipt (binary)

Variables	Control	Model 4 (alt)
4. International aid receipt (development banks)		0.73*** (0.21)
5. Natural resources	0.00 (0.01)	0.00 (0.01)
6. Regime change	0.05 (0.24)	0.07 (0.22)
7. State fragility index	− 0.01 (0.03)	− 0.03 (0.03)
8. Pre-war FDI	0.06 (0.05)	0.04 (0.04)
9. Under 5 mortality	0.00 (0.00)	0.00 (0.00)
10. Log GDP	− 0.06 (0.07)	− 0.05 (0.07)
11. Battle deaths	0.15* (0.07)	0.12† (0.07)
Time at risk (years)	536	536
Log likelihood	− 149.14	− 143.31
N	111	111

† $p < .1$ * $p < .05$ ** $p < .01$

development bank aid as mediators, and the full set of controls (Preacher & Hayes, 2008). The first step is to estimate the relationships between all variables individually to determine their path coefficients. The first set of path coefficients (battle deaths to information policy and development aid) are estimated by OLS regression, since the dependent variable is not duration dependent. The second set (to recovery time) are estimated by AFT survival analysis – the same as Model 6 in the original analysis (presented in Table 2). The path coefficients that precede and follow each mediator are then combined to determine their indirect effects. The delta method is used for combining the path coefficients and determining their statistical significance (Davidson & MacKinnon, 2004).

Results, presented in Figure 2 and Table 4, suggest that battle deaths do have an indirect effect on lengthening FDI recovery times through effects on policy and aid. The effect underscores the pervasive and long-lasting nature of legacies of violence in these places. The magnitude of the effect is fairly small, but, when combined with the primary results, it contributes to a picture of complexity and long-lasting challenges in these countries stemming from recent violence.

Figure 2 Mediated paths between battle deaths and FDI recovery.**Table 4** Indirect effects of battle deaths on FDI recovery rates

Mediator	Coefficient, total indirect effect	Std. err.	p value
Regional development bank aid	0.01	0.01	0.15
Information policy	0.01†	0.00	0.06
Combined effect	0.02*	0.01	0.02

† $p < .1$ * $p < .05$

DISCUSSION

We now return to the original research question: what features of the policy environment might be influential in driving the recovery of inbound FDI levels in countries recovering from war? Three policy domains were analyzed (information, accountability, and development aid), premised on their ability to reduce context-specific uncertainties for firms considering investment. Positive effects of information and accountability policy are supported in analysis, with consistent associations between these policies and shorter FDI recovery times, but evidence of the reverse is found for host country engagement with international development aid. These findings and their policy implications are discussed below, followed by a discussion of what the study and results contribute to the larger body of IB theory.

Summary and Policy Implications

Postwar environments are often information-poor, and those with policy structures in place that make more relevant market information available can be more successful in attracting investment in early years. Market information can increase the bounds of decision-makers' rationality, reduce firm costs of analysis, and allow the focus of assessment to move beyond war-related headlines (Tan & Meyer, 2011; Mills & Fan, 2006). The pattern is supported here in empirical analysis – countries that made more information available consistently recovered their FDI levels faster than otherwise.

Similarly, postwar policy structures that signal accountability – the ability of governing institutions to credibly commit to a set of policies – can be more successful in attracting investment in early years. The potential for wide policy swings constitutes an important source of risk and uncertainty for investing firms, and the years immediately after war are often volatile, with new governments establishing themselves or old ones re-asserting control (Henisz & Zelner, 2005). Those that incorporate policy controls to constrain the potential for harmful swings may lower an important barrier to firm resource commitment (Henisz, 2000). This, too, is supported by the present analysis – those countries with stronger accountability mechanisms consistently recovered their FDI levels faster than otherwise.

Results speak to the importance of transparency in the internal governance of these countries, both in the sense of making important information

widely available and in distributing the mechanisms of policy change. Policymakers working in these challenging environments may take heart that efforts toward internal transparency show consistent associations with faster FDI recovery. Results are well aligned with the common refrain from theory that opacity, corruption, and other restrictive patterns are often destructive at the macro level, despite any specific short-term gain they might provide to the actors involved (Javorcik & Wei, 2009; Le Billon, 2008). To re-affirm a few points collected from prior research, market information may be especially helpful for the FDI process if it is oriented to the strategic environment facing firms, specific to industries, supplies, resources, regulations, and other strategic factors (Alon & Herbert, 2009). Systems of information and reporting that are specific across regions within countries can contribute as well, as the strategic environment can vary widely and contain opportunities that are obscured at the national level (Farole & Akinci, 2011; Ma & Fitza, 2013).

The Iraq Stock Exchange (ISX) illustrates a policy initiative that created and published firm-relevant market information with some success during Iraq's postwar transition period. Established in 2004, the ISX is self-regulated and operates under the oversight of the Iraq Securities Commission, an institution independent of direct political influence. When it was established this represented an important shift away from the structures of strict market control in place during the reign of Saddam Hussein, and it allowed consumers to build confidence that the information reflected market realities more so than regime priorities (Hassan, Rankin, & Lu, 2014). In its operations, which continue to this day, the ISX offers real-time information about corporate and industry activity, pricing trends, and sector-level market characteristics. The ISX was one element in a period of strong economic growth in postwar Iraq, reflected in trading volumes, market caps, FDI levels, and GDP per capita (Iraq Stock Exchange, 2004–2018; World Bank Group, 2018).

The presence and level of international development aid in postwar countries was also investigated in relation to FDI. Though the mission of international aid is often to provide resources to help facilitate economic recovery, the effectiveness of this help is not always apparent, neither in economic theory nor in practical application (Banerjee & Duflo, 2011). The dominant hypothesis here was that international aid should be associated

positively with FDI, based on the uncertainty-reducing effect of the resources provided and the confidence they signal in the potential for the country's recovery (Garriga & Phillips, 2014).

This was not supported in analysis, and in fact a negative association was found between FDI recovery and aid from regional development banks (a group that includes the African Development Bank, Inter-American Development Bank, Arab Bank for Economic Development, and others). Policy structures based on the positive view may be ineffective to attract FDI in these postwar contexts. Recommendations are tough here, as aid institutions often do prioritize attracting a range of private sector actors toward postwar development (World Bank Group, 2006). It may be the case, however, that the opportunities contained in these efforts are not yet reaching their fullest audiences. A case study of recovery in Bosnia suggested that pro-investment MIGA programs may have been targeted too narrowly at large MNEs, ignoring the smaller but more abundant range of regional SMEs that can cross nearby borders to access postwar markets (Bray, 2004). Following from institutional theory in IB, the added operational complexity in environments with a large aid institution presence may also be a deterrent factor. These institutions may overlap in function with governing institutions, yet they expect different norms of interaction (Meyer et al., 2011; Santiso, 2001). Aid institutions working to attract FDI should take care to reduce policy incongruities that may be risky or costly for firms to negotiate.

Further, the contexts with the poorest economic indicators tend to host more aid. In these places it may be productive for aid institutions to enlist foreign investment in terms of corporate social responsibility, with potential for long-term gain, rather than in standard strategic terms. There is some evidence for the success of this approach. Swedish telecom firm Ericsson operated a post-conflict-focused response program called 'First on the Ground' as part of its CSR portfolio, bringing network connectivity to postwar relief efforts. This was done in partnership with a range of aid organizations, and it operated in Afghanistan in 2002, Liberia in 2003, and others. This work was driven to enhance the aid relief effort, but it had long-term strategic benefit as well, allowing early access to growth markets and enhancing its image with influential international players (Bray, 2005). Other postwar CSR activities have been reported in case studies from Sierra Leone, Sudan, and Somalia (Bray, 2005; Cronin, 2004).

Natural resources were expected to associate with faster FDI recovery as a control, but no consistent relationship was found in this analysis. Prior empirical studies have pointed to both positive and negative associations between natural resources and economic growth, and these may all be at play in recovering countries. On one side, the idea of a "resource curse" has fueled debate among economists; this is the idea that high levels of valuable natural resources can encourage corruption and hinder development in countries with low quality institutions (Robinson et al., 2006). On the other side, the same combination of high resources and low-quality institutions has been shown to be particularly attractive to foreign investment from China, and indeed Chinese firms have been active in many recovering countries in Africa, Southeast Asia, and the Middle East (Kolstad & Wiig, 2012; Sutherland, Anderson, Baily, & Alon, 2020). In aggregate in this sample, however, these forces and others combine to obscure a consistent predictive relationship.

A limitation of the empirical analysis is that it can only reveal these patterns at the country level, relying on the investment levels themselves to serve as evidence of firms' investment decisions. This makes no distinction between the types of firms investing, their comparative resource commitments, or their individual decision processes (Beugelsdijk, Hennart, Slangen, & Smeets, 2010). This was a trade-off of using policy data at the national level, necessary for comparing the experiences of different policy environments with FDI across different post-violent contexts. Firm characteristics can be investigated with more detail in single-country cases, but in this study the broad view was prioritized.

Another limitation, and a door for future research, is that this study leaves open questions of more nuanced qualitative and categorical differences among postwar environments. Recovery might take different directions for former colonies of England, France, Spain, or Portugal, for example, or of those that had formerly been unified in a larger country, like Yugoslavia or the USSR (Bennett, Faria, Gwartney, & Morales, 2017). The Correlates of War project identifies nine different types of war, depending on the status of the states involved and the nature of the conflict, and each might set the stage for unique recovery concerns (Sarkees & Wayman, 2010). The study as presented focuses on policy, aid, and natural resource concerns that might be relevant for any state that has experienced a recent violent conflict,

but further studies of the differences among them may yield new insight.

Contribution and Conclusion

To IB theory, this study extends a framing from emerging economy business research to postwar recovery environments, emphasizing the effect of policy to reduce context-related uncertainties facing investing firms (Meyer & Peng, 2016). This approach is supported in postwar settings for policy structures that address information gaps and political uncertainties. Results adds strength to its explanatory power and extend its relevance to an additional and distinct set of contextual features. Results also support the broader insight from emerging economy research that when policy and institutional environments are unstable, uncertain, and/or inefficient, these concerns gain prominence as drivers (or restrainers) of FDI – they have the potential to overcome effects that might be predicted by traditional resource- or market-based logic (Peng, Wang, and Jiang, 2008). The policy variables analyzed in this study led to more consistent FDI outcomes than the resource and economic control factors.

The results concerning international aid offer a new layer of complexity to this view. Rather than encourage FDI by addressing uncertainties related to resource availability and commitments to stability, as might be expected, international aid from regional development banks consistently and proportionally associate with weaker FDI recovery in this postwar sample. The presence of this aid may indeed be resolving uncertainties for foreign firms, but the message appears to be stronger in its implications of poor surroundings than of any intended additional market strength or stability to be developed. The relationship between

international aid and FDI is not so straightforward, and it is notable for theory that the indirect signal, based on context, is supported more strongly here than the direct one, based on intended effect. This is worth exploring further, both in theory and practice. Development aid has been the focus of much study in its capacity to influence economic outcomes for nations, but its specific interactions with foreign investment, firm decision-making, and firm-driven development remain open.

International businesses can contribute to the work of postwar rebuilding, and in doing so they push the bounds of common expectations of corporate behavior. It is hoped that the research presented here can contribute to the larger effort of promoting peaceful recovery by connecting policy structures to FDI recovery trends. The author also hopes to encourage future research in this important and (unfortunately) persistent context.

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APPENDIX: CALCULATION OF FDI RECOVERY

This section begins with a description of the assumptions and calculations behind the definition of postwar FDI recovery applied in this study. It concludes with a discussion of how this definition compares with others that are based exclusively on pre-war trends.

The definition of recovery employed here begins with the idea that each country's long-term average inbound FDI level can faithfully represent a level of FDI that is normal for that country. It can therefore mark the threshold by which the country can be declared 'recovered' in the years after the end of a war. By this definition, a country that is receiving FDI at or above its long-term average level is assumed to have shaken off some of the investment-depressing effects of recent war. The amount time it takes to achieve this level of investment after the end of the war, then, is the recovery period.

The long-term average for each country was calculated in the usual way: summing yearly FDI observations for each country from the timespan of focus (1970 to 2008) and dividing by n . A further step was taken to standardize the yearly observations of inbound FDI for each country, so that each observation represents its distance from the country's average in standard deviations. This was done by subtracting the mean from each raw observation (centering it on zero) and dividing by the country's standard deviation of FDI as calculated from 1970 to 2008. Transformed this way, the recovery period can be determined by counting the number of years from the end of the war until a positive FDI figure is observed.

One challenge to this definition is that it applies a static threshold for each country across a long period of time (1970 to 2008). Even though it is calculated from each country's FDI observations throughout that time, it may not be realistic to judge FDI levels in the 1970s by the same static threshold as those in the 2000s. Indeed, applying countries' averages this way results in periods that are consistently and unrealistically long for wars ending in the 1970s and 1980s and short for those ending in the 1990s and 2000s. This definition of recovery can be improved by adjusting for time, accounting for the worldwide growth in FDI trends during these years.

To make this adjustment, a panel regression was first conducted of every country's standardized inbound FDI from 1970 to 2008, war or no war. With no independent variables, the constant in this estimation was zero by design – the average inbound within-country standardized FDI. A term for time was then added to this basic estimation to see how much the worldwide within-country averages tended to change from year to year (and whether the change was statistically significant). As expected, inbound FDI tended to grow each year around the world during this period. The average yearly FDI growth in within-country standard deviations was represented by the coefficient for 'time' and was revealed here to be about 0.06 of a standard deviation. The constant in the equation was used to identify the year during which the adjusted average inbound FDI tends to match the unadjusted figure (zero). This happens between the years of 1990 and 1991. Terms for quadratic and cubic time were also tried, but they did not reveal significant effects.

Figure 3 Liberia raw inbound FDI and long-term average.

Figure 4 Liberia standardized inbound FDI with static threshold.

Figure 5 Liberia standardized inbound FDI with time-adjusted threshold.

The static average for each country was then adjusted using these estimations to arrive at the final recovery threshold for postwar inbound FDI. In 1990, postwar standardized inbound FDI is judged 'recovered' if it is greater than or equal to 0. In 1991 the threshold is raised to 0.06, in 1992 to 0.12, and so on. In 1989, the threshold is lowered to - 0.06, in 1988 to - 0.12, and so on. The full recovery calculation is illustrated in Figures 3, 4, and 5 for Liberia, starting with raw inbound FDI.

Advantages, Limitations and Other Definitions

This definition of recovery has a few advantages for analysis. It can be easily interpreted, being based on country averages and linear adjustments, and it can be applied consistently to all countries with yearly FDI data during the years in question (1970 to 2008). It remains a relevant milestone for inbound investment regardless of when the country is at war during these years or how long the war(s) may last.

It leads to a threshold that should be realistically attainable for countries that have gone through war-related investment shocks, since it is based on a measure of center calculated over the entire timespan. Finally, it is based on recorded observations from each country, rather than counterfactuals, so it avoids making judgments based on assumptions of what might have been had a war never happened.

The biggest limitation of this method is that it does not privilege FDI trends that may have been present in countries' pre-war years, and therefore diverges from the intuition that recovery should mean "back to how it was before." By including every yearly observation in each country's long-term average calculation, this method has the potential to set recovery thresholds that are lower than might otherwise be expected, being influenced downward by wartime trends. These are fair criticisms, and they should be taken as caveats in interpreting the full results of this study.

Methods for defining recovery thresholds based on countries' pre-war trends were also considered, but the trade-offs of these were judged to be less acceptable than the ones presented. One method, which has been applied in prior research of postwar GDP, is to use the pre-war figures themselves as recovery thresholds (found in Flores & Nooruddin, 2009). The five GDP observations leading up to the start of the war were assessed, and the highest one was set as the recovery threshold for postwar GDP. This method worked very well within the previous study, but it led to some ambiguities when applied here. Inbound FDI data are less comprehensive in the years before 1970, so this method would have necessitated a reduction in sample size. Complications also arise when considering the threshold for countries with multiple or relapsed wars (original threshold or interim peace?). The single pre-war observation, up to 5 years' removed from the start of the war, can lose its significance as a realistic recovery marker when applied to long-running wars. Despite these challenges, it speaks well to the validity of both approaches (the pre-war observation threshold and the long-term average threshold) that they result in similar distributions of worldwide postwar economic recovery periods.

The pre-war observation method described above may also be biased downwards – static pre-war figures do not take into account the expected FDI growth that may have happened had the war never commenced. A threshold that accounts for lost wartime growth might be constructed by starting with a country's pre-war trend and forecasting this through the war and postwar years. A country would only be considered recovered when it reaches or exceeds its forecast. This forecast method is probably closest to a general intuition of what it should mean for a country to be recovered – to not only match its previous FDI levels but to have made up lost ground. The biggest limitation to this method is that it often results in thresholds that are unattainably high. A study by Cerra and Saxena

(2008) tested a similar method to judge GDP recovery from large economic shocks (including civil wars), and they found that countries rarely recover to pre-war rates. Even after they stabilize, they remain on trajectories well below their pre-war trends. This sobering result formed the core message of their study, titled "The Myth of Economic Recovery."

To conclude, there are many considerations that go into a quantitative definition of postwar recovery. Results of this study are based on a recovery threshold defined by countries' adjusted long-term average inbound FDI levels, and they should be interpreted accordingly.

ABOUT THE AUTHOR

Robert J. Moore is a lecturer at the University of Hawai'i at Mānoa and researcher at the East-West Center. His research interests encompass political and institutional strategy in environments of rapid change, including war, new regimes, and international frontiers like deep oceans and outer space.

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