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The Impact of Expropriations on the Stock Prices of the Parent Companies: Sell on the rumor, buy on the news?

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Abstract

We measure the impact of warnings of expropriation and of forced divestments of private property on the stock prices of the parent company. We use a unique database of 116 events in 12 countries from 2005 to 2013. Our results show significant negative effects on the stock prices of different kinds of warnings; the largest effect is when the warning takes the form of a transitory permit revocation. In the case of forced divestments, we find a significant negative impact when there is a permanent revocation of a permit. However, nationalizations seem to generate a positive market reaction.

JEL classification   G14, H13
Key words   Expropriation risk, Nationalization, Event study, Stock Market

1 Introduction

We evaluate the economic impact of government expropriation of private property on the stock prices of the parent company. As far as we know, this article is the most thoroughgoing empirical research to date on this subject. Previous literature has focused on either one economic sector, like Shcherbakova (2010), who studies seven nationalization processes affecting the energy sector, or one country, as the analysis of equity transfers in China by Gao and Kling (2008).

We define an expropriation as the seizing, by the sovereign, of privately owned tangible property, with a view towards its continued operation (Truitt, 1970); in that sense, it is an act of a firm's *involuntary divestment*[1]. Still, expropriations are not illegal per se[2]. In fact, many countries have laws allowing the government the right to expropriate private property to address public issues, such as development or environmental matters. Therefore, as Sloane and Reisman (2004) point out, the "practice of eminent domain" is not likely to disappear. Even more, resource nationalism in the last decade has generated an increase in the number of expropriations occurring all over the world[3].

Although news on expropriation-related events are likely to generate a market reaction with respect to the stock prices of both parent and subsidiary companies, there is a lack of empirical evidence on this subject in extant literature. Our paper aims to fill this gap. We define two broad types of events. We distinguish between warnings and forced divestments. What we call pre-expropriation warnings relates to references to expropriation or nationalization publicly made by the government, but do not imply the definite loss of property or control rights over the production unit. These can be: (i) Announcements of nationalization, (ii) Announcements of expropriation, (iii) Occupations, (iv) Threats, and (v) Transitory permit revocations. Thereupon, warnings may be followed by several government actions. These are what we call forced divestments. We consider three types of government actions: (i) Outright expropriation, (ii) Forced sale and (iii) Permanent rescission of permit or concession. Our basic hypothesis is that expropriation-related events are bad news for future performance of parent companies and therefore their market value will decrease when these events are known. We make one exception in the case of forced sales, where we expect the market to have a positive reaction, due mainly to a correction of parent firms' valuation.

The event study methodology comes as a handy tool for this paper by providing a measure of stockholders' wealth change in the light of a given unanticipated event; see Brown and Warner (1980). In that fashion, if expropriation related announcements are to some extent unexpected, one should observe an abnormal market reaction. Whether this reaction anticipates the event, occurs during, or after the event, depends on the level of informational efficiency of the markets.

Specifically, we investigate the short-term impact of events related to government expropriation of private property on the stock prices of the publicly listed parent company by means of a unique database of 116 events in 12 countries from 2005 to 2013. Although our results should be read with caution given our small sample sizes for the individual event types, we find significant negative effects associated with several kinds of warnings; the larger effect is when the warning takes the form of a transitory revocation of a permit. In the case of forced

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[1]Kobrin (1980) uses the term 'forced divestment' in order to group the different types of governments' seizing. In this section, we use the term expropriation to refer to any act of involuntary divestments indistinctly.

[2]According to Sloane and Reisman (2004), there seems to be a consensus in tribunals in that governmental conduct is determinant to define state responsibility in an expropriation action.

[3]It is worth noting that we do not study 'creeping' expropriation, which involves governments' increasing their take through taxes or other mechanisms, as these acts do not imply the loss of property or control rights of the firm.

divestments, we find a significant negative impact when there is a permanent revocation of a permit. However, stock prices react positively to forced sales. Thus empirical evidence supports our basic hypotheses in almost all cases.

Although it is not uncommon to find event studies relating stock market reactions to political events (e.g. Dube et al. (2011), Luechinger and Moser (2014)) there is relatively scarce literature on the effect of expropriations. Shcherbakova (2010) carries out an event study on the market impact of eight high profile regulatory events in the energy sector: nationalization and de-nationalization decrees. These events affect firms operating in Russia, Venezuela and Bolivia. Her results show that negative events generate abnormally low returns, while the one positive event in her sample generates abnormally high returns. However, there are some problems in the definition of at least one event[4], and she centers the estimation window for normal returns on the expropriation event date. This decision is problematic because it rules out the possible impact of information leakages or previous announcements. Besides that, the event would affect not only the abnormal returns, but also the normal returns (MacKinlay, 1997).

Gao and Kling (2008) analyze the market reactions to equity transfers in China. They categorize equity transfers into four categories, including privatization and nationalizations, understanding these as the stock transfer from the State to a legal person or vice versa. They find that while privatizations have positive effects on returns of the privatized firm, the stock market perceives nationalizations as a bad signal for future stock performance. Nevertheless, since they only analyze the announcement of stock transfers, it is not possible to know whether these nationalizations occurred as a forced divestment or as a voluntary action executed by the firm.

This paper is organized as follows. In Section 2, we define the type of events that we study, and hypothesize about their effect on the parent firm's stock price. We describe the event study methodology in Section 3 and set up the framework for the selection of events and data in Section 4. Empirical results and robustness are presented in Section 5, while Section 6 shows possible variables explaining the cumulative abnormal returns. Section 7 concludes the paper.

2 Definition of events: warnings and forced divestments

In this section, we define all the events considered in the paper and hypothesize about their likely effects on the stock prices of parent firms. We start by stating the obvious: The expected effect of expropriations on the value of the parent firm is negative. This happens because in many occasions, governments may not compensate the parent firm, and even if they do, such indemnity may be below fair value. Besides, although it is true that parent firms may start a legal arbitration in international courts against the expropriator governments, it is also true that: (i) these processes are far from being inexpensive, and (ii) the governments, as sovereign entities, may choose not to indemnify the demanding firm, even if the court rules so.

However, there may be many governmental actions related to an expropriation. In this paper, we separate the expropriation-related events into two categories (i) pre-expropriation warnings, and (ii) forced divestments[5]. What we call pre-expropriation warnings relates to references to expropriation or nationalization publicly made by the government, but do not imply the definite loss of property or control rights over the production unit. Thereupon,

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[4]For example, in the case of the second oil nationalization in Venezuela, there is an additional phase for firms to conclude the forced sale to PDVSA. Shcherbakova (2010) did not consider this stage.

[5]We borrow this term from Kobrin (1980), in order to avoid confusion between outright expropriation and nationalization.

warnings may be followed by several government actions. For example, after an expropriation threat, the firm's assets may be seized later on. We name the actions leading to the effective loss of rights over the business as forced divestments. By differentiating between these two broad categories, it is possible to determine the extent to which the market considers the warnings as credible signals and whether they can be useful to anticipate the forced divestments. Below, we define each type of action and discuss its expected effects.

2.1 Pre-expropriation warnings

In general, we expect pre-expropriation warnings to have a negative impact on the value of the parent firm, even if the warning does not imply the immediate loss of its property/control rights over the facility. The reason for this is that warnings can be interpreted either as credible signals of future expropriation, or as a way to put pressure on the firm to increase government's influence. We describe the five types of warnings below, as well as their possible effect on the parent firms' stock returns.

2.1.1 Announcements of nationalizations

These may refer to: (i) The government pursuing a broad policy within a given industry or sector, affecting more than one firm[6], (ii) The government announces its intention of taking over a given firm and establishes a deadline to negotiate its fair value.

The effect of this type of event on stock prices of the parent company is far from clear. On the one hand, in the end, the announcement may not materialize. On the other hand, if it does materialize, a nationalization process may end up as an outright expropriation if both parties are not able to come to an agreement, or as the complete opposite: a satisfactory negotiation process for both parties. Overall, the uncertainty about the outcome of the announcement (no action, negotiation, expropriation) makes it difficult to ascertain the definite result. Therefore, an attitude of 'wait and see' may be a reasonable market response.

Hypothesis 1a *Announcements of nationalizations do not have clear effects on the stock price of parent firms*

2.1.2 Announcements of expropriations

In these cases, the government addresses its action towards a particular firm, or set of firms, without a nationalization decree backing up the decision, or simply commanding the forceful possession of the firm's assets. Expropriations are unilateral decisions made by the government, and compensation for the expropriated assets may seem an unlikely outcome. If the stock market considers these announcements as credible, its reaction towards the parent's company value is likely to be negative.

Hypothesis 1b *Announcements of expropriations affect negatively the stock price of parent firms.*

2.1.3 Occupations

Occupations refer to events in which the government orders the intervention of the plants without previous notice. Since an occupation can be temporary (common in Venezuela), unless it comes with an explicit announcement of assets to be seized, an occupation is not considered an expropriation[7]. These may have a negative impact on the parent firm's stock returns for two reasons. First, investors may interpret it as the clear intention by the government

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[6]For a brief illustration of the phases of a nationalization process, see Figure A.1 in the Appendix A.

[7]Whenever the announcements of occupation and expropriation coincided, the event was taken as an outright expropriation.

to seize the business. Second, it shows an unfriendly relationship between the government and the firm, at least from the sovereign side.

Hypothesis 1c *Occupations have a negative effect on the parent firm's stock return.*

2.1.4 Threats to expropriate or nationalize

The government threatens publicly with either nationalization or expropriation. This threat may, or may not, be fulfilled afterwards. Threats should generate negative stock returns for the parent firms as well. If the threat is to expropriate, then it signals that the firm is under the government's watch. If the threat is to nationalize, it may not be as worrisome to investors, but it still predicts that the firm will operate under worse terms –that is, if it reaches an agreement with the government.

Hypothesis 1d *Threats have a negative impact on the stock returns of the parent firms.*

2.1.5 Transitory revocation of permit

Either the permits necessary to operate a certain project are temporarily suspended or the government puts the renewal of the concession on standby. This action violates a previous renewal agreement. However, at this stage, the government has not made any resolution regarding the firm's assets.

   This type of announcement implies a cease of activities for the subsidiary or project, and it is likely to generate a negative effect on the stock price of the parent firm due to: (i) a disruption of operating income, and (ii) the government signaling a desire either to increase its take, or to expropriate the firm/project (perhaps to sell it to a higher bidder). This effect may be especially large for some firms in the sample, which have a large dependence on the concessions being revoked.

Hypothesis 1e *Transitory revocations of permits have a negative effect on the parent firm's stock returns.*

2.2 Forced divestments

Keeping in mind that expropriations are sovereign actions that parent companies may challenge on the courts, but without a guaranteed success, they are 'catastrophic' events[8] for parent firms. However, not all expropriation–related actions have the same degree of severity, so the stock market's reaction will likely differ from one type of action to another.

2.2.1 Forced sales

Forced sales usually involve an agreement between the firm and the government. Typically, a forced sale is the result of a negotiation process with the sovereign, in which a State Owned Enterprise (SOE) buys the privates' assets and pays a stipulated compensation. In this sense, we may interpret these actions as a *not-so* regular asset sale[9] by the parent company to the government. In general, voluntary asset sales are associated with positive mean excess equity returns on the day of the announcement (Clayton and Reisel, 2013). However, given the special characteristics of the deal, a forced sale might have two counteracting effects –one positive, and one negative. We argue that the combined impact of these two effects is likely to be

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[8]We use this term based on the definition of catastrophe risk provided by Banks (2005): man–made or natural events that occur with low frequency and may result in substantial economic damage.

[9]In our sample, we deal mostly with asset purchases by the government, since many of the nationalized entities are projects or small firms directly controlled by a multinational, parent firm. If this were not the case, we should consider a different kind of acquisition.

positive. The negative effect is associated with an adverse market reaction: The transfer of assets may be set below fair value, so that the market punishes such unfair sale.

The positive effect may be explained by two mechanisms. On the one hand, the government announces nationalizations with anticipation, and the process's results are uncertain. This uncertainty is likely to generate volatility in the relevant stock market before the government makes its decision to nationalize. In view of that, by the time of nationalization, the fact that such uncertainty is resolved may result in a positive market reaction –kind of a rebound effect-, especially if we consider that the market may have incorporated the expropriation into its valuation during the nationalization process. What is more, a nationalization implies that (i) there is a purchase –and not an asset seizure- made by the government, and (ii) since the firm's relationship with the government is still 'amicable', it lets the door open to new investment possibilities in the country[10].

Hypothesis 2a *Forced sales have a positive effect on the parent firm's value.*

2.2.2 Outright expropriations

Outright expropriations differ in substance from forced sales. An outright expropriation is the forceful possession of the firm's assets by the government. Compensation may be sought by the firm, through lobby or litigation, or may be granted by the government in rather exceptional cases. However, there is no agreement regarding the asset transfer between the firm and the government before the expropriation. We categorize two types of events as outright expropriation:

(i) When a forced sale does not come to good terms, and the two parties do not reach an agreement.

(ii) Seizure of the firm's assets.

These events are the most catastrophic ones within our study, since they imply a total loss of property rights by the firm, in most cases without a fair compensation. Therefore, we expect the stock price of parent firms to experience a significant decline.

Hypothesis 2b *Outright expropriations have a negative impact on the value of the parent firm.*

2.2.3 Permanent revocation of permits

These events happen in situations in which the firm had obtained a license to operate a facility for a specific time period, but the property rights over the facility have always belonged to the state (e.g. mining concessions). We refer to a permanent revocation of permits when the government sets a deadline to return the facility to the sovereign, violating a previous renewal agreement. We expect the stock market to react negatively towards these events. Although their effect may be similar to an outright expropriation, there is an important difference between both types of events: while outright expropriations refer to property rights, revoked concessions usually affect only control rights.

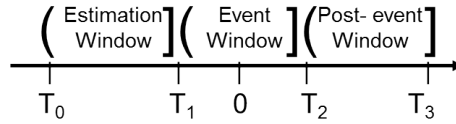**Hypothesis 2c** *Permanent revocations have a negative impact on the value of the parent firm.*

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[10]As implausible as this may sound, there are cases of firms investing again in the host country, even if it had assets nationalized by the same ruling government. For instance, France's Total and Spain's Repsol, subject to Oil nationalization decrees in Venezuela, still operate in the country through new investments.

3 Event study set-up

In order to determine whether the stock price has an abnormal reaction to pre-expropriation warnings and forced divestments, we use the traditional event–study methodology, which estimates abnormal returns as out-of-sample predictions (see Brown and Warner (1980, 1985)). Figure 3.1 depicts the time-line of a traditional event study. The The first step is to specify the model generating normal or predicted returns: the returns an investor would expect to realize had the event not occurred (see Campbell et al. (1997), Brown and Warner (1980, 1985), and Kothari and Warner (2007)). This benchmark is to be estimated within a period prior to the event –the estimation window-, excluding the event itself to provide estimators that are free of the influence of the event's effects. The estimation window should be long enough to capture the *normal* returns. Using the notation in Figure 3.1, the estimation window in our model is $[T_0, T_1] = [-245, -6]$.

Figure 3.1: Time line for an event study

There are several types of statistical models generating normal returns, like the constant mean return model, and the market adjusted return model (see MacKinlay (1997)). In this paper, we use the market model (eq. 1), which assumes the expected return of the security to vary both over time and across securities. It expresses the return on every security as a systematic risk component, which is a proportion β_i of the market return[11], $r_{m,t}$, plus a residual $u_{i,t}$ that is specific to the firm, and uncorrelated to the market[12] (Rosenberg, 1981).

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + u_{i,t} \qquad (1)$$

After estimating normal returns, the *abnormal* performance of a stock is measured as the difference between ex-post and predicted returns during the event window; that is, we compute the error term as follows (out-of-sample basis):

$$AR_{i,t} = u_{i,t} = r_{i,t} - \hat{r}_{i,t} \qquad (2)$$

then, CARs –cumulative abnormal returns- are calculated to account for the possibility that the event's effects develop over time. Therefore, we accumulate abnormal returns over the event window, $\tau = [\tau_1, \tau_2]$, where $T_1 \leq \tau_1 \leq \tau_2 \leq T_2$

$$CAR_{i,\tau} = \sum_{t=\tau_1}^{\tau_2} AR_{i,t} \qquad (3)$$

At this point, there are two important issues to address. First, the event window length is a central question when setting up an event study, but despite its importance for the analysis, there is no general agreement among researchers on its proper length. MacKinlay (1997) suggests using $[-1, +1]$, but other windows are common. For example, Dube et al. (2011) use

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[11]Park (2004) suggests including exchange rates in eq. 1 for international event studies. Shcherbakova (2010) includes the oil price in eq. 1 to conduct her event study on oil firms. We do not include any additional variables, but we refine this specification using a sectoral index in order to control for sector-specific dynamics.

[12]We assume that $E[u_{i,t}] = 0$, since the unexpected returns in an efficient market cannot systematically differ from zero, and that $var[u_{i,t}] = \sigma_{i,t}^2$.

[0, 15], Luechinger and Moser (2014) use [0, 1], and Miyajima and Yafeh (2007) use [−5, +5]. As a baseline specification, we consider five days before the announcement and five days after the announcement –that is, the conservative [−5, +5] interval[13]– because such specification allows for exploring whether the market is able to anticipate the events (by including in the analysis some days prior to the event) or if the market needs a few days to reflect the impact of the news on the market prices[14] (by including in the analysis some days after the event).

Second, using conventional inference methods in event studies poses a problem because stock prices are not normally distributed, and returns may be subject to cross sectional correlation (see Brown and Warner (1980, 1985), and Campbell et al. (1997)). This has led to the use of non-parametric tests, usually more powerful than their parametric counterparts in these cases. In order to establish the significance of cumulative abnormal returns, we use the Generalized Rank Test proposed by Kolari and Pynnonen (2011), which distributes asymptotically as a Student's t, with $T − 2$ degrees of freedom. The authors have shown this test to be robust to return serial correlation, event-induced volatility, and cross–sectional correlation resulting from clustering. However, because we deal with very small samples for some event types, we also calculate the test's exact distribution, building on the idea that percentile ranks distribute as uniform random variables over the interval [0, 1] (Corrado and Zivney (1992), Dube et al. (2011)).

4 Data

4.1 Events

In order to define the events we study, we follow the approach proposed by Kobrin (1980, 1984). The author constructs the most comprehensive database of forced divestments acts to 1980 in order to analyze their determinants, accounting for political, legal, financial and economic factors[15]. Even though the aims and scope of our paper differ from those of Kobrin (1980), his framework to define an act of involuntary divestment is our starting point to define the events that we study[16].

In that sense, the first step to look for events of forced divestment is to determine the characteristics that define such an action. An event enters our sample if it has the three following characteristics. First, the divestment is involuntary and forced by the host government. Since our main purpose is to understand how firms react to political risk -particularly, expropriation risk-, which concerns the protection of property rights in the host country, we exclude firms that have been nationalized as part of any bail-out program. For instance, our sample does not include banks and financial firms nationalized because of the recent Global Financial Crisis. Second, the forced divestment directly affects the property or control rights, and not the benefits associated with operations. Therefore, we exclude 'creeping expropriation' from our sample. This means that the event of renegotiation of contracts only enters the database when it implies a threat to the firm's operations. Finally, the targeted property is privately owned by either national or foreign agents.

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[13]Wider windows increase the probability of confounding events entering into the computation of CARs, which may generate a bias in the results. We exclude events from our sample that are subject to confounding events during the 11-day window, centered on the event day.

[14]The speed of the reaction of the market depends on the relative impact of the frictions to trade (liquidity, transaction costs, limits on short positions and so on), as well as the time the news on the event take to arrive in the home market.

[15]His work was extended by Minor (1994) and Hajzler (2012).

[16]However, there are two differences between Kobrin's definitions and ours: (i) he accounts for cases in which non-governmental agents force divestments, but we consider governmental agents only, and (ii) an event enters his sample only if it regards targeted foreign property, but we consider also local property.

However, as explained in Section 3, we also analyze announcements or transitory actions associated with factual forced divestments. That is, we consider announcements, threats, temporary occupations and transitory permit revocations when they signal the government's intention to force a firm's divestment.

We obtained the events in our sample through an extensive news search mainly through Abi-Inform, which is a database that contains key business publications, with a large international coverage. However, in some cases it was necessary to complete the information with additional sources, such as firms' press releases, and local newspapers. Our baseline data, presented in Table 4.1, includes 116 events, involving 70 publicly traded firms whose operations resulted threatened and/or affected in 12 countries between 2005 and 2013. Venezuela and Bolivia account for the majority of cases, with 54.3% and 13.8% of the total number of events[17].

Table 4.1: Events by type

Event type	Frequency	Proportion of the Total
Announcement of nationalization	37	31.9
Announcement of expropriation	1	0.86
Occupation	11	9.48
Threat	22	18.97
Revocation of permit	6	5.17
Pre-Expropriation Warnings	**77**	**66.38**
Outright expropriation	21	18.1
Forced sale	14	12.07
Permanent Rescission of Contract	4	3.45
Forced divestment	**39**	**33.62**
Total sample	**116**	**100.00%**

Table 4.2 presents the results in terms of industry sectors for the total sample, pre-expropriation warnings and forced divestments. Although our results are not directly comparable to other studies on expropriations (e.g. Kobrin (1980), Minor (1994) and Hajzler (2012)), the figures obtained for the group of forced divestments offer some insight on the evolution of the industries that have been historically affected by expropriation-related actions. In our sample, between 2005 and 2013, more than 50% of the events are related to mining and oil services (ICB codes 0001 and 1000) while the average of acts[18] affecting firms in these sectors between 1960 and 2006 is close to 30%. Forced divestments of firms associated with utilities account for 23.08% of the cases that we study, well above the 8.8% average registered between 1960 and 2006 (Hajzler, 2012). The fact that these trends still hold goes in line with the two main explanations presented in Kobrin (1980) to understand why these sectors are such popular targets for host governments. On the one hand, communications and utilities are considered key to national security. On the other hand, extractive industries are attractive targets if the economy largely depends on them, as in the cases of Venezuela, Bolivia and Zimbabwe.

Another way to assess the importance of these sectors for host governments is to determine the proportion of warnings in each sector that materialized into forced divestments. The last column in Table 4.2 shows the materialized warnings as a percentage of the total warnings. In other words, it represents the number of forced divestments preceded by warnings, as a proportion of total warnings. On average, this proportion is close to 50%. Although these results may have some caveats[19], we may see that for firms in the financial sector (ICB 8000),

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[17]Our baseline data includes only 116 events because we excluded firms affected by confounding effects: events unrelated to those in our sample that may affect the parent firm's stock price and bias our results (see McWilliams and Siegel (1997), MacKinlay (1997)). Appendix B presents a frequency table of events by type that accounts for all the events affected listed firms that we found while conducting this research.

[18]An act is defined by Kobrin (1980, p. 72) as "the forced divestment of any number of firms in a single industry in a single country in a given year", and this is the definition followed by Minor (1994) and Hajzler (2012).

[19]Since we do not have the universe of pre-expropriation warnings and forced divestments, it may be the case

Table 4.2: Frequency of events by ICB industry

Industry	ICB code	All		Pre-Exprop. Warnings		Forced divestments		FD/W
		Abs.	Rel.	Abs.	Rel.	Abs.	Rel.	
Oil & Gas	1	41	35.34%	30	38.96%	11	28.21%	35.43%
Basic Materials	1000	27	23.28%	17	22.08%	10	25.64%	58.82%
Industrials	2000	13	11.21%	8	10.39%	5	12.82%	62.50%
Consumer goods	3000	7	6.03%	6	7.79%	1	2.56%	16.67%
Health care	4000	0	0.00%	0	0.00%	0	0.00%	0.00%
Consumer Serv.	5000	0	0.00%	0	0.00%	0	0.00%	0.00%
Telecom	6000	3	2.59%	1	1.30%	2	5.13%	200%
Utilities	7000	16	13.79%	7	9.09%	9	23.08%	107%
Financials	8000	9	7.76%	8	10.39%	1	2.56%	12.50%
	Total	116	116	100%	77	100%	39	100%

only 12.5% of the warnings were followed by forced divestments. In contrast, communications (ICB 6000) and utilities (ICB 7000) are associated with a large proportion of warnings ending up as effective forced divestments. Firms pertaining to Oil & Gas sector (ICB 1000) display a relatively lower proportion[20], whereas Basic materials and Industrial are above average. In the case of the Oil & Gas industry, a possible explanation of the relatively low figure is the nature of the deals made by host governments in this sector: oftentimes, they would aim for a controlling stake, instead of a 100% stake[21].

4.2 Stock prices and market data

We use log-returns on the stocks' total return index provided by Data Stream, which controls for dividends. Regarding the market variables, since we deal with stocks from all over the world, we calculate the market returns $r_{m,t}$ on the index provided by DataStream for each market. These are value-weighted indexes for each stock market. In our robustness checks, we use the ICB industry index provided by DataStream instead of the market index to estimate abnormal returns. The reason for using data from the home market of the parent company is that usually the stocks are more liquid there than in other exchanges, due to the well-known "home-bias" effect.

5 Results, robustness and sub-samples

5.1 Baseline results: Reaction of the stock market

In this section, we estimate the model given by equation 1, using Datastream's local market index, and obtain CARs as expressed in equation 3. As for the event window, we consider several specifications. First, we assume that the market does not anticipate the events. This is tested with the [0, 0] and [0, 5] windows; the latter accounts for the possibility that the market needs an extended learning period, while the first one assumes that the market immediately digests all relevant information on the event day. Next, we allow for the market to anticipate the event, so that abnormal returns appear a few days before the event. Therefore, we use the [-5, 0] and [-5, 5] windows.

Table 5.1 presents mean CARs as predicted from the model in equation 1. We find that, overall, expropriation-related events, generate an average significant loss of 1.09% on the event

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that some of the warnings that we analyze ended up as forced divestments, without being included in our sample.

[20]The big exception was Libya, where the civil unrest started almost just after the government threatened to nationalize the oil sector.

[21]In the oil sector nationalization processes in Venezuela, for example, the announcement affected all the operating firms, but the actual nationalization (transfer of shares) only affected those firms with controlling stakes in the projects.
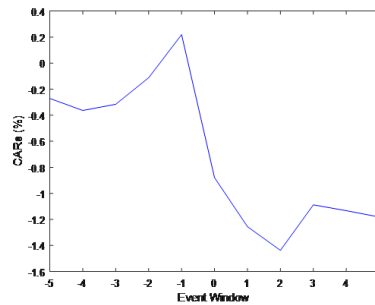
day, and that the market keeps learning about these events, as the loss accumulates to a significant 1.41 % five days after the events. However, we do not find evidence of market anticipation because losses on the [–5, 0] and [–5, 5] windows are below the ones in the [0, 0] and [0, 5] windows. This is corroborated in Figure 5.1, since the biggest losses are observed after the event has occurred[22].

Table 5.1: Average CARs, traditional methodology

Event type	CAR window				Events
	[0,0]	[0,5]	[–5,0]	[–5,5]	
Full sample	–1.0979%*	–1.4001%**	–0.88%	–1.1811%*	116
Pre-expropriation warnings	–1.0130%*	–1.9591%***	–0.44%	–1.3872%***	77
Ann. Nationaliz.	–0.21%	1.19%	0.71%	2.11%	37
Ann. Exprop.	–2.42%	–11.28%	7.01%	–1.86%	1
Occupation	0.17%	–2.01%	–0.14%	–2.32%	11
Threat	–2.0525%*	–3.9548%***	–2.15%	–4.0478%**	22
Transitory Revocation	–4.6808%**	–12.4701%**	–4.1086%**	–11.8978%***	6
Forced Divestments	–1.27%	–0.26%	–1.82%	–0.81%	39
Expropriations	–2.09%	–2.07%	–2.67%	–2.65%	21
Forced Sales	0.11%	2.5520%*	1.4041%*	3.8423%***	14
Permanent revocation	–1.99%	–0.70%	–10.0456%***	–8.75%	4

Note: Average CARs obtained from estimation of equation (1), excluding from the sample log returns with absolute value above 40%. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and are based on the Generalized Rank T-test proposed by Kolari and Pynnonen (2011), using the asymptotic distribution of the test, and confirming these results by the means of its exact distribution.

Figure 5.1: Average CARs: Full sample

Note: Cumulative abnormal returns from estimation of equation 1, excluding from the sample log returns with absolute value above 40%. Event window centered in the event date.
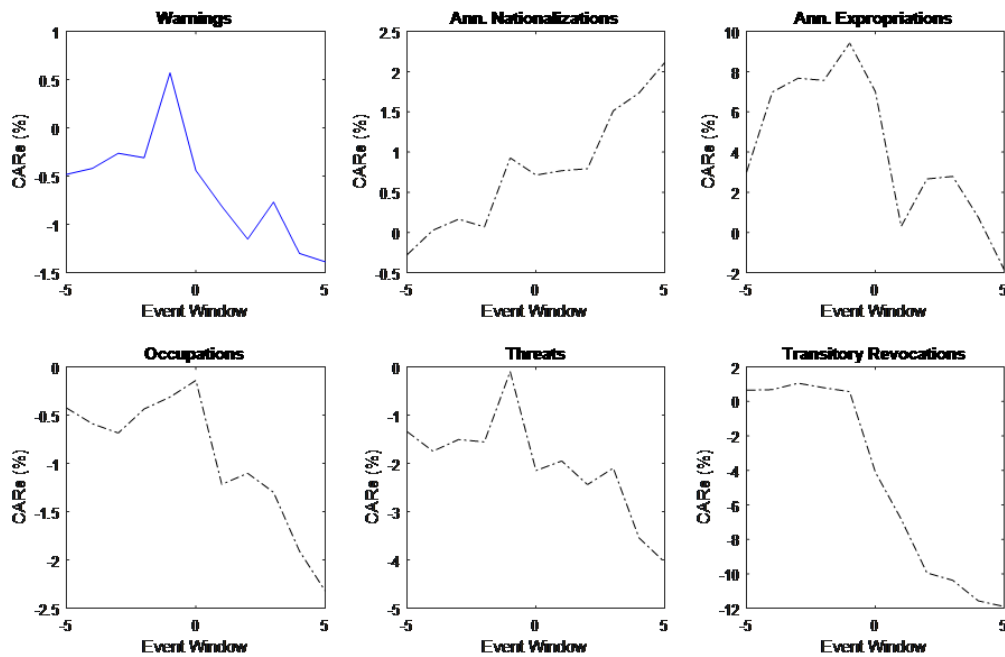
When we analyze by type of event, we find that pre-expropriation warnings convey a borderline significant loss of 1.01% on the event day that increases to a significant 1.96% over a five-day period. Disaggregating warnings, our results seem to support Hypothesis 1a, since we find that *announcements of nationalization* do not have clear effects on the stock price of parent firms. As for Hypothesis 1b, although we cannot provide significance levels for the only announcement of expropriation left in our sample, there are signs of the market reacting negatively on the event day and continuing to learn about it over a five-day period. Graphical inspection of the CARs in Figure 5.2 agrees with this result; what is more, it suggests that the *expropriation announcement* came as a big surprise for the market. Hypothesis 1c, that *occupations* have a negative effect on the parent firms' stock returns, is not supported by our data,

[22] A look at Figure 5.1 suggests exploring the possibility that the market anticipates these news only one or two days before the event. Although not reported here, the results for event windows of [–2, 0], [–2, 2] and [–2, 5] do not show a significant anticipation effect either.

although the CARs do move in the expected direction, as confirmed by Figure 5.2. This may suggest that occupations are not taken as credible threats by the market.

Hypothesis 1d is supported, since *threats* imply a borderline significant loss of 2.05% on the event day that adds up to a significant 3.96% loss when we allow for an extended learning period. Finally, Hypothesis 1e goes in line with the results observed for *transitory permit revocations*, which are associated with a large and significant market response: on the event day, the mean fall in parent firms' stock prices is 4.68%, and the loss keeps growing to a significant 12.47% five days after the revocation of the permit. Although losses on the [–5, 0] and [–5, 5] windows are significant, they provide little evidence of the market anticipating the event, when we compare their CARs magnitude with the [0, 0] and [0, 5] windows. This is consistent with the evolution of CARs presented on the rightmost panel of Figure 5.2.

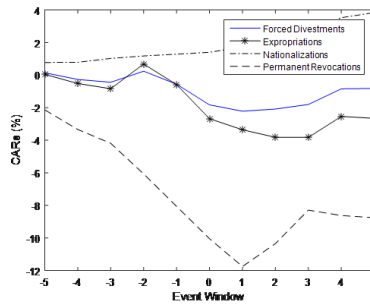Figure 5.2: Average CARs: Pre-expropriation Warnings, by type of event

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Note: Cumulative abnormal returns from estimation of equation (1), excluding from the sample log returns with absolute value above 40%. Event window centered in the event date.

Forced divestments as a whole are not significant. Analyzing each type of forced divestment, we find that *forced sales* do not generate significant abnormal returns on the event day, but are associated with a borderline significant gain of 2.55% that accumulates over five days after the event day (i.e. [0, 5] window). Anticipation of the event also plays an important role: there are significant mean gains of 1.40% and 3.84% that appear when we calculate CARs for the [–5, 0] and [–5, 5] windows. Figure 5.3 lets us appreciate this dynamics more clearly: there is a clear positive trend for the CARs during the event window. This is consistent with Hypothesis 2a: in view of the catastrophic alternative of an expropriation, the fact that the parent firm can close a deal with the government to sell its assets may seem quite a positive result to market participants. Besides, anticipation is a plausible result if we consider that information leakages may arise from the company's side, since it is its decision to accept the government's deal at last.

Outright expropriations do not have a significant impact on the stock price of the parent firms, although the graphic evolution of CARs in Figure 5.3 shows a small negative cumulative market response around the event day. This means that Hypothesis 2b is not supported by our data, which is somewhat puzzling, since the nature of the event implies the loss of property or control rights over a facility, and thus its expected future stream of cash flows –let alone the high probability of obtaining no compensation for the subsidiary–. However, taking a closer look to the sample of outright expropriations, only 5 out of our 14 events are what we could call "surprising expropriations": they were not associated with previous warnings by the host government. This suggests that the information may have been incorporated by the time the expropriation finally occurred.

Finally, permanent rescissions are associated with negative effects in all cases, but only convey a significant loss of 10.05% over the [-5, 0] window, meaning that the market largely anticipates the event, but that its effect over the stock price vanishes quickly from the market, as Figure 5.3 seems to imply. Thus, we find some support for Hypothesis 2c.

Figure 5.3: Average CARs: Forced Divestments, by type of event

In summary, at the aggregate level we find that expropriation–related events are associated with a significant loss on the event day. However, we do not find evidence of the market anticipating the events. In the case of warnings, there is a significant loss on the event day that increases twofold over a five–day period. Disaggregating warnings, we find some support for Hypothesis 1a, 1d and 1e, but the support is less clear in the case of Hypothesis 1c. The group of forced divestments does not have a significant effect. Analyzing each type, we find that the results for forced Sales are consistent with Hypothesis 2a, and the results for permanent rescissions are consistent with Hypothesis 2c. However, the results for outright expropriations do not support Hypothesis 2b.

5.2   Robustness checks

5.2.1   Alternative methodology

In order to test whether our results are subject to the methodology we have employed, we use an alternative specification motivated by Dube et al. (2011), which captures the abnormal returns as a shock to the parent firm stock returns. The model we estimate is:

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + \gamma_e E_{i,t}(k) + u_{i,t} \tag{4}$$

Where $r_{i,t}$ is the return on firm i's stock price, $r_{m,t}$ is the return on the market index[23], and $E_{i,t}(k)$ is an indicator variable that takes the value of one during the k–day length event window, and zero otherwise[24]. In that fashion, this model lets parameter γ_e measure the average daily abnormal return over the k–day period, for event type e, as a transitory shock to the process. The cumulative abnormal return is then computed as $k\gamma_e$. As in the case of the traditional methodology, we consider different specifications for the CAR period, for t ranging between -5 and 5, with zero representing the event day. Equation 4 is estimated for a window $t \in [-245, 25]$.

Table 5.2 presents the results of the estimation of Equation 4 for each event category, as well as for the whole sample. We can appreciate that the events effects are virtually the same as in the traditional event study methodology. Furthermore, given the setting of the model in equation 4, we can now supply some significance for the effect of the *announcement of expropriation* in our sample: in line with the results observed in Figure 5.2, the event comes as quite a shock to the market on the announcement day, with a significant loss of 2.39% that keeps accumulating during five days after the event. Thus, we can now talk about a partial support for Hypothesis 2b, with a careful reading of the result[25].

Table 5.2: Average CARs, alternative methodology.

Event type	CAR window				Events
	[0,0]	[0,5]	[-5,0]	[-5,5]	
Full sample	-1.1027%**	-1.4688%*	-0.91%	-1.27%	116
Pre-expropriation warnings	-1.0430%**	-2.0575%**	-0.52%	-1.54%	77
Ann. Nationaliz.	-0.25%	1.09%	0.64%	2.02%	37
Ann. Exprop.	-2.3909%***	-11.7468%*	7.27%	-1.97%	1
Occupation	0.17%	-2.1499%*	-0.21%	-2.58%	11
Threat	-2.09%	-4.1632%*	-2.29%	-4.4034%*	22
Transitory Revocation	-4.6796%**	-11.7874%***	-3.43%	-11.3383%**	6
Forced Divestments	-1.22%	-0.27%	-1.71%	-0.72%	39
Expropriations	-2.00%	-1.88%	-2.19%	-2.06%	21
Forced Sales	0.11%	2.3411%**	1.29%	3.5463%**	14
Permanent revocation	-2.00%	-0.47%	-10.1934%**	-8.75%	4

Note: We calculate average CARs as $k\gamma_e$ from the estimation of equation 4, using Data Stream market index and robust standard errors. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and based on the largest between robust and cluster standard errors. We exclude from the sample log returns with absolute value above 40%.

The fact that the results obtained through both methodologies are so similar allows for us to confirm that expropriation actions do affect the stock price of parent firms, and that different types of actions imply different reactions of the stock market. Of particular interest is the effect of *forced sales* on stock prices of parent firms, which so far has been thought to be negative (e.g. Shcherbakova (2010)). The possibility of the firm coming to an agreement with the government towards the sale of its stake in the host country sends the market a positive signal: in spite of possible delays in the payment, and a transfer of assets below fair value, it is much more positive than the catastrophic alternative of an expropriation.

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[23]The regression estimated by Dube et al. (2011) includes four Fama-French factors. In our setting, however, we restrict the model to include only the market index. The reason is that data for the four–factor Fama–French model are available only for U.S. firms, whereas our sample contains parent firms based in several countries.

[24]In principle, $E_{i,t}(k) = 1$ represents the case where the whole firm is at stake of being subject of forced divestment. Dube et al. (2011) interact the associated parameter γ_e by the value of the subsidiary relative to the parent firm to estimate the actual reaction of the market. However, given the difficulty to obtain accurate information on subsidiary value for our sample, we leave this issue for a posterior part of our research.

[25]The announcement of expropriation involved a Mexican food producer's operations in Venezuela, and it occurred after the firm had been subject to a previous occupation.

5.2.2 Time–Shifted placebos

In order to make sure that the significance of our results is not a mere coincidence, in the fashion of Dube et al. (2011) and Luechinger and Moser (2014), we shift our events 20, 40, and 60 days backwards and then estimate the market model (equation 1). Table 5.2.2 presents the results for the 1-day and 11-day windows. Except for *permanent revocations*, none of the CARs associated with our event types are significant –even at the 10% level. A closer look at the case of permanent revocations, where we have three firms with four revoked permits, indicates that they were subject to several other events during these dates: negative earnings reports (Crystallex and Anglo–American PLC), transitory permit revocations (First Quantum Minerals), and generalized industry movements in the home country (Anglo American). Thus, these results seem to support that the CARs we find significant are a consequence of the events that we study and proves the importance of looking for confounding effects on the dates of interest.

Table 5.3: Average CARs for time–shifted placebos

Event type	−60 days shift		−40 days shift		−20 days shift	
	[-60,-60]	[-65,-55]	[-40,-40]	[-45,-35]	[-20,-20]	[-25,-15]
Pre-Expropriation Warnings						
Ann. Nationaliz.	-0.3505%	1.4111%	-0.3984%	0.6655%	0.0869%	2.2340%
	(0.69)	(0.91)	(0.19)	(0.66)	(0.63)	(0.89)
Ann. Exprop.	-2.3789%	-1.9342%	2.0125%	-1.0626%	-0.2278%	0.0409%
	–	–	–	–	–	–
Occupation	0.4208%	2.8162%	-0.4702%	-1.0688%	-0.6245%	-0.1200%
	(0.31)	(0.91)	(0.11)	(0.21)	(0.15)	(0.62)
Threat	1.2549%	4.0360%	0.5789%	-1.8096%	-0.2148%	1.0899%
	(0.93)	(0.92)	(0.83)	(0.12)	(0.36)	(0.48)
Transitory Revocation	0.4588%	-1.8241%	-0.4756%	1.7809%	1.7343%	-2.8945%
	(0.68)	(0.5)	(0.66)	(0.36)	(0.9)	(0.14)
Forced Divestments						
Expropriations	-0.7474%	-1.8682%	0.3045%	1.5654%	0.9031%	-0.3610%
	(0.31)	(0.29)	(0.57)	(0.29)	(0.56)	(0.52)
Forced Sales	0.1847%	1.5813%	-0.3593%	-2.3812%	-0.3411%	-0.2293%
	(0.31)	(0.12)	(0.69)	(0.99)	(0.92)	(0.9)
Permanent revocation	-0.3004%	**-6.9791%***	0.9999%	-0.5880%	-1.0564%	**-5.8745%***
	(0.21)	(0)	(0.51)	(0.78)	(0.11)	(0)

Note: Average CARs obtained from estimation of equation 1. We use an estimation window of [-245,-130], and exclude from the sample log returns with absolute value above 40%. P-values in parentheses. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and are based on the Generalized Rank T-test proposed by Kolari and Pynnonen (2011), using the asymptotic distribution of the test, and confirming these results by the means of its exact distribution.

5.2.3 Industry effects

We estimate Equation 1 using the ICB industry index provided by DataStream with the aim of controlling for industry specific effects. Table 5.4 presents average CARs for the events in our sample. In general, CARs here are somewhat smaller than in our baseline results, but the magnitude, the direction of the effect, and the significance level still hold. There is one exception in the case of *forced sales*, but the magnitude, and the slightly above 10% p-value for the [-5,5] window CARs suggest that the intuition obtained with the full market index is still valid. Again, it is worth noting that our results should be read with caution, given the small sample size for the individual types of events.

5.3 The effect of Venezuela

Given the importance of Venezuela within our sample (more than 50% of the events), it is worth exploring to what extent results change once we exclude this country from the sample,

Table 5.4: Average CARs using World Sector Index

Event type	CAR window				Number of events
	[0,0]	[0,5]	[-5,0]	[-5,5]	
Full sample	-0.9959%	-1.3534%**	-1.0327%	-1.3902%**	116
Pre-expropriation warnings	-0.8295%	-1.5260%***	-0.6579%*	-1.3545%***	77
Ann. Nationaliz.	0.0859%	1.5511%	0.4099%	1.8751%	37
Ann. Exprop.	-2.5994%	-13.2365%	9.0474%	-1.5896%	1
Occupation	0.3659%	-1.7681%	0.1681%	-1.9659%	11
Threat	-2.1045%*	-4.0834%***	-3.0469%**	-5.0258%***	22
Transitory Revocation	-4.2691%***	-9.0005%	-2.6954%*	-7.4268%	6
Forced Divestments	-1.3287%	-1.0133%	-1.8471%	-1.5316%	39
Expropriations	-2.1969%	-2.5529%	-2.8094%	-3.1655%	21
Forced Sales	0.1325%	1.8112%	1.0673%	2.7459%	14
	(0.27)	(0.30)	(0.22)	(0.13)	
Permanent revocation	-2.1021%	-3.0178%	-8.2605%**	-9.1762%*	4

Note: Cumulative abnormal returns from estimation of equation 1, using DataStream's Level 2 World Industry Index as regressor. We exclude from the sample log returns with absolute value above 40%, and center the event window at the event date. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and are based on the Generalized Rank T-test proposed by Kolari and Pynnonen (2011), using the asymptotic distribution of the test, and confirming these results by the means of its exact distribution. P-values in parentheses for the case of *forced sales*.

as well as the dynamics of market reactions in Venezuela as separate case. Since Venezuela constitutes a unique scenario where expropriations were the order of the day, we expect the market to incorporate all the information regarding the expropriation risk facing firms that had operations in the country during the period we study. In that sense, this setting offers the perfect opportunity to check whether the market thinks of pre-expropriation warnings as credible threats. If that is the case, we should observe a larger abnormal market reaction towards pre-expropriation warnings than in the case of other countries.

Tables 5.5 through 5.8 present the results for the samples ex-Venezuela (tables 5.5 and 5.6), and Venezuela (tables 5.7 and 5.8), using both the traditional event study methodology and the alternative proposed by Dube et al. (2011). As before, very similar results are obtained through both methods, but in this case their statistical significance only coincides in some types of events.

In the ex-Venezuela sample, we do not find significant reactions from the market in the full sample or in the group of pre-expropriation warnings. In the latter group, only transitory revocations convey a significant loss of about 4.6% on the event day and that the market needs some time to adjust to the news, since the return accumulated over a five-day period is a significant -7.5%; this is the case for both methodologies, which suggests that our results are robust. In the case of forced divestments, permanent revocations convey a significant loss of around 5.6% during the event day, while Forced Sales are associated with a significant gain accumulated five days following the event, and over an 11-day window: there is both anticipation and learning for this type of event. This is consistent with the idea that there may be information leakages on the firm's willingness to close the deal with the host government.

In contrast with the results above, for the sample of Venezuela, we find that the set of pre-expropriation warnings generates a rather large abnormally negative market response. The results also suggest that the market takes some time in digesting the news, as the loss accumulates five days after the event. Besides, to some extent, there is anticipation as the loss is bigger for the [-5, 5] window than for the [0, 5] window. Disaggregating by type of event, although we cannot provide meaningful results based on the traditional methodology for transitory revocations and announcement of expropriation (there is only one of each left in our sample), the alternative methodology suggests that these are highly significant. For the case of the expropriation announcement, the results suggest that it comes as a surprise for the market, which requires some time to fully digest the news, since the returns for the [-5, 0] and

Table 5.5: Traditional Methodology, Rest of the world

Event type	CAR window				Events
	[0,0]	[0,5]	[–5,0]	[–5,5]	
Full sample	–1.14%	**–1.4786%***	0.04%	–0.30%	68
Pre-expropriation warnings	–0.53%	**–0.8136%****	1.09%	0.81%	53
Ann. Nationaliz.	–0.13%	1.91%	2.88%	4.92%	14
Ann. Exprop.	n.d.	n.d.	n.d.	n.d.	0
Occupation	0.47%	**–2.7100%*****	**2.9358%****	–0.24%	2
Threat	0.25%	**–0.8218%***	0.63%	–0.44%	17
Transitory Revocation	**–4.6808%****	**–7.5343%****	**–3.2860%****	**–6.1395%*****	5
Forced Divestments	–2.67%	–3.20%	–2.72%	–3.25%	15
Expropriations	–3.29%	–7.04%	–3.65%	–7.40%	9
Forced Sales	0.16%	**9.2833%***	2.64%	**11.7666%***	4
Permanent revocation	**–5.5801%*****	–3.91%	**–10.2138%*****	**–8.5411%***	2

Note: Cumulative abnormal returns from estimation of equation 1, excluding from the sample log returns with absolute value above 40%. Event window centered in the event date. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and are based on the Generalized Rank T-test proposed by Kolari and Pynnonen (2011), using the asymptotic distribution of the test, and confirming these results by the means of its exact distribution.

Table 5.6: Alternative Methodology, Rest of the world

Event type	CAR window				Events
	[0,0]	[0,5]	[–5,0]	[–5,5]	
Full sample	–1.12%	–1.49%	–0.02%	–0.35%	68
Pre-expropriation warnings	–0.55%	–0.88%	0.97%	0.66%	53
Ann. Nationaliz.	–0.17%	1.78%	2.71%	**4.7665%***	14
Ann. Exprop.	n.d.	n.d.	n.d.	n.d.	0
Occupation	0.48%	–3.20%	3.09%	–0.08%	2
Threat	0.24%	–0.87%	0.45%	–0.70%	17
Transitory Revocation	**–4.6796%****	**–7.4902%****	–3.29%	–6.12%	5
Forced Divestments	–2.56%	–3.14%	–2.64%	–3.04%	15
Expropriations	–3.07%	–6.92%	–3.10%	–6.97%	9
Forced Sales	0.09%	**7.6816%****	2.23%	**9.4728%****	4
Permanent revocation	**–5.6393%*****	–4.05%	–10.48%	–8.99%	2

Note: We calculate average CARs as $k\gamma_e$ from the estimation of equation 4, using Data Stream market index. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and are based on on the largest between robust and cluster standard errors. We exclude from the sample log returns with absolute value above 40%.

the [–5, 5] windows are not significant, while returns for the [0, 0] and the [0, 5] windows are substantial and significant. As for the transitory revocation, the results suggest a large reaction from the market over the five days that follow the event, as well as some anticipation. Threats are also associated with large negative market responses that are significant, and suggest both learning and anticipation. These results are consistent with the idea that, given the history of forced divestments in this country, any warning made by the government regarding the possible involuntary divestment of a firm is interpreted by the market as a credible threat.

In the case of actual forced divestments, we find that the market anticipates the permanent revocation of permits for the two cases in our sample, since during the five days previous to the event and up to its occurrence, the loss is above 8.8% (for both estimations). There is a rebound effect because the return on the event day is a positive and significant 1.6%, but the rebound is not significant during the five days after the event.

6 Explaining CARs: The effect of sector vulnerability and political risk

Several variables may offer clues about the likelihood of an expropriation related event's occurrence, providing investors with valuable information. For example, as stated in Section 4,

Table 5.7: Traditional Methodology, Venezuela

Event type	CAR window				Events
	[0,0]	[0,5]	[-5,0]	[-5,5]	
Full sample	-1.07%	**-1.3315%***	-1.64%	-1.91%	63
Pre-expropriation warnings	-1.50%	**-3.0833%***	**-1.9519%***	**-3.5378%***	39
Ann. Nationaliz.	-0.27%	**0.7539%***	-0.62%	0.40%	23
Ann. Exprop.	-2.42%	-11.28%	7.01%	-1.86%	1
Occupation	0.11%	-1.87%	-0.87%	-2.84%	9
Threat	**-9.8691%***	**-14.6068%***	**-12.2875%***	**-17.0252%***	5
Transitory Revocation	n.d	-32.47%	-3.82%	-36.28%	1
Forced Divestments	-0.35%	1.50%	-1.15%	0.70%	24
Expropriations	**-1.1133%***	1.91%	-1.75%	1.28%	12
Forced Sales	0.10%	0.68%	0.91%	**1.4935%***	10
Permanent revocation	**1.6053%***	3.32%	**-8.8030%***	-7.09%	2

Note: Cumulative abnormal returns from estimation of equation 1, excluding from the sample log returns with absolute value above 40%. Event window centered in the event date. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and are based on the Generalized Rank T-test proposed by Kolari and Pynnonen (2011), using the asymptotic distribution of the test, and confirming these results by the means of its exact distribution.

Table 5.8: Alternative Methodology, Venezuela

Event type	CAR window				Events
	[0,0]	[0,5]	[-5,0]	[-5,5]	
Full sample	**-1.0896%***	-1.45%	**-1.6520%***	-2.03%	63
Pre-expropriation warnings	**-1.5412%***	**-3.2195%***	-1.96%	**-3.6797%***	39
Ann. Nationaliz.	-0.30%	0.66%	-0.62%	0.34%	23
Ann. Exprop.	**-2.3909%***	**-11.7468%***	7.27%	-1.97%	1
Occupation	0.10%	-1.95%	-0.97%	**-3.0955%***	9
Threat	**-9.9917%***	**-15.3754%***	-11.64%	**-16.9337%***	5
Transitory Revocation	n.d.	**-37.6055%***	-4.22%	**-38.8911%***	1
Forced Divestments	-0.35%	1.45%	-1.15%	0.65%	24
Expropriations	-1.13%	1.86%	-1.56%	1.44%	12
Forced Sales	0.12%	0.59%	0.91%	1.41%	10
Permanent revocation	**1.6148%***	3.43%	**-9.8811%***	-8.50%	2

Note: We calculate average CARs as $k\gamma_e$ from the estimation of equation 4, using Data Stream market index and robust standard errors. Significance levels of 10%, 5%, and 1% are identified by *, **, and ***, respectively, and are based on on the largest between robust and cluster standard errors. We exclude from the sample log returns with absolute value above 40%.

firms operating in some sectors are more likely to be forced to divest. In particular, Table 4.2 indicates that Oil & Gas, Basic materials, and Utilities sectors are the most vulnerable to forced divestments. This sectorial characteristic may shape investors reaction towards governmental measures related to forced divestments. In order to determine the effect of sector vulnerability on the size of CARs, we define a dummy variable V_i that takes the value of one when the firm operates in a vulnerable sector, and zero otherwise. Nevertheless, as we have explained, nationalizations are a very special case of forced divestments, with a different impact on the size of CARs. Therefore, we add a variable, N_i, that is equal to one if the event is a nationalization, and a variable NV_i, which is an interaction term between V_i and N_i. The model is presented in equation 5.

$$CAR_i = \beta_0 + \beta_1 N_i + \beta_2 V_i + \beta_3 NV_i + \epsilon_i \tag{5}$$

In principle, if the sector were vulnerable, one would expect investors to incorporate such information into their valuation, so that the reaction of stock prices is somewhat smaller when the event takes place. However, this may not be the case for nationalizations. To see why, remember that for forced sales, we expect (and find) CARs to be positive for this type of event because (i) there is a large uncertainty that gets resolved the day the firm agrees to the nationalization of its subsidiary, and (ii) nationalizations can be considered the lesser of two evils.

Besides, the fact that a sector is vulnerable means that the government is fond of it. All this results in a lower success probability assigned to the positive outcome of a forced sale in a vulnerable sector than in one that is not vulnerable: when the nationalization is realized in a vulnerable sector, the market's reaction is stronger. This being said, we expect $\beta_1 < 0$, $\beta_2 > 0$, $\beta_3 > 0$.

The second and third columns of Table 6.1 present the results for equation 5 for the [0,0] and [0,5] windows. Abnormal returns on the event day have a positive and significant relationship with NV, which is the interaction between vulnerability and nationalization. The fact that $\beta_3 > 0$ implies that the market's reaction is much stronger for nationalizations carried out in vulnerable sectors, providing some support for our hypothesis.

Table 6.1: CARs, vulnerability and political risk

Dep. Var.: CARs	Vulnerability		Political risk	
	[0, 0]	[0, 5]	[0, 0]	[0, 5]
N_i	–0.00006	–0.00267	–	–
V_i	–0.01258	0.00603	–	–
NV_i	**0.01903****	**0.05246***	–	–
P_i	–	–	–0.00053	–0.00009
NP_i	–	–	**0.00031*****	**0.00091****
Constant	–0.00387	**–0.02308*****	0.01095	–0.01485
R-squared	0.0216	0.0233	0.017	0.0183
n	**114**	114	112	112

Note: CARs obtained from estimating equation 1 constitute the dependent variable for all models in the table, using Huber-White robust standard errors.

However, besides sector vulnerability, the level of political risk of the host country may also explain the size of the response towards an expropriation related action. Investors can access different measures or proxies for political risk through either readily available indexes or, well, the news. To estimate the impact of this variable on the size of CARs, we use PRS Group's Regional Political Risk Index[26], which is free to access on PRS's website. The index represents an overall measure of risk for a given country, taking into account variables such as turmoil, expropriation, and other risks.

The idea behind the model presented in equation 6 is similar in spirit to that presented in the case of vulnerability. We would expect that if the event is a nationalization, the larger the level of political risk, the larger the CARs. This is because investors might have a perception that riskier countries are associated with a larger probability of the nationalization process ending in the catastrophic alternative of expropriation.

$$CAR_i = \delta_0 + \delta_1 P_i + \delta_2 NP_i + \epsilon_i \qquad (6)$$

According to the columns (4) and (5) of Table 6.1, the only significant variable in regression (6) is the interaction term, and it has the expected sign. This supports the idea that resolved uncertainty for nationalizations occurring in an already rather uncertain environment triggers a positive response from the market.

7   Final remarks

Events related to expropriations are likely to generate a reaction in stock returns since shareholders risk losing their stake in the expropriated firm without receiving a proper compen-

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[26]The index, calculated annually, is available for several years at https://www.prsgroup.com/category/risk-index. The original series decreases with political risk, but we rescale it to reflect a larger value as political risk grows, just to make interpretation a bit easier.

sation. We define expropriations, following Truitt (1970), as those events where the sovereign seizes privately owned tangible property. However, through an extensive investigation on expropriation events, we find that there may be several types of actions related to the deed of expropriation. We divide these actions between pre-expropriation warnings (announcements of expropriations, nationalizations, occupations, threats, and transitory permit revocations), which do not necessarily imply asset seizing by the government, and the actual event of forced divestments (forced sales, outright expropriations, and permanent permit rescissions), where the firm losses/cedes property or control rights on its business in the expropriating country.

In order to determine whether these events actually have an impact on the value of the parent firm, we conduct an event study using a novel data set. In general, as expected, we find that most expropriation related events are associated with a value loss for the parent firm shareholders; among these, events associated with permit revocations are the ones that generate the largest negative market reaction among the events in our sample. A rather unexpected finding is that outright expropriations do not appear to be a negative surprise for the market, since we do not find any significant abnormal returns associated with them. One possible explanation is that only five of the expropriations in our sample were unannounced.

Nevertheless, when it comes to forced sales, we no longer expect it to be a negative announcement for the parent firm, unlike the approach observed in the extant literature. Among other things, this can be explained by the fact that the market may incorporate the possible expropriation of the subsidiary into the parent firm's valuation before nationalization is realized, and this incorporation has to be corrected after the positive announcement of a deal to transfer its assets for a stipulated price, instead of having them seized. Our results show a consistent positive reaction of the market towards forced sales, which is a novel result, as far as we know.

When we analyze the results separating Venezuela from the rest of the world, we find that the market interprets any pre-expropriation warning as a credible threat and tends to react vigorously whenever the government signals the intention to expropriate. As for the rest of the world, results for forced sales suggest anticipation and learning, indicating possible information leakages on the side of the parent firm. However, warnings do not seem to alarm investors, suggesting that they are not necessarily taken seriously if the country is other than Venezuela.

The cross-section of CARs suggests that these are explained to some extent by political risk and sector vulnerability to expropriation. Particularly, our results suggest that nationalizations are considered more positively than usual whenever the firm operates in a vulnerable sector or in a high political risk country.

Further research could use this dataset to study the reaction of parent firms' debt when a subsidiary is affected by a governmental action that signals forced divestments, since debtors have different incentives than shareholders. It can also be used to study more accurately determinants of expropriations, as well as to analyze the impact of expropriations on sovereign risk.

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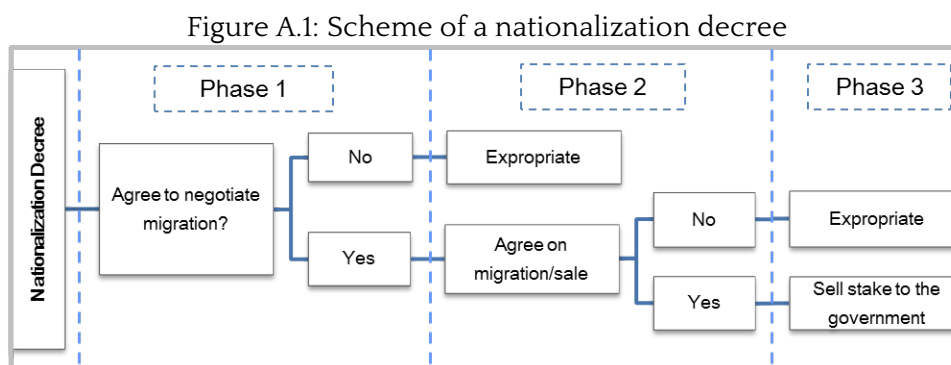
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Appendices

A   Example of a Nationalization Decree

In order to illustrate the process of nationalization, we take the case of Venezuela, which we outline in Fig. A1. In general, a nationalization process has two phases: the negotiation of terms and conditions under which control/stock transfer is going to be executed (phase 2) and, when appropriate, the sale of stake to the government (phase 3). In the figure, Phase 1 refers to two special nationalization cases in Venezuela's hydrocarbons sector: firms had to decide at this stage whether they agreed to be taken into account for planning the migration from private to mixed enterprises.

Figure A.1: Scheme of a nationalization decree

B   Preliminary sample

Before checking for the existence of confounding events in our sample, we found that 71 firms were affected by expropriation-related announcements 208 times (Table B1). These events occurred in 12 countries, with Venezuela and Bolivia accounting for nearly 51% and 14% of them, respectively.

Table B.1: Frequency of events by type

Event type	Frequency	Percent
Announcement of nationalization	58	27.88%
Announcement of expropriation	5	2.40%
Occupation	19	9.13%
Threat	47	22.60%
Contract revoked or end of concession	12	5.77%
Pre-Expropriation Warnings	**141**	**67.79%**
Outright expropriation	31	14.90%
Forced sale	30	14.42%
Permanent Rescission of Contract	6	2.88%
Forced Divestment	**67**	**32.21%**
Total sample	**208**	**100.00%**