Does Environmental Responsibility Lower 'Double Hurdle'? Emerging Multinationals in Global Natural-Resource Industry*

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Abstract

Purpose: Emerging markets under industrialization have become increasingly influential over the global natural-resource transactions. However, their average deal completion rates have been relatively low. The international business (IB) literature regards the low rate as evidence of 'double hurdle', the extra disadvantages in doing overseas business for firms from developing countries. Because legitimacy building mitigates liability of foreignness, we argue that an acquirer's environmental responsibility effectively builds legitimacy. **Research design, data and methodology:** Stakeholders in the host country spread the acquirer's environmental responsibility so that, by raising legitimacy, they may strengthen the link between environmental responsibility and deal completion. Our dataset consists of the 608 cross-border acquisition deals announced by the 196 firms in Brazil, Russia, India, and China over 2008-2019 period. **Results:** A logit regression result confirms that environmental responsibility increases the likelihood of acquisition deal completion. Also, host-market stakeholders positively moderate the relationship between environmental responsibility and the likelihood of deal completion. **Conclusions:** Overall, this study contributes to the IB literature by identifying environmental responsibility as a key approach to lowering the double hurdle in internationalization of firms in emerging markets. Any emerging multinationals interested in the foreign, brown-field entries to the natural-resource industries must enhance the environmental responsibility, which turns out extremely important.

Keywords: Emerging Markets, Cross-border Acquisition, Natural Resource Industries, Environmental Responsibility, Emerging Multinationals

JEL Classification Code: F23, L70, M16, O50

1. Introduction

The global demand for natural resources has rapidly increased, especially in emerging countries under industrialization. Notably, the BRICs (Brazil, Russia, India, and China) share 40 percent in the purchase of natural resources (Wu et al., 2017; Wilson, 2015). For example, coals and crude are oil the fifth and seventh largest imports for Brazil (KOTRA, 2019). Outbound M&A in terms of amount decreased due to the weakened Real but Petrobras and CVRD, the business leaders in the energy and mineral sector respectively, have been active in overseas acquisition

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(UNCTAD, 2018). Russian firms have expanded overseas in the petroleum, gas, and non/ferrous metal sectors, trying to spread the risks due to the natural resource-concentrated domestic structure (Lee, 2012). For India, outbound acquisitions have outnumbered inbound acquisitions and the steel and mineral firms are the major target (POSCO, 2011).

Coping to the increasing demands of the raw materials, the cross-border acquisitions led by the firms in emerging markets (hereafter emerging multinationals) have increased sharply. Usually, it is inbound acquisitions rather than outbound acquisitions that are common within emerging markets, but growth of emerging markets necessitates the stability in the domestic value chain (McKinsey and Co., 2015). As a result, the cross-border deals by the emerging multinationals have been increased not only in the advanced countries but also in other developing countries (World Bank, 2012).

Despite the salient presence in the global natural-resource market, emerging markets, including BRICs, share some concerns that they should establish sustainable and efficient value chains to ensure continuous and affordable supply of natural resources to meet domestic needs (Caglar et al., 2022). As carbon emission becomes serious global agenda, the natural resource industry is under the heavy pressure of efficient utilization to create clean, low-carbon systems that reduce adverse impacts on climate and the environment (Balsalobre-Lorente et al., 2021).

Accordingly, an increasing number of cross-border acquisitions in the natural resource industry aims to build strong supply bases. Emerging multinationals have a clear object in overseas deals of connecting home countries with the global, stable supplies to achieve sustainable development (Caglar et al., 2022). Because the gap between capability and the goal bottlenecks competitiveness and growth, the emerging multinationals would compensate for this void by acquiring overseas firms (Mathews, 2017). Cross-over acquisitions can strengthen linkage to the global natural resource suppliers, leverage negative country of origin effects in overseas markets by acting in the brand of the target firms. At the same time, the deals can fulfill the original needs of nature resource procurement called for the domestic industrialization (Li & Liu, 2015).

However, emerging multinationals often face serious challenges. They have been blamed for environmental destruction and carbon emission (Caglar et al., 2022). Due to the limited reserve of natural resources, the possibility of oligopoly by the emerging markets has been also increasingly concerned, particularly when the natural resources are needed for the industries that advanced countries strive to promote (Caglar et al., 2022). In other words, a higher level of liability of foreignness, compared to firms in developed countries, is present to the firms from emerging markets (Cuervo-Cazurra, 2012; Zhang, 2022).

While liability of foreignness is defined as the disadvantage that comes from the foreign status (Zaheer & Mosakowski, 1997), emerging multinationals should encounter a 'double hurdle' – extra disadvantages coming from the "emerging markets (developing countries)" origin – in the host country attitudes and policies toward them (Cuervo-Cazurra, 2012; Madhok & Keyhani, 2012).

Scholars generally agree on a scarcity of empirical studies to investigate this double hurdle, except a few that mention poor institutional image or a level of economic development for the origin country as a source of the double hurdle (Cuervo-Cazurra & Genc, 2008; He & Zhang, 2018; Zhang et al.,2017). Double hurdle perspective posits that negative perception of origin countries is transformed into the emerging multinationals themselves or the activities (Deephouse et al., 2017; Zhang et al., 2019), forming a low level of legitimacy as a foreign entrant (Zhang, 2022).

However, the studies do not tell how to overcome the hurdle, treating the hurdle contextual or industry-specific (Madhavan & Gupta, 2017). We argue that the hurdle is an issue of legitimacy building because legitimacy determines the perceived value of the entrant into the new society (DiMaggio & Powell, 1983; Deephouse et al., 2017; Scott, 1995). Legitimation refers to the "social justification of an actor or activity, such that the actor or activity is publicly validated or endorsed" (Dacin et al.,2007). Given that the current concerns in the natural resource industry are environmental pollution and high energy consumption, we posit that environmental responsibility, a source of legitimacy, positively affects the likelihood of acquisition deal by emerging multinationals. Further, since the effects of legitimacy building increase with greater social validation, we propose that stakeholders – participants in a foreign firm's business network in host markets – positively moderate the link between environmental responsibility and deal completion.

For empirical analysis, we use the "SDC Platinum Database" formed by Thomson Financial Corporation and "DataStream Database" to find cross-border M&As and financial data of related firms. We set the period of 2008-2019 for our research setting, which avoids the US-China trade dispute and the COVID-19, given that the two events substantially affect cross-border deals independently. In our sample, the acquirers are the BRIC firms but removed any deals if the deals are related to the tax-haven states like British Virgin Islands or Cayman Islands. For Chinese firms, we also deleted deals if target is located in Hongkong or Macau.

A total of 196 firms in BRICs announced cross-border acquisition in the natural resource industry, which leads to 608 firm-year observations. An analysis of logit regression shows that environmental responsibility helps deal completion and the host-market stakeholders positively

moderate the link between environmental responsibility and the likelihood of deal completion. In what follows, we illustrate the theory and hypothesis development. Next, we introduce our dataset and methodology. Statistical findings and discussion are subsequently reported, and the research concludes with a summary and some remarks for the future research.

2. Theory and Hypothesis Development

2.1. A Double Hurdle to the Emerging Market Firms

Emerging multinationals invest abroad primarily to overcome the latecomer disadvantage by acquiring key resources, accessing advanced technologies, and gaining approach to customers in vital foreign markets (Mathews, 2017). While all foreign firms are subject to the liability of foreignness, the firms from developing countries tend to face extra disadvantages to become rooted in their home origin.

Termed as a "double hurdle" (alternatively, liability of emergingness), this liability stems from a combination of two constructs, entrant origin and the foreign firm status (Cuervo-Cazurra, 2012; Madhok & Keyhani, 2012), although they may overlap. An origin of emerging market tends to be characterized by poor economic development (Ramarmurti, 2009; Strittmatter & Sunde, 2013), less competitiveness in product or service (Cuervo-Cazurra & Ramarmurti, 2014) or institution voids regarding weak intellectual property rights (Khanna & Palepu, 2010) and corruption (Zhang, 2022; Cuervo-Cazurra, 2008).

Zhang (2022) argues that the double hurdle perspective often goes beyond the institution voids. For example, because poor economic development or institution voids are related to the home country characteristics for emerging multinationals, they should be better situated out of the home countries but still face resistance in the host markets. The resistance suggests that the negative perception of the home countries about the emerging multinationals is transformed into the negative perception of the firms and their activities such as low competitiveness, less transparency or less interest in social engagement for the host countries (Deephouse et al., 2022; Zhang et al., 2012).

The double hurdle perspective stresses that firms in emerging markets need legitimacy to become accepted into the host countries. Even the cross-border deal by an emerging multinational occurs in other developing countries, the emerging multinationals are still in need of legitimacy building although in some cases the legitimacy is supplemented by the inter-governmental relations such as official development aids (Fon & Alon, 2022). Legitimacy is the perception of appropriateness to a society by rules, values, norms, and definition (Deephouse et al., 2017; DiMaggio & Powell, 1983). Emerging multinationals thus should build legitimacy in order to be supported by the local stakeholders, which has been highly important for cross-over acquisition deals (Hawn, 2021). The necessary legitimacy varies per the local, stakeholder, or even industrial context (Madhavan & Gupta, 2017).

2.2. Environmental Responsibility and Legitimacy Building

Environmental protection is crucial for natural resource firms, especially in the BRIC countries because they have suffered from pollution. Emerging markets have aimed at rapid economic growth, however, in this process, the growth has also brought about negative externalities on environment. The BRIC group is the largest emitter of carbon dioxide in the world. As a result, the firms in BRIC countries are increasingly paying more attention to environmental protection, and environmental responsibility. Environmental responsibility has been integrated into corporate sustainability management as management ethics is fundamentally required for natural resource firms (Lee et al., 2016; Zhao & Rasoulinezhad, 2023).

The double hurdle in the natural resource sector is particularly high (Ramamurti, 2009). Notably, the pollution haven hypothesis posits that firms reduce their environmental risks by shifting their emissions through cross-border acquisitions to countries with weaker environmental regulations (Hoffmann, 2005). Developing countries in fact tend to exploit lax environmental standards to attract more FDI or when developing countries cannot provide the costs of applying and enforcing environmental regulations, they can become pollution havens (Hoffmann, 2005). This hypothesis highlights the deficiency of necessary environmental regulations in emerging markets and thus basically treats firms in emerging markets as environmental offenders.

A high level of environmental responsibility compels firms to focus on reducing pollution, production costs, and increasing sales while also emphasizing green innovation (Porter & Van Der Linde, 1995). Green innovation serves as a source of advanced technologies, prompting firms to seek various avenues for technical improvements (Chen et al., 2023). Moreover, environmental responsibility reduces uncertainty about the value of investments in environmental improvements, and firms actively implement investments in any area once they find valuable certainty (Porter & Van Der Linde, 1995; Lee et al., 2016).

Targets and the host country stakeholders perceive that acquirers with high environmental responsibility can provide benefits to the target as well as the host country

(Benzerrouk et al., 2021; Hoffmann et al., 2005). Those acquirers help reduce legal and environmental risks, and reduce the possibility of potential fines and litigation, thereby lowering bias against acquirer home countries. Therefore, as the environmental responsibility of acquirers from emerging markets increases, they are more likely to complete cross-border acquisition deals. Hence, we propose the following hypothesis:

H1: The level of environmental responsibility of the acquirer is likely to increase the likelihood of the cross-border acquisition deal completion.

2.3. Moderating Effects of Host-Market Stakeholders

One of the essential elements that help emerging market firms build legitimacy is local network (Lamberti & Lettieri, 2011; Wang et al., 2021). Among the business partners, those important to one's own business are regarded as the stakeholders, for example, R&D collaborators, suppliers, or distributors, consumers, or even relevant government bureaus. The stakeholder interests tend to be complicated, however, the fundamental premise of business network and the stakeholders is that they mitigate the problem of information asymmetry (Orazgaliev, 2020; Ramamurti, 2009).

Legitimacy involves social recognition. Dacin et al. (2007) stress that it is stakeholders that qualify legitimation in a given social setting. At the same time, the stakeholders would channel and spread relevant information about the acquirer into the host market (Gulati et al., 2000). Therefore, the stakeholders in the host country deliver the information about environmental responsibility-related activities and the commitment to the host market, thus more easily mitigate negative perception and concerns about the possible environmental damages of an acquirer. Although stakeholders are in different situations with different interests, they pay attention to the acquirer's legitimacy in the host market because the level of legitimacy determines the business relations in the future.

Through stakeholders, the acquirer can signal one's environmental commitment (Wong et al., 2020) and, therefore, stakeholders in the host country can assure the acquirer's environmental responsibility, helping to expand its position in the target market (Shamdasani & Sheth, 1995). As the acquirer shares environmental initiatives and information with local firms in the host country, the double hurdle lowers. Similarly, as an acquirer has a larger pool of stakeholders, the environmental responsibility of the acquirer is more likely to spread into the host market. We present the conceptual model in Figure 1.

H2: As an acquirer has more stakeholders, the acquirer' environmental responsibility is more likely to lead to cross-border acquisition completion in the host market.
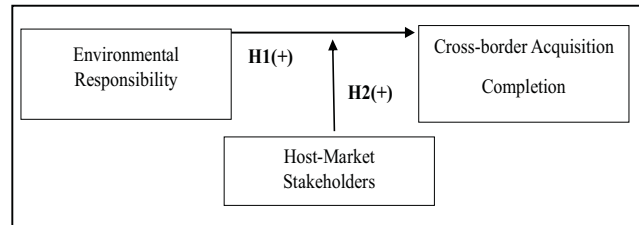

Figure 1: Conceptual Model

3. Methodology

3.1. Research Setting

We use the SDC Platinum offered by Thomson Financial Corporation and DataStream to find cross-border M&As and financial data. The SDC Platinum contains information on the cumulative cross-border acquisition deals as of announced date as well as completion status, acquirer and target country details, and firm information. Also, DataStream, an economic and financial time-series database, provides the firm-level data such as environment pillar score, return on assets (ROA), total assets, or firm age. The third source is the Index of Economic Freedom, provided by the Heritage Foundation (https://www.heritage.org/index/), which scales economic freedom in twelve dimensions. The fourth source is the World Development Indicators Database (https://databank.worldbank.org/source/world-development -indicators), where information about the degree of openness to foreign commerce is available.

We construct our dataset in the following order. First, we identify the BRIC acquirers in the natural resource industry. Natural resource industries are defined as mine, oil and gas, petroleum refining, metal, and metal products, electric, gas, and water distribution industries, following Song & George (2014). Missing data and apparently abnormal firms were excluded. Second, while the global financial crisis brings greater risks in 2008, it also breeds many favorable opportunities for natural resource firms to "go global", especially for firms in BRIC. The BRIC firms are interested in acquiring resource assets, thus purchasing at low prices is a good opportunity for investment (Gammeltoft, 2008; Bertoni et al., 2012).

Therefore, we limit our dataset to the cross-border acquisition deals between 2008 and 2019 to exclude the influence of the Covid-19 pandemic on cross-border transactions. Third, the cross-border deals should exclude tax-haven states like British Virgin Islands or Cayman

Islands acquisitions, as well as special relationship such as deals between China and Hong Kong, Macau. Overall, 608 firm-year observations about the cross-border acquisition deals announced by 196 acquirers between 2008 and 2019 compose our final dataset..

3.2. Variables

3.2.1. Dependent Variable

Our dependent variable is completed deal for acquisition (*deal completion*). We assign a value of 1 if the announced transaction has been completed, otherwise, a value of 0 is assigned.

3.2.2. Independent Variable and Moderating Variable

Our independent variable is *environmental responsibility*. Environmental responsibility proxies the level of awareness and actions for environmental protection. It is measured with environment pillar score of the acquirer from DataStream. The scores of three environmental categories (resource use, emissions, and environmental innovation) are used as a weighted average given the relevance to our hypothesis, following Lee et al. (2016). The resource use score measures a firm's performance in seeking more eco-friendly solutions and in consuming fewer natural resources such as energy or water. The emission score measures the efficacy of a firm in decreasing environmental emissions during the manufacturing and operational processes. The environmental innovation score measures a firm's ability to lessen environmental costs and burdens by pioneering new markets through innovative environmental technologies, business practices, or eco-friendly product designs. The variable is lagged by one year to prevent any potential endogenous factors associated with the dependent variable.

Our moderator, *host stakeholders,* represents local participants in a foreign entrant's network in the host market. Following Goerzen and Beamish (2005), we measure it with the number of single (not repeated) formal and informal alliances between an acquirer and the local firms in target country before a cross-border deal each year.

3.2.3. Control Variables

We include several control variables. First, at the country level, we use *openness*, which is measured with the proportion of the nominal GDP of the host market to the total imports and exports (current US$). More open countries may be less biased against the acquisition deals by foreign firms. For similar reasons, we include another control variable to measure the host market, which is, the score of *economic freedom*. It is an averaging score of twelve economic freedom dimensions, which contain rule of

law (property rights, government integrity, judicial effectiveness), government size (government spending, tax burden, fiscal health), regulatory efficiency (business freedom, labor freedom, monetary freedom), and open markets (trade freedom, investment freedom, financial freedom). Then we include *political risk* after considering access to the natural resources in a foreign country depends upon inter-state relations. It is measured by composite variable made from multiple dimensional indicators measuring political governance and data were obtained from Worldwide Governance Indicators, published by the World Bank (2013). We also control the home country by discerning an acquirer's home country. Four country dummies – *Brail, Russia, India,* and *China – a*re included. To control the firm-level effects, we include *firm size*, using the natural logarithm value of the firm's assets at year-end. *Firm age* is measured by years since establishment. These variables represent managerial capacity. We also include variables to control financial capacity. *Total asset turnover*, measured as the ratio of total sales to total assets, to assess the effectiveness of the firm at year end. Since deals are influenced by the financial performance of an acquirer, we include *ROA* to control any effects from the financial soundness. We also control the home country network and stakeholder supports by including *home stakeholders* following Goerzen and Beamish (2005)*,* measured with the number of formal and informal alliances (unrepeated) in home country before a cross-border deal each year. Finally, we use *year dummy* to control year effects.

3.2. Analytical Model

We assume a model that linear combines independent variable, moderating variable, and control variables. Therefore, it can be expressed as:

$$Y = \alpha + \beta_1 Environmental\ Responsibility + \beta_2\ Environmental\ Responsibility \times Host\ Stakeholders + \beta_3 Host\ Stakeholders + \beta_{n,n-3} CONTROLS + \varepsilon.$$

4. Results

The correlation matrix for each variable is displayed in Table 1. All variables are moderately correlated without exceeding 0.6. The mean value of VIF indicates at 1.46, ranging between 1.01 and 2.55. Based on the correlation coefficient and the VIF value, we assess that multi-collinearity is not a problem in our study. Next, we use a clustered logit model because our dataset consists of four (BRIC) countries and the dependent variable is binary, measuring whether the deal was completed or not.

Table 1: Correlation Matrix and Demographic Profile

Constructs	1	2	3	4	5	6	7	8	9	10	11
1. Deal completion	1.000										
2. Host stakeholders	-0.005	1.000									
3. Environmental responsibility	0.051	0.199	1.000								
4. Openness	0.116*	-0.053	-0.042	1.000							
5. Economic freedom	0.053	0.009	-0.013	-0.003	1.000						
6. Firm size (log)	-0.060	0.204*	0.525*	-0.004	-0.007	1.000					
7. Firm age	-0.098*	0.212*	0.270*	-0.051	-0.005	0.213*	1.000				
8. ROA	-0.026	0.019	0.087*	0.033	0.002	0.491	0.100	1.000			
9. Total asset turnover	-0.015	-0.016	-0.074	-0.015	-0.006	-0.206*	-0.075	-0.484*	1.000		
10. Home stakeholders	-0.127*	0.353*	0.379*	0.008	-0.027	0.513*	0.246*	0.065	-0.049	1.000	
11. Political risk	0.087*	0.110*	-0.087*	0.120*	0.106*	-0.094*	0.046	0.000	-0.020	-0.060	1.000

Note: An asterisk mark denotes a significance level at $p<0.05$

Table 2-4 shows the analytical results. Table 2 is a baseline model with control variables only. Table 3 has a single independent variable to examine each effect on cross-border acquisition completion. Table 4 adds country dummy to the Table 3 to distinguish the effects of individual country. Table 8 simultaneously includes variables for the main effect and the moderating effect, respectively. Table 9-12 adds country dummy to Table 8 to distinguish the effect of individual country.

Table 2 presents the results of the base model without considering the effect of *environmental responsibility,* indicating the explanatory power of the control variables.

Table 2: Results of a Logit Analysis (Baseline model)

Variable		Coeff.	P-Value		Pseudo R²
Dependent	Independent		z-Stat	χ₂-Stat	
Deal completion	Openness	0.004**	2.22		
	Economic freedom	0.002	1.59		
	Firm size	0.042	0.95		
	Firm age	-0.021	-1.37		
	ROA	-0.001	-1.14	22.18	0.0394
	Total asset turnover	-0.028	-1.05		
	Home stakeholders	-0.091	-1.91		
	Political risk	0.107	1.18		
	Constant	-0.623	-0.72		

Note: Standard errors in parenthesis. *** $p<0.001$, **$p<0.05$, *$p<0.1$

In Table 3, the coefficient of *environmental responsibility* is significantly and consistently positive, which *support hypothesis 1.* The models provided in Appendixes show the main effects with a country dummy. Except Russia, the country dummies are not statistically significant. It means that, except *Russia*, the emerging multinationals in those countries have difficulty in completing cross-border acquisition deals. The

environmental responsibility of the acquirers helps lower the liability of foreignness and the liability of emergingness, leading to the deal completion.

Table 3: Results of a Logit Analysis for Main Effects

Variable		Coeff.	P-Value		Pseudo R²
Dependent	Independent		z-Stat	χ₂-Stat	
Deal completion	Openness	0.004**	2.34		
	Economic freedom	0.002	1.58		
	Firm size	-0.013	-0.33		
	Firm age	-0.028*	-1.79		
	ROA	-0.001	-0.66		
	Total asset turnover	-0.022	-0.83	28.12	0.0499
	Home stakeholders	-0.099**	-2.27		
	Political risk	0.117	1.28		
	Environmental responsibility	0.011**	2.53		
	Constant	0.140	0.18		

Note: Standard errors in parenthesis. *** $p<0.001$, **$p<0.05$, *$p<0.1$

As seen in Table 4, the coefficient on the moderator (*environmental responsibility × host stakeholders*) is positive and significant, *supporting hypothesis 2.* Yet the result also shows a positive coefficient on the moderating variable. The coefficient on *host stakeholders* is consistently negative, meaning that greater stakeholder pool makes acquisition deals harder to complete (due to conflict of interests). However, our findings suggest that, if the environmental responsibility is concerned, the stakeholder size helps deal completion. We also provided results of the moderating effects with each country dummy in the Appendixes. All models show significant and positive moderating effects.

Table 4: Results of a Logit Analysis for Moderating Effects

Variable		Coeff.	P-Value		Adjusted R^S
Dependent	Independent		z-Stat	χ$_2$-Stat	
Deal completion	Openness	0.005**	2.45		
	Economic freedom	0.002*	1.76		
	Firm size	-0.009	-0.20		
	Firm age	-0.031**	-2.00		
	ROA	-0.001	-0.66		
	Total asset turnover	-0.022	-0.82		
	Home stakeholders	-0.114***	-2.73		
	Political risk	0.113	1.22		
	Environmental responsibility	0.010**	2.35	36.13	0.0546
	Host stakeholders	-0.794	-1.43		
	Environmental responsibility * Host stakeholders	0.016*	1.81		
	Constant	0.097	0.12		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

We show a graphic image about the moderating effects in Figure 2. As Figure 2 presents, deal completion is more likely with an acquirer of high environmental responsibility with greater stakeholders in host market and an acquirer of low environmental responsibility with less stakeholders in host market. The former represents legitimacy building and the latter suggests that, if an emerging multinational has a low level of environmental responsibility, staying in low profile rather than active local networking increases the likelihood of deal completion.
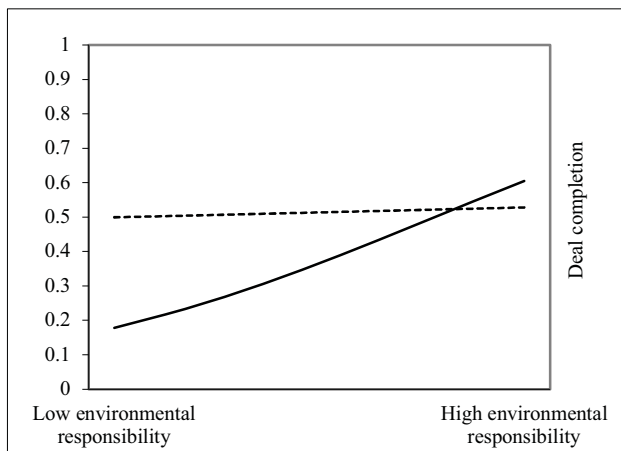
Note: Dotted line denotes low environmental responsibility.
Figure 2: Moderating Effects

5. Discussion and Conclusions

Natural resources are important for industrialization. As emerging markets grow, the demand for natural resources has fast increased. The BRIC countries have been leading the emerging market-driven demand. Emerging multinationals tend to prefer acquisition because they want to establish a global production network (Wilson, 2015). While the cross-border acquisitions initiated by the BRIC countries have been popular, the probability of deal completion has not been satisfactory. The IB literature argues that emerging multinationals do not only suffer from liability of foreignness — disadvantage to rise from the foreign status — but also face challenges of a double hurdle — extra disadvantage from the developing country origin.

Lowering a double hurdle requires legitimacy building for emerging multinationals. Since most emerging markets are perceived commonly as close state connection, underdevelopment of market mechanism pollution and corruption, emerging multinationals tend to lack trust in the host markets. Therefore, the emerging multinationals should ensure that they protect the host market environment at their full capacity. The commitment and the following activities mitigate the negative perception about emerging multinationals, therefore, an emerging multinational's stakeholders in host market help correct the bias against developing countries. Therefore, the stakeholder size in the host market may positively moderate the link between environmental responsibility and the likelihood of acquisition completion.

We have collected 608 cross-border acquisition deals during 2008-2019, announced by 196 firms in Brail, Russia, India, and China in the natural resource industry. A logit analysis demonstrates that the acquirer's environmental responsibility increases the likelihood of deal completion. The acquirer's host-market stakeholders strengthen the relationship between environmental responsibility and the likelihood of deal completion.

This study makes theoretical and empirical contributions, particularly to the liability of foreignness theory and the emerging market literature (double hurdle). First, while the double hurdle is set high, we show that emerging multinationals can leap it by building legitimacy required in the host locale. Second, while there are few papers that have investigated the natural resource industries and the firms in BRIC, our study has examined the up-to-date business issues and has empirically contributed to the research stream by identifying environmental responsibility as a key determinant for the successful cross-border acquisition deals.

This paper has some limitations. First, while we have approached the cross-over deals at the firm level, the natural resource industry is influenced by the government policy and thus, inter-government relationships. Since we dropped

the recent years, there is a possibility that the upper institutional influences can override the historical tie and environmental responsibility if the relationship between host and home countries turns hostile. Second, we did not consider entries related to official development aid or public-private partnership, but both are important in entries to the least developed countries. Third, as governance becomes more complicated, it is witnessed that some Chinese multinationals have their subsidiaries or local joint ventures in Singapore or Western countries to enter advanced countries. We could not reflect it because sampling would be too complicated. We hope that future research improves by reflecting these aspects.

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Appendixes

Appendix 1: Results of a Logit Analysis (Brazil dummy)

Variable		Coeff.	P-Value		Pseudo R^2
Dependent	Independent		z-Stat	χ$_2$-Stat	
Deal completion	Openness	0.004**	2.32	29.24	0.0499
	Economic freedom	0.002	1.58		
	Firm size	-0.014	-0.34		
	Firm age	-0.028*	-1.68		
	ROA	-0.001	-0.66		
	Total asset turnover	-0.022	-0.83		
	Home stakeholders	-0.099**	-2.27		
	Political risk	0.117	1.27		
	Environmental responsibility	0.011**	2.45		
	Brazil	-0.026	-0.06		
	Constant	0.153	0.19		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

Appendix 2: Results of a Logit Analysis (Russia dummy)

Variable		Coeff.	P-Value		Pseudo R^2
Dependent	Independent		z-Stat	χ$_2$-Stat	
Deal completion	Openness	0.004**	2.07	34.65	0.0567
	Economic freedom	0.003	0.80		
	Firm size	-0.061	-1.48		
	Firm age	-0.013	-0.77		
	ROA	0.000	-0.22		
	Total asset turnover	-0.019	-0.67		
	Home stakeholders	-0.092**	-2.00		
	Political risk	0.130	1.32		
	Environmental responsibility	0.008**	2.01		
	Russia	0.580**	2.53		
	Constant	0.690	0.87		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

Appendix 3: Results of a Logit Analysis (India dummy)

Variable		Coeff.	P-Value		Pseudo R^2
Dependent	Independent		z-Stat	χ$_2$-Stat	
Deal completion	Openness	0.004**	2.34	27.55	0.0520
	Economic freedom	0.002	1.31		
	Firm size	-0.012	-0.31		
	Firm age	-0.021	-1.29		
	ROA	-0.001	-0.62		
	Total asset turnover	-0.022	-0.80		
	Home stakeholders	-0.090**	-2.03		
	Political risk	0.114	1.26		
	Environmental responsibility	0.009**	2.05		
	India	-0.291	-1.12		
	Constant	0.174	0.22		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

Appendix 4: Results of a Logit Analysis (China dummy)

| Variable | | Coeff. | P-Value | | Pseudo R² |
Dependent	Independent		z-Stat	χ₂-Stat	
Deal completion	Openness	0.004**	2.29	29.80	0.0509
	Economic freedom	0.002	1.64		
	Firm size	-0.027	-0.63		
	Firm age	-0.030*	-1.91		
	ROA	-0.001	-0.55		
	Total asset turnover	-0.021	-0.76		
	Home stakeholders	-0.098**	-2.25		
	Political risk	0.127	1.37		
	Environmental responsibility	0.011**	2.39		
	China	-0.226	-0.87		
	Constant	0.441	0.52		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

Appendix 5: Results of a Logit Analysis (with MV and Brazil dummy)

| Variable | | Coeff. | P-Value | | Adjusted R$ |
Dependent	Independent		z-Stat	χ₂-Stat	
Deal completion	Openness	0.005**	2.43	37.61	0.0546
	Economic freedom	0.002*	1.76		
	Firm size	-0.009	-0.20		
	Firm age	-0.031*	-1.91		
	ROA	-0.001	-0.66		
	Total asset turnover	-0.022	-0.82		
	Home stakeholders	-0.115***	-2.71		
	Political risk	0.112	1.22		
	Environmental responsibility	0.010**	2.24		
	Host stakeholders	-0.794	-1.43		
	Environmental responsibility * Host stakeholders	0.016*	1.80		
	Brazil	-0.007	-0.02		
	Constant	0.100	0.12		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

Appendix 6: Results of a Logit Analysis (with MV and Russia dummy)

| Variable | | Coeff. | P-Value | | Adjusted R$ |
Dependent	Independent		z-Stat	χ₂-Stat	
Deal completion	Openness	0.004**	2.18	42.94	0.0621
	Economic freedom	0.003	1.07		
	Firm size	-0.059	-1.43		
	Firm age	-0.015	-0.90		
	ROA	0.000	-0.18		
	Total asset turnover	-0.018	-0.66		
	Home stakeholders	-0.111***	-2.64		
	Political risk	0.126	1.34		
	Environmental responsibility	0.007*	1.82		
	Host stakeholders	-0.765	-1.24		
	Environmental responsibility * Host stakeholders	0.016	1.64		
	Russia	0.620***	2.73		
	Constant	0.699	0.88		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

Appendix 7: Results of a Logit Analysis (with MV and India dummy)

| Variable | | Coeff. | P-Value | | Adjusted R$ |
Dependent	Independent		z-Stat	χ₂-Stat	
Deal completion	Openness	0.005**	2.46	36.04	0.0574
	Economic freedom	0.002	1.48		
	Firm size	-0.007	-0.17		
	Firm age	-0.023	-0.41		
	ROA	-0.001	-0.61		
	Total asset turnover	-0.022	-0.80		
	Home stakeholders	-0.106**	-2.53		
	Political risk	0.109	1.20		
	Environmental responsibility	0.008*	1.80		
	Host stakeholders	-0.870	-1.51		
	Environmental responsibility * Host stakeholders	0.017*	1.90		
	India	-0.345	-1.36		
	Constant	0.133	0.16		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1

Appendix 8: Results of a Logit Analysis (with MV and China dummy)

| Variable | | Coeff. | P-Value | | Adjusted R$ |
Dependent	Independent		z-Stat	χ₂-Stat	
Deal completion	Openness	0.005**	2.40	38.22	0.0554
	Economic freedom	0.002*	1.83		
	Firm size	-0.021	-0.49		
	Firm age	-0.033**	-2.12		
	ROA	-0.001	-0.54		
	Total asset turnover	-0.021	-0.76		
	Home stakeholders	-0.114**	-2.73		
	Political risk	0.120	1.30		
	Environmental responsibility	0.010**	2.24		
	Host stakeholders	-0.739	-1.30		
	Environmental responsibility * Host stakeholders	0.015*	1.68		
	China	-0.210	-0.80		
	Constant	0.384	0.43		

Note: Standard errors in parenthesis. *** p<0.001, **p<0.05, *p<0.1