

Coups, Corporations, and Classified Information

Arindrajit Dube*, Ethan Kaplan†, and Suresh Naidu^{§§§}

UC Berkeley; IIES, Stockholm University; Harvard University

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Abstract

We estimate the impact of coups and top-secret coup authorizations on asset prices of partially nationalized US companies that stood to benefit from US backed coups. Stock returns for a small number of highly exposed firms reacted to coup authorizations classified as top-secret. The average abnormal return to a coup authorization is 1.7% over 4 days, rising to 3.4% over thirteen days. Pre-coup authorizations account for a larger share of stock price increases than the actual coup events themselves. There is no effect in the case of the widely publicized, poorly executed Bay of Pigs invasion, consistent with abnormal returns to coup authorizations reflecting credible private information. We also introduce two new intuitive and easy to implement nonparametric tests that do not rely on asymptotic sample size approximations.

*adube@berkeley.edu

†ekaplan@iies.su.se

‡snaidu@wcfia.harvard.edu

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1 Introduction

This paper estimates the effect of secret United States decisions to overthrow foreign governments on the stock market prices of companies that stood to benefit from regime change. We look at companies that had a large fraction of their assets expropriated by a government that was subsequently a target of a U.S. sponsored covert operation aimed at overthrowing the regime. Using official timelines reconstructed from CIA documents, we find statistically and economically significant effects on stock prices both from the regime change itself and from “top secret” authorizations.

Our findings complement other evidence in empirical political economy that large, politically connected firms benefit from favorable political regimes (Faccio, 2006; Fisman, 2001; Jayachandran, 2006; Knight, 2006; Snowberg *et al.*, 2007). However, we show that firms benefit not only from publicly announced events but also from top-secret events, suggesting information flows from covert operations into markets. Our results are consistent with recent papers that have used asset price data to show that companies can profit from conflict (DellaVigna and La Ferrara, 2007; Guidolin and La Ferrara, 2007). We also provide evidence that private information leaks into asset prices slowly over time. This is consistent with both private information theories of asset price determination (Allen *et al.*, 2006) and the empirical literature on insider trading (Meulbroek, 1992).

Additionally, we interpret our results as providing an estimate of the value of the coups to exposed corporate beneficiaries. Net total price rises from coup authorizations are larger in magnitude than price changes from the coups themselves. There exists widespread scholarly disagreement on the motivations behind covert interventions, ranging from national security, to ideological motives (Westad, 2005), to protecting the economic interests of powerful lobbies in the intervening governments (Chomsky, 2004; Gibbs, 1991). While we are unable to resolve this debate, we show that regime changes lead to significant economic gains for corporations that stood to benefit from U.S. interventions in developing countries.

Within economics, the literature on anti-democratic political transitions has emphasized the role of domestic elites (Acemoglu and Robinson, 2006). However, coups have often been instigated, planned and even partially executed from abroad, most notably by the U.S. and the Soviet Union during the Cold War. Operating under the threat of nuclear war, direct conflict between the two superpowers was replaced by covert and proxy operations to install supporting regimes (Kinzer, 2006). According to Easterly *et al.* (2008), 24 country leaders were installed by the CIA and 16 by the KGB since the end of the Second World War.

Our paper also makes an econometric contribution to hypothesis testing in event studies. The structure of our event study allows us to improve on existing nonparametric tests. Nonparametric tests used in event studies do not use exact small sample distributions but rather tests with faster asymptotic convergence to a normal distribution (Campbell *et al.*, 1997; Corrado and Zivney, 1992). We introduce two new small sample tests that are valid without asymptotic approximations based upon the number of events.

Section 2 of this paper discusses the history of U.S. covert interventions, with backgrounds on each of the coups in our sample. Section 3 describes the data and our selection of companies and events. Section 4 outlines our estimation strategies and Section 5 reports our main results along with a number of robustness checks. In section 6, we present and implement our small sample tests. Section 7 provides an interpretation of our main results; we decompose the total value of a coup to a multinational into public and private components. We also calibrate a simple asset pricing equation and back out the implied changes in the stock market’s assessments of the probability of a future coup. We conclude in section 8.

2 Background and History: The CIA

The Central Intelligence Agency was brought into existence in 1947 under the National Security Act of July 26. The act allowed for “functions and duties related

to intelligence affecting the national security", in addition to intelligence gathering (Weiner, 2007). Initially, the scope of the CIA was relegated to intelligence, though a substantial and vocal group advocated for a more active role for the agency. This culminated in National Security Council Directive No. 4, which ordered the CIA to undertake covert actions against communism.

In the United States, covert operations designed to overthrow foreign governments were usually first approved by the director of the CIA and then subsequently by the President of the United States. A 1978 executive order described covert actions as "operations conducted abroad in support of national foreign policy objectives which are designed to further official United States programs and policies abroad and which are planned and executed so that the role of the United States government is not apparent or acknowledged publicly" (Johnson, 1989).

After Eisenhower's election in 1952, Allen Dulles was appointed director of the agency. Under Dulles, the CIA expanded its role to include planning and executing overthrows of foreign governments using military force. All but 8 of the CIA operations in Table I, including 3 of the 4 studied in this paper, began during Dulles' reign as CIA director under the Eisenhower administration. Allen Dulles was supported by his brother, John Foster Dulles, who was the contemporaneous Secretary of State. The Dulles brothers together wielded substantial influence over American foreign policy from 1952 to 1960.

In 1974, partly due to public outcry over the U.S. involvement in the military coup in Chile, the Hughes-Ryan Act increased congressional oversight of CIA covert operations. In 1975, the U.S. legislature formed subcommittees to investigate American covert action. Thus, the intensity and scope of U.S. covert actions fell substantially (Johnson, 1989). The height of covert CIA activity lasted slightly more than twenty years encompassing the period from 1952 to 1974.

Our sample of coups includes 4 such covert attempts. The first one occurred in Iran in August, 1953, when the CIA, assisted by the UK MI6, engineered a toppling of Prime Minister Mossadegh. Mossadegh had nationalized the oil fields and refinery

at Abadan, which were the property of the Anglo-Iranian oil company, itself a nationally owned company of the UK government. In Guatemala, the CIA overthrow of Jacobo Arbenz Guzman in June, 1954 occurred after the Arbenz government had nationalized most of United Fruit's assets in Guatemala. In Cuba, the Castro government nationalized all US property in 1960, one year before the failed Bay of Pigs coup attempt in April, 1961. Finally, the Chilean nationalization of copper and other foreign owned assets began under the Frei government but proposed compensation was substantially lower after the Allende government came to power in late 1970. Allende was in office less than 3 years before he died in a coup on September 11, 1973. In appendix A, we provide a more detailed synopsis of each coup, focusing on the nature of the pre-coup regime, the motivations behind the expropriations, the American response, and the resolution of the coup.

The qualitative evidence suggesting links between U.S. finance and the CIA is substantial. Firstly, much of the CIA leadership was recruited from Wall Street. For example, the Dulles brothers both worked for Sullivan and Cromwell, a prominent Wall Street law firm that included, for example, United Fruit in its clientele. In addition, Frank Wisner, who directed the CIA Office of Policy Coordination, was previously employed by Wall Street law firm Carter Ledyard. "Wisner, in turn, recruited Barnes and Fitzgerald, both Harvard-trained Wall Street lawyers" (Thomas, 1996). Secondly, the CIA leadership would often consult with corporations that had investments in countries of interest, and took account of major corporate interests in their internal reports and intelligence estimates. We exploit declassified records of these meetings and reports in determining our set of companies with access to the CIA below.

3 Data

3.1 Coup Selection

We selected our sample of coups on the following basis: (1.) a CIA timeline of events or a secondary timeline based upon an original CIA document existed, (2.) the coup contained secret planning events including at least one covert authorization of a coup attempt by a national intelligence agency and/or a head of state, and (3.) the coup authorization was against a government which nationalized property of at least one sufficiently exposed multinational firm with publicly traded shares. Table I shows a full list of CIA operations from Prados (2006). The highlighted operations are those that met our criteria, which limited us to 4 coup attempts. Operation Ajax in Iran in 1953 led to the overthrow of Muhammed Mossadegh. Operations PBFortune and PBSuccess in Guatemala in 1952 and 1954 respectively culminated in the overthrow Jacobo Arbenz Guzman. The US unsuccessfully attempted to overthrow the Fidel Castro government in Operation Zapata in 1961. Finally, Operation FU/Belt in Chile, which began in 1970 with a failed assassination attempt of Salvador Allende, contributed to Allende's overthrow in the 1973 coup.

3.2 Company Selection

We select our treatment companies based upon exposure to nationalization. We follow a four stage procedure. We first examine all the nationalizations in the timelines. If companies are mentioned by name, we include them. Second, we augment this list with lists of nationalized companies from Congressional testimony¹. Third, we use only publicly listed companies. We obtain lists of publicly listed companies from CRSP for companies listed in US stock exchanges and from the New York Times for companies listed on foreign exchanges². Lastly, we only include companies with

¹The US Congress held hearings on Chilean and Cuban nationalizations of assets held by US based multinationals in 1974.

²The Anglo-Iranian Oil Company is listed on the London Stock Exchange.

accessible exposure data. We compute exposure as the value of assets in the foreign country divided by value of outstanding shares. We use data on gross investments where available and value of nationalized assets where not available.

We calculate asset exposures using a variety of sources. For Iran, there is only one company. We use compensation amounts reported in Bamberg (2000). For Guatemala, there is also only one company. We obtained the United Fruit shareholders reports from 1953 and 1954. We also used additional compensation amounts reported in Gliejses (1991). For Cuba, the department of justice maintains a list of all property claims made by U.S. nationals against the Cuban government. We use the amounts claimed in this list to calculate exposures of U.S. corporations in Cuba. For Chilean companies, we use expropriation amounts listed in Baklanoff (1975). Details are in appendix B.

For each company, we collect a time series consisting of the closing price, a value weighted index of the New York Stock Exchange, and the three digit SIC industry code. We also extract the closing prices of all companies in the same three digit industry as the treatment company which were listed continuously during both the pre-event window and the event window.

In our robustness section, we consider two alternative selection rules for companies. First, we consider the top 10 most exposed, in total assets rather than percentage terms. In Guatemala and Iran, only one company was affected. In Chile and Cuba, only some are publicly traded and thus available on CRSP. In total, this specification adds 8 companies, all of which are listed in Table II. Second, we consider country portfolios of all companies which were listed as having met with the CIA and which had over 15% of their assets exposed. In comparison with our baseline where we consider the most exposed connected company in the nationalizing country, this specification adds only one company, ITT in Cuba.

3.3 Event Selection

Our primary sources of events are timelines reconstructed directly from declassified CIA sources by official historians. A timeline for Operation Ajax in Iran was constructed by the New York Times on the basis of the internal CIA history of the Iran operation written by Wilber (1954)³ and declassified in 2000⁴. In the case of Guatemala, the CIA itself did an internal timeline of the operation, which we used⁵. The Bay of Pigs timeline⁶ comes from the National Security Archives, housed at George Washington University, which has filed virtually all of the Freedom of Information Act (declassification) requests regarding Cuba and the CIA. For FU/Belt in Chile, we used the timeline constructed by the Church Committee, which was a committee set up in 1975 by the US Senate to investigate foreign intelligence operations⁷. The Church Committee Report, which was recently declassified, included a timeline of events based upon top-secret CIA documents for Chile.

We first extract all of the authorization events from the official timelines. These are restricted to events where either a coup was explicitly approved by the head of a government (the President of the United States or the Prime Minister of the United Kingdom) or the head of an intelligence agency (the CIA or MI6) or where US \$1 million or more was allocated to the overthrow of a foreign government. Authorization events are coded as “good”(+1) or “bad”(-1) depending on whether they increase or decrease the likelihood of a coup. Our selection and coding of authorization events is presented in Table III.

We also extract public events from the official timelines for use as controls in some specifications. Public events are restricted to dates where company assets are nationalized or regime transitions and consolidations occur. The public events are coded as “good”(+1) or “bad”(-1), where “good” events are those which are likely to increase

³ Available at <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB28/>

⁴ Available at <http://www.nytimes.com/library/world/mideast/041600iran-cia-index.html>

⁵ Available at <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB4/>

⁶ Available at <http://www.gwu.edu/~nsarchiv/bayofpigs/chron.html>

⁷ Available at <http://foia.state.gov/Reports/ChurchReport.asp>

the stock price and "bad" events are ones which are likely to cause a decline in the stock price⁸. The public events and their coding are listed in Table IVA; Table IVB lists the dates of the regime changes themselves.

4 Methodology

Our main hypothesis is that authorization events should result in an increase in the stock price of the affected company over the days following the event. In contrast to public events, we expect stock price reactions to top-secret events to diffuse slowly. There are multiple reasons for slow and steady stock price reactions to private information. First, the information may itself slowly take time to diffuse. Second, there may be secondary trading or momentum; traders may update based upon previous price increases. Third, traders may be cautious and wait to see if other investors are trading on the private information (Allen *et. al.*, 2006). For this reason we look at windows of different lengths around the authorization events. Our benchmark specification is a 4 day window starting at the event date.

In this paper, we employ two different estimation strategies. The first, which we call the "regression method" or "in-sample method", includes the contemporaneous market return as a control along with dummies for contemporaneous authorization events in a single specification where the dependent variable is the raw stock return. Our second approach is the event-study methodology originally developed by Fama, Fisher, Jensen and Roll (Campbell *et al.*, 1997; Fama *et. al.*, 1969). We first estimate abnormal returns using a pre-event sample, where abnormal returns are returns in excess of what would be predicted in a simple linear market model. We then calculate the mean cumulative abnormal returns for a number of days after each event, and test to see if it is significantly different from 0. We refer to the second approach as the

⁸The authorization events are coded as "good" or "bad" for the coup because we want to test whether what was good for the coup was good for the company. In contrast, the public controls are coded as "good" or "bad" for the company to control for events which could be correlated with stock price rises or falls.

“out of sample method”, referring to the fact that the abnormal returns are calculated using a sample of stock market returns from before the authorization events.

4.1 Regression Method

For the regression method we estimate the following equation with OLS:

$$R_{ft} = \alpha_f + \beta_f R_{mt} + \gamma_k D_{ft}(k) + \epsilon_{ft} \quad (1)$$

R_{ft} is the one day raw stock return for firm f between date $t - 1$ and date t , R_{mt} is the one day New York Stock Exchange index return between date $t - 1$ and date t and $D_{ft}(k)$ is a k -day dummy variable which takes on a value of one on an authorization day and for the $k - 1$ days following an authorization day. The average daily abnormal return over the k days after an event (inclusive) is γ_k . The cumulative abnormal return is $k\gamma_k$ ⁹, the average abnormal return times the event window length. We consider values of k ranging from 1 to 15. Our sample is the time period starting exactly one year before the nationalizing regime comes to power until exactly one year after the end of the coup. The standard error for the cumulative abnormal return is given by the standard error on the regression coefficient multiplied by the length of the window. Except where noted, we report heteroskedasticity-robust standard errors.

4.2 Out of Sample Method

The out of sample method first estimates a market model in an “estimation window” that is prior to any coup-related events. To purge our estimation window of potential contamination from forthcoming political change, our estimation window is one calendar year in length and begins 2 years before the nationalizing regime comes to power. We use the same estimation window for all events within a country.¹⁰ For

⁹Note that this is a standard approximation to $(1 + \gamma_k)^k - 1$

¹⁰The number of trading days differ in the estimation window. Chile has 235 days; Cuba has 250 days; Guatemala has 282 days; and Iran has 260 days. Guatemala has more trading days because

each firm, we estimate:

$$R_{ft} = \alpha_f + \beta_f R_{mt} + \epsilon_{ft} \quad (2)$$

Using the estimated coefficients from (2), we calculate the abnormal returns around our authorization events as the difference between the actual and predicted returns for a given date:

$$A\hat{R}_{ft} = R_{ft} - \hat{\alpha}_f - \hat{\beta}_f R_{mt} \quad (3)$$

As above, we consider windows after the authorization events of length k , where k is between 0 and 15 days. We take the average abnormal return over the k days as:

$$\frac{\sum_{t=t_0}^{t_0+k} A\hat{R}_{ft}}{k+1}$$

The cumulative abnormal return for $k+1$ days (k returns) for firm f , $CAR(f, k)$, is defined as:

$$CAR(f, k) = \sum_{t=t_0}^{t_0+k} A\hat{R}_{ft}$$

Under the assumption that, conditional on the broad market return, individual company returns are independently distributed over time, the standard error for the cumulative abnormal return for an individual event is the estimated standard deviation from the estimation window multiplied by the square root of the length of the CAR period:

$$\sigma_{A\hat{R}_f} \sqrt{k+1}$$

To compute cumulative abnormal returns for multiple events, we add up the CARs

the NYSE was open on Saturdays until September 29, 1952. Also since more trading holidays have been added over time, the number of trading days per year has decreased over time. Lastly, Anglo-Iranian traded on the London Stock Exchange during the period in question, which accounts for the lower number of trading days in comparison with Guatemala. We opted to use exactly one year for the estimation window rather than a fixed number of trading days. We experimented with both pre- and post event window data of various lengths, and the choice of estimation window does not impact our results.

across events. In most event studies, there is one event per firm. In our setup, that is not the case. However, as long as our events are independent over time within as well as across firms, we can use abuse notation and use f to index events over a set F of events with $|F|$ number of events. In this case, different events may correspond to the same firm. Then, we can compute the CAR for a group of firms:

$$CAR(F, k) = \frac{\sum_{f=1}^{|F|} \sum_{t=t_0}^{t_0+k} \hat{AR}_{ft}}{|F|}$$

and we can compute the standard error by:

$$\frac{\sum_{f=1}^{|F|} \sigma_{\hat{AR}_f} \sqrt{k+1}}{|F|}$$

5 Results

5.1 Baseline Results

In Table V, we report the cumulative abnormal returns for authorization events using window lengths ranging from 1 to 16 days. We use $(0, k - 1)$ to denote the k -day window beginning with the day of the event. We find clear evidence that stock prices react positively to authorization events using both our regression and out of sample methods. In the pooled sample, the average 4 day stock price return for an authorization event is 1.7% with a standard error of 0.7%. The cumulative abnormal returns are significant for the all-country sample from 4 day through 16 day cumulative abnormal returns at a minimum of 10% level of significance and often at a 1% level, depending upon the specification. The abnormal returns are largest between 3 and 12 days after the event, consistent with the hypothesis that private information is incorporated into asset prices with a delay.

Figure 1 provides graphical evidence on abnormal returns around an authorization event, with 95% confidence intervals shown. We compute cumulative abnormal re-

turns using the out-of-sample method aggregated across events for each of the 22 days following an event and each of the 22 days prior to an event. For the 22 days prior to the event, we aggregate backwards in time starting at the event date. Cumulative abnormal returns become significant at a 5% level on the 4th day after an event and remain significant until day 13. Moreover, the gains seem to be permanent, although not statistically distinguishable from 0 after approximately 2 weeks. Going backwards in time from the event date, however, the cumulative abnormal returns show no trends and are never significant. We conclude that there is no pre-existing trend in the stock price prior to an event, suggesting that the CIA is not authorizing coups in response to drops in the value of connected companies.

The effects for Iran and Guatemala are consistently the strongest. In both cases, the average cumulative abnormal return after 4 days is around 2.5% with a standard error of less than 0.9% using the regression method. The out of sample method's estimates are almost identical for Guatemala and smaller for Iran. The Chile estimates are slightly smaller in magnitude. The peak effect is almost 0.5% per day over a 4 day horizon. The abnormal returns for Guatemala and Iran are 0.5-0.6% per day by the day after the event and they remain that high for the first 4 days.

We do not find an effect within the Cuba subsample. There is no detectable change in the stock prices of affected companies following a decision to invade Cuba, whether made by the CIA or the President. This could in part be due to the poor planning and execution of Operation Zapata. Much of the information was leaked to the press ahead of time¹¹. Additionally, substantial errors in the Bay of Pigs planning and implementation may have made investors rightfully skeptical about the likely success of the operation.

¹¹ "Kennedy reads the [NYT] story he exclaims that Castro doesn't need spies in the United States; all he has to do is read the newspaper" (Wyden, 1979)

5.2 Robustness

We perform a number of robustness checks. All are estimated both in the pooled sample and by country. We compute cumulative abnormal returns over a 4 day period following an authorization event. All specifications are estimated using the regression method.

5.2.1 Public Events and Media Coverage

Top-secret decisions to overthrow foreign governments may have coincided with public events in the targeted countries. This could bias our estimates, reflecting the effect of public news rather than private information. We control for other events in two different ways. First, we control for the number of articles in the NY Times mentioning the country by name. Second, we control for other public events; these are nationalizations of foreign owned property as well as electoral transitions and consolidations which are also listed in the declassified timelines. They are listed in Table IVA. Third, we control simultaneously for both public events and NY Times articles. Lastly, we also try dropping all dates where the NY times had at least one article on the country (Meulbroek, 1992). This is a strong test. Since most days have at least one article mentioning any given one of our countries, we lose most of our sample in this specification.

Table VI reports 4-day cumulative abnormal returns. We find that controlling for public events and New York Times articles does not affect our results. The average aggregate effect for a 4-day period in the pooled sample is between 1.7% to 2.4% and significant at the 1% level, depending on the specification. This is true even when we restrict to days with no New York Times articles about the relevant country. Our results by country are largely similar to those from the baseline specifications. One exception is the estimate for Cuba on the sample restricted to days where the New York Times had no coverage of Cuba. In this case, the coefficient rises substantially to 1.7%, but remains insignificant. This is perhaps indicative that top-secret events

had a larger impact when they were surprising, i.e. not already anticipated and leaked by the press.

5.2.2 Other Robustness Checks

Our benchmark specification (Column 2 of Table VI) shows that abnormal returns were positive and significant in the four days following authorization events. However, this could be due to downturns in the broad market or to positive industry shocks. To show that the positive abnormal returns reflect changes in company-specific returns, we consider a number of robustness specifications.

First, we consider raw returns, unadjusted by a market return, reassuring us that our cumulative abnormal return effects are due to increases in the treatment company stock prices rather than drops in the market. Column 1 of Table VII shows a 4-day cumulative abnormal return of 1.96%, even slightly higher than in our benchmark specification.

To control for potential serial correlation in returns, we cluster on month¹². As can be seen in Column 2, this reduces our standard errors across most specifications but does not alter any of our qualitative results relative to our benchmark (Column 2 of Table VI).

We control for industry returns by first constructing an equal-weighted basket of returns for all companies in the same 3-digit industry as our treatment companies. We exclude the treatment companies themselves, and otherwise restrict the basket to companies which were listed in CRSP for the entire event window period for the treatment company in question. We then regress the returns of the treatment company on the NYSE index returns, the authorization events, and the equal weighted industry index returns. Column 3 of Table VII shows the estimates from this specification, and again the effect is unchanged.

¹²We also estimated but did not report our benchmark specification with Newey-West standard errors. Our results are robust to different assumptions about patterns of serial correlation of the error term.

We also consider two placebos, reported in columns 4 and 5 of Table VII. We regress NYSE index returns on our event dummies. We also regress our equal-weighted baskets of industry returns on country-specific NYSE index returns and the authorization event dummies. The 4 day abnormal returns are small and insignificant in all of the samples, both with the NYSE returns as the dependent variable and with the industry returns as the dependent variable with the exception of the NYSE returns for Cuba. NYSE abnormal returns are significantly positive at the 5% level in the days following authorization events, reinforcing the role of public leaks of information surrounding the Bay of Pigs planning.

We consider two other specifications where we look at a broader set of companies, reported in columns 6 and 7 of Table VII. First, we construct an equal-weighted basket of all companies within a country who (1.) met with the CIA and (2.) held 15% or more of their assets in the nationalizing country. Our results in this specification are similar to our baseline results. This is unsurprising since our sample in this specification is the same as in our baseline with the exception of the addition of ITT to the country portfolio in Cuba. In our second specification, we consider all publicly listed companies in the top ten most exposed companies operating within the nationalizing country. Here we use gross asset exposure rather than exposure as a percentage of total assets. This leaves us with 13 companies in total, listed in Table II. The 4 day abnormal returns for Chile and Cuba are both negative and not significant at the 10% level. This is consistent with the hypothesis that only companies which were both large and highly exposed would react to authorization events.

One potential explanation for our findings is pre-existing market momentum. We include a dummy that is equal to 1 in a 20 day window around each authorization event. This specification tests whether the abnormal returns are higher in the 4 days right after an authorization than in the average of the 20 day period surrounding each authorization event. Column 8 of Table VII shows that the four-day abnormal return is 2.10% and is significant at the 1% level, even higher than in our benchmark. Pre-existing price trends do not explain our results.

5.3 Time-Shifted Placebos

As additional evidence that our effects are not an artifact of the data, we rerun our main specification on placebo dates. We take our 4 day cumulative abnormal returns and shift our authorization events forwards as well as backwards by 5, 10, 15, 20 and 30 days. For a k day shift, we estimate:

$$R_{ft} = \alpha_f + \beta_f R_{mt} + \gamma_k D_{ft+k} + \epsilon_{ft} \quad (4)$$

Out of the 11 time-shifted regressions, γ_k is only significant for $k = 0$, our benchmark specification with cumulative abnormal return of approximately 1.7% which is significant at the 1% level. The cumulative abnormal returns 5 days or 10 days before an authorization event are zero to a tenth of a percentage point. The two largest of the remaining ten abnormal returns are the ones for $k = 30$ and $k = 5$. Both are between 0.6% and 0.7%. All other abnormal returns are well below 0.5%. The placebo estimates reinforce that our baseline estimates are due to local serial correlation in returns. The pattern of no abnormal returns before a decision, sizeable abnormal returns just after a decision, and smaller possible abnormal returns in the medium run after a decision is consistent with our hypothesis of secret authorization events causing a slow increase in the stock price.

5.4 Coup Effects

We now estimate abnormal returns, using the regression method, for coup attempts. We do this for two reasons. First, we want to show that these companies were affected by the coup attempts themselves, confirming that companies were benefitting from the anticipated regime change. Second, we want to compare the direct effect of the coup itself to the total net rise due to pre-coup authorizations.

We look at 3 specifications: abnormal returns on the first day of the coup, abnormal returns on the first day of the new regime, and abnormal returns during the coup

window. We define the coup window as the period from and including the first day of the coup to and including the first day of the new regime. For Cuba, which was unsuccessful, the coup window is the duration of the Bay of Pigs operation, as given in the CIA timeline. These dates are listed in Table IVB.

We calculate cumulative abnormal returns over the coup window for each country. Our results are large and significant. The average cumulative abnormal return across companies is 5.03% over the coup window. The individual company average abnormal returns vary from United Fruit in Guatemala which had zero rise on average during the coup window to Anaconda in Chile which experienced a 4.64% increase in its stock price. Anaconda's large increase in its stock price was partially due to the fact that the coup happened quickly and was consolidated essentially immediately; this is different from our 3 other coups where it took longer for the overthrow to succeed or fail. Cuba's abnormal returns were negative because the coup failed. This suggests that the possibility of a coup against the Castro regime in Cuba had already been priced into American Sugar's stock. Anglo-Iranian oil had a large increase over the coup window. It is 8.57% and significant at the 10% level. The insignificant estimate for Guatemala is perhaps due to the high degree of political uncertainty following the coup. When the Arbenz government finally resigned on June 28, 1954, there was still speculation about whether the coup would be successful. Also, in the 11 days after the fall of the Arbenz regime, 5 separate juntas gained control of the government (Gleijeses, 1991).

We consider two other measures of the effect of the coup: the abnormal return on the first trading day of the coup and the abnormal return on the first trading day of the new regime. The average abnormal return across companies on the first day of the coup was approximately 2.23% and significant at the 1% level. In both Chile and Cuba, the returns were significant at the 10% level or higher. The abnormal returns in Cuba were positive, perhaps indicating that markets expected the coup to be successful on the first day. The abnormal returns on the first day following the coup attempt (whether or not it was successful) are large for all companies, with

an average abnormal return of 3.46%, Anglo-Iranian at 2.06%, American Sugar at -3.73%, United Fruit at 3.73% and Anaconda at 4.64%.

6 Small Sample Distribution Tests

Distributions of returns are often non-normal. In small samples, this can distort test size. Instead of the canonical t-tests, common alternatives in finance include the nonparametric sign and rank tests (Corrado and Zivney, 1992). Both tests depend on the percentile of the cumulative abnormal return from an event, rather than the mean and thus perform better in the presence of non-normal error term distributions.

Guidolin and La Ferrara (2007) provides a more detailed summary of the sign and rank tests. The sign test assigns events +1 or -1 depending upon whether the cumulative abnormal returns after an event are above or below the median. The sign test divides the sum of the event signs by the estimated standard deviation of the sum from the estimation window. The resulting test statistic is asymptotically distributed according to a unit normal, but simulations have shown it to have faster small sample convergence properties to the normal in comparison with standard t-tests.

While the sign test is a definite improvement over t-tests in small samples, it still relies on asymptotic justifications. The small sample convergence properties of the sign test are only verified through simulations and thus the speed of convergence may depend upon the distribution of returns. However, our framework allows us to implement a test with correct size in small samples. When testing the impact of a single event on multiple companies, it is sensible to control for intra-day correlation in returns across companies. However, when each event occurs on a different day, this is not necessary. Since all of our events occur on different days, we do not need to take intra-day correlation in returns across companies into account. This allows us to construct small sample tests from the exact distribution of signs and ranks which do not depend on any asymptotic approximations to sample size.

6.1 Generalized Binomial Test

We create a test based upon the Binomial distribution to supplant the sign test. First, we generalize the sign test by considering not only the distribution of the number of events above the median estimation window return but the number of events above any given percentile of estimation window returns. Let $p(x)$ denote the percentile of x in the distribution of cumulative abnormal returns. We define:

$$G_{ft}(k, p) = \begin{cases} = 1 & \text{if } CAR(f, k)_t - CAR(f, k)^p > 0 \\ = 0 & \text{if } CAR(f, k)_t - CAR(f, k)^p \leq 0 \end{cases}$$

where $CAR(f, k)_t$ is the k -day return of firm f starting at date t and $CAR(f, k)^p$ is the p^{th} percentile of k -day abnormal return in the estimation window.

The Binomial test is a small sample test corresponding to the sign test which is implementable when events are distributed identically and independently of one another. The probability of observing at least m cumulative abnormal returns of k -day length above percentile p is given by:

$$P \left(\sum_f \sum_{t \in E_f} G_{ft}(k, p) \geq m \right)$$

where the set E_f indexes the event dates for firm f .

When cumulative abnormal returns are independently distributed across companies and events, the joint probability of getting at least m events higher than the p^{th} percentile is given by the Binomial distribution:

$$F_M(m; p) = 1 - \sum_{i=m}^M \binom{M}{i} p^i (1-p)^{M-i} \quad (5)$$

where M is the number of events. Without loss of generality, we assume that $p \geq .5$. Then, due to the symmetry of the Binomial distribution, the two-sided probability

of getting m or more abnormal returns above the $1 - p^{th}$ percentile or below the p^{th} percentile is given by

$$2 \left(1 - \sum_{i=m}^M \binom{M}{i} p^i (1-p)^{M-i} \right)$$

This is the p-value of the two-sided generalized Binomial test.

When we perform this test, we assume that we observe the true p^{th} percentile return of the underlying distribution. In fact, however, we estimate the p^{th} percentile return, potentially distorting our test size. Moreover, we estimate the p^{th} percentile return based upon the same sample within a country and with differing estimation window sizes¹³. Therefore, we compute our p -values in two different ways. Besides calculating the p -value using equation(5), we also simulate our test statistic with 50,000 replications as follows.

First we draw T_C returns and then M_C additional returns, where T_C is the estimation window sample size of four day returns for country C and M_C is the number of events in the country. The returns are drawn from a continuous uniform distribution¹⁴ for each country. We then estimate the p^{th} percentile return from the T_C draws. Next, we count $m_C(p)$, the number of event returns above the p^{th} percentile of estimation window returns. We do this for all four countries and then compute the average number of event returns above the p^{th} percentile:

$$\frac{\sum_C m_C(p)}{M}$$

where M , the number of events, is equal to $\sum_C M_C = M = 14$. We replicate this procedure 50,000 times, simulating the empirical distribution.

¹³The differing estimation window sizes come from the differences in number of trading days over time and between the U.S. and the U.K.

¹⁴The Binomial test can be shown to be independent of the distribution of the return draws. A proof of this is available from the authors upon request.

6.2 Uniform Rank Test

Related to the sign test is the rank test, which assigns a rank rather than a sign to each event's cumulative abnormal return relative to the cumulative abnormal returns in the firm's estimation window. Under a null hypothesis that return rank is identically and independently distributed across events, the rank test divides the mean rank for event abnormal returns by the standard deviation of the mean rank across firms over estimation windows. Again, this ratio is asymptotically unit normally distributed with rapid small sample convergence properties.

Parallel with the Binomial test developed above, we construct an analogue of the rank test exploiting the independence of companies and events.

Following the standard rank test (Corrado, 1989; Campbell *et al.*, 1997), we rank each of our events relative to the distribution of abnormal returns in the estimation window. We then convert the rank into a percentile. Noting that, for i.i.d. variables, percentile is uniformly distributed, we compute the CDF for the sum of the percentiles of M independently and uniformly distributed random variables over the interval $[0, 1]$ ¹⁵. The probability, given M events, that the mean percentile is below m is given by (Mood, Graybill and Boes, 1974):

$$F_M(m) = \sum_{f=0}^M \left(\frac{(-1)^f (m-f)^M \mathbf{1}(m \geq f)}{f!(M-f)!} \right) \quad (6)$$

Without loss of generality, we assume that $m \geq .5$. Given symmetry of the cumulative distribution function, the p -value of getting a percentile rank greater than m or less than $1 - m$ is then

$$2 \left(1 - \sum_{f=0}^M \left(\frac{(-1)^f (m-f)^M \mathbf{1}(m \geq f)}{f!(M-f)!} \right) \right)$$

As with the Binomial test, we derive test statistics using the analytical equation from

¹⁵This test was suggested, but not pursued, by Corrado, 1989.

(6); however, we also simulate the distribution of returns in order to calculate the average ranks. Instead of computing whether each event is above the estimated p^{th} percentile of estimation window draws, we compute the event's cumulative abnormal return's rank relative to the estimation window draws.

6.3 Small Sample Distribution Results

We compute small sample tests for our benchmark of 4 day returns. We report the Binomial Test results in Table X. Though we report both the computed and the simulated small sample tests in the tables, we only report the computed ones in the text. The probability of getting 11 out of 14 cumulative abnormal returns either all above the median or all below the median (i.e. two-sided test) is 5.74%. If we exclude Cuba, then we have 9 out of 11 above the median with a two-sided p-value of 6.54%. P-values for the 90th percentile are 0.30% for the 4 country sample and 0.06% for the 3 country sample. Again, all results are for 4-day cumulative abnormal returns.

Figure III reports 3 and 4 country Binomial Tests at the 50th, 60th, 70th, 80th, and 90th percentiles. For both samples, the p-values drop for higher percentile returns, which provides strong evidence that our event cumulative abnormal returns are strong outliers.

Table XI reports results for the uniform rank test. We have 14 events in our 4 country sample, and 11 events in our 3 country sample. The mean percentile rank for the 14 event 4 country sample is the 70th percentile with a p-value of 0.09% and the mean rank for the 11 event 3 country sample is the 76th percentile with a p-value of 0.34%. Figure IV shows the distributions of the computed and simulated percentage return ranks along with the 4 country average percentage rank. The computed and simulated distributions are very similar to each other and the 4 country average percentile rank is a strong outlier in both distributions.

Returning to Table X and the country specific effects, we find that for Iran, all 3 events have abnormal returns above the median abnormal return. Two of the 3 Iran

events are above the 90th percentile in abnormal returns. Guatemala is similar with all 4 abnormal returns being above the median and 3 out of 4 being above the 90th percentile in abnormal returns. With Chile, 3 out of 4 are above the median and one out of 4 is above the 90th. Finally, for Cuba, only one out of 3 are above the median and none are above the 90th percentile.

The country specific results from the Uniform Rank test are in Table XI. The mean percentage ranks for both Iran and Guatemala are 0.86. The probability of the mean return being at least at the 86th percentile or at most at the 14th percentile, in the case of Iran which has 3 events, is 2.47%. The p-value for Guatemala, which has 4 events, is 0.82%. Cuba looks essentially random with a rank of 0.49 percentile and a two-sided p-value of 95.5%. The mean percentage rank for Chile is 0.57 which, given 4 events, yields a p-value of 63.98%. These small sample tests show that our conclusions do not depend on large sample approximations.

7 Interpretations

In the previous sections, we presented estimates of the average impact of coup authorizations on stock market returns. In this section, we interpret the estimated magnitudes in two ways. First, we compare the magnitude of the total percentage change in the stock price due to authorizations with the percentage change from the coup itself. Second, we fit a simple model of asset price determination with our estimated impact of coup authorizations and back out implied changes in prior market probabilities of the coup attributable to authorization events.

7.1 Decomposition

We use our estimates of authorization events and coup effects to calculate an overall value of the coup to our treatment companies. This incorporates both the change in the asset prices during the actual coup as well as due to authorization events. If

we only look at the stock returns at the time of the coup, we ignore the probability of a coup already embedded in the stock price. Therefore, the change in the value of the company over the coup window is likely to be an underestimate of the value to the company of the coup. We compute the value of the coup to the company by adding the change in the stock price over the coup window to the net changes in the value of the companies from the authorizations. We use the country-specific 13 day cumulative abnormal returns in order to compute the value per authorization for each country. The longer window is used in order to capture the full asset price change due to a leaked authorization. The total rise in the stock price due to authorizations is then just one plus the return to an authorization raised to the power of the net number of events¹⁶ plus the return over the coup window:

$$(1 + R_{C,Auth})^N (1 + R_{Coup}) \quad (7)$$

where $R_{C,Auth}$ is the thirteen day¹⁷ cumulative abnormal return in country C , N is the net number of authorization events, and R_{Coup} is the cumulative abnormal return in country C on the first day of the new regime. We use the return on the first day of the new government because, due to the length of the coup in Guatemala and the ensuing political instability after the end of the Arbenz regime, there is no net positive change in the stock price over the exact coup window. If we use either of the alternative two definitions of the effect of the coup, our estimates for the relative gain from authorization events are even greater.

The results are listed in Table XII. It is not possible to estimate the value of a coup when the coup attempt failed. Therefore, we can not interpret our calculations for Cuba as a value of the coup, though we can still look at whether the change in stock price was larger from authorization events or from the failed coup. Because of

¹⁶In Guatemala, one of the events is a deauthorization or a negative event. Therefore, the total number of net events in Guatemala is the number of positive events, 3, minus the negative event, which results in 2 net events.

¹⁷We also tried decomposing the aggregated coup returns using 4-day returns as well as 7-day returns. Even using 4-day returns, net stock price changes from pre-coup authorizations were greater in magnitude than coup events themselves in all countries except for Cuba.

the interpretational difficulties surrounding inclusion of Cuba for this decomposition exercise, we only report numbers for Chile, Guatemala and Iran (Top 3) in the paper. Overall, the average total gain from authorizations is 12.01%, and the mean return on the first day of the post-coup regime is 3.48%. The majority of the gains from coups, 77.55% in the Top 3 sample, occurred solely as returns to ex-ante authorization events. By country, the total gain from authorizations alone ranges from 6.36% in Guatemala to 17.09% in Iran. The return from the coup itself ranges from 3.73% in Guatemala to 4.64% in Chile. The total gain from the coup ranges from 10.33% for Guatemala to 19.50% in Iran. We compute that the relative percentage benefit of the coup attributable to ex-ante authorization events ranges from 63.03% in Guatemala to 73.21% in Chile and 89.24% in Iran. In other words, estimating the benefit of the coup simply from looking at the change in the stock price during the coup window leads to a large underestimation of the value to the companies of the coup.

7.2 Model Simulations

7.2.1 Model Setup

Whereas total abnormal returns from coup authorizations are larger than total returns from the actual coup events, both may represent only a small fraction of coup-related stock price changes. Public events which increase the probability of a coup may account for most of the stock price increases. We construct a simple model of stock market price determination for firms with nationalized assets and a time varying probability of a coup. We use this model to back out the implied changes in the market's subjective probability of a future coup from leaked authorization events.

We assume that investors are risk-neutral, know the exact date of the coup, and share common beliefs at all times about the probability of a successful coup. We consider the asset price of a stock at date $-t$: t days before the coup attempt. The date of the coup is normalized to date zero. At date j , the coup is believed to be successful with probability p_j . The rate of time discount is β . At date $t-t$, the dividend is

$(1 - \xi) d$ where d is the dividend and $\xi \in (0, 1]$ is the fraction of the asset which has been nationalized. The dividend grows at rate γ per period. In the absence of asset expropriation, the firm issues dividends of $d(1 + \gamma)^{t+\tau+1}$ ¹⁸.

If the coup is successful, the expropriated asset gets restored forever. The dividend in period t if the coup is successful is then $d(1 + \gamma)^{t+\tau+1}$. If the coup is unsuccessful then the dividend is just $(1 - \xi) d(1 + \gamma)^{t+\tau+1}$. Whether the coup is successful or unsuccessful, we assume that the effects are permanent. If the coup succeeds, the dividends are restored in perpetuity and if the coup fails, the dividends permanently remain at the expropriated level.

The value of the stock at date $-\tau$ then is the discounted sum of dividends before the coup plus the probability of a successful coup times the discounted sum of dividends given a successful coup from the coup date onwards plus one minus the probability of a successful coup multiplied by the discounted sum of dividends given an unsuccessful coup:

$$S_t = (1 - \xi) \sum_{t=-\tau}^{-1} \beta^{t+\tau+1} d(1 + \gamma)^{t+\tau+1} + p_{-\tau} \sum_{t=0}^{\infty} \beta^{t+\tau+1} d(1 + \gamma)^{t+\tau+1} + (1 - \xi)(1 - p_{-\tau}) \sum_{t=0}^{\infty} \beta^{t+\tau+1} d(1 + \gamma)^{t+\tau+1}$$

We can now derive an expression for the percentage change in the stock price:

$$\frac{S_{-\tau+1} - S_{-\tau}}{S_{-\tau}} = \frac{\xi [\beta(1 + \gamma)]^{\tau-1} [p_{-\tau+1} - p_{-\tau} \beta(1 + \gamma)] + \gamma}{1 + p_{-\tau} \xi [\beta(1 + \gamma)]^{\tau}} \quad (8)$$

Solving for the change in the probability of the coup between dates $-\tau$ and $-\tau + 1$, we get:

$$p_{-\tau+1} - p_{-\tau} = \frac{1}{\xi [\beta(1 + \gamma)]^{\tau-1}} \left[\frac{S_{-\tau+1} - S_{-\tau}}{S_{-\tau}} - \gamma \right] - p_{-\tau} [1 - \beta(1 + \gamma)(1 + \Delta S)]$$

¹⁸The fact that the change in the imputed probability is larger when the date of the coup is farther in the future is a consequence of stationarity of the discounted dividend stream (i.e. $\beta(1 + \gamma) < 1$).

The intuition for this expression can be captured by the following approximation (which is exact when $\beta(1 + \gamma)(1 + \Delta S) = 1$ or when $p_{-\tau} = 0$):

$$p_{-\tau+1} - p_{-\tau} \approx \frac{1}{\xi [\beta(1 + \gamma)]^{\tau-1}} \left[\frac{S_{-\tau+1} - S_{-\tau}}{S_{-\tau}} - \gamma \right] \quad (9)$$

The change in the probability of the coup can be backed out from the abnormal stock return which is given by the term in brackets: the difference between the stock price change and the normal rate of return. Therefore, from equation (9), we can interpret the change in the probability of a coup as an exposure adjusted and discounted abnormal return.

7.2.2 Numerical Evaluation

We now numerically evaluate the model. We back out implicit changes in probabilities of a successful coup from an average authorization event for a company. We assume that $p_{-\tau}$ is close to zero¹⁹. Then, $\frac{S_{-\tau+1} - S_{-\tau}}{S_{-\tau}} - \gamma$ is just the estimated abnormal return which we take from Table V. For the sake of consistency, we choose the the estimated abnormal return over a thirteen day horizon. We compute $\tau - 1$ as the average number of days before the coup for a private authorization event. Since both Chile and Guatemala had failed coup attempts, we incorporate the days before the expected coup date in each event. We assume β to be 0.95 annually; however, since some of the events occur shortly before the coup, we do our computations in days rather than years and so we compute a daily equivalent for an annual β . γ is computed as the average daily rate of return for the market (New York stock exchange index return) in the estimation window. Finally, ξ is the exposure of a company, as defined in the data section and Appendix 2.

For Anaconda in Chile, the imputed change in probability from a coup authorization is on average 4%. The implied average change in probability from an authoriza-

¹⁹This assumption does not have a large effect on our calibration. Note that if we assume that $p_{-\tau} \approx 0\%$, then our simple formula holds. However, if we assume $p_{-\tau} \approx 100\%$, then imputed probabilities change by at most 4%.

tion/deauthorization in Guatemala is approximately 14%. For the Anglo-Iranian Oil Company, it is slightly lower at 11%. Guatemala's high imputed probability changes are due to the large cumulative abnormal returns after an authorization event, the short window between the authorizations and the coup, and the relatively low exposure. Anaconda's low returns are due to a high average distance to the coup date and a somewhat lower estimated abnormal return. Finally, with Cuba, even though the mean abnormal return is positive, the exposure is so high that there is no noticeable impact on probabilities.

8 Conclusion

Covert operations organized and abetted by foreign governments have played a substantial role in the political and economic development of poorer countries around the world. We look at CIA-backed coups against governments which had nationalized a considerable amount of foreign investment. Using an event-study methodology, we find that private information regarding coup authorizations and planning by the U.S. government increased the stock prices of expropriated multinationals that stood to benefit from the regime change. The presence of these abnormal returns suggests that there were leaks of classified information to asset traders. Consistent with theories of asset price determination under private information, this information took some time to be fully reflected in the stock price.

We find that coup authorizations, on net, contributed more to stock price rises of highly exposed companies than the coup events themselves. These price changes reflect sizeable shifts in beliefs about the probability of coup occurrence.

Our results are robust across countries, except Cuba, as well as to a variety of controls for alternate sources of information, including public events and newspaper articles. The anomalous results for Cuba are consistent with the information leaks and inadequate organization that surrounded that particular coup attempt. Our results are consistent with evidence in political science that business interests exert

disproportionate influence on foreign policy (Jacobs and Page, 2005), as well as historical accounts which suggest that protecting foreign investments was a motivation for undertaking regime change (Kinzer, 2004). However, further empirical research is needed to uncover whether or not economic factors were decisive determinants of U.S. government decisions to covertly overthrow foreign governments.

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Appendix A: Historical Background on each Coup

Iran 1953

"Anglo-Iranian Rises on News of Mossadegh's Fall" - August 20, 1953
New York Times Headline.

In 1951, Muhammed Mossadegh campaigned for prime minister on a platform of ending British ownership of Iranian oil. The Iranian parliament (the Majlis) had passed a measure supporting nationalization on March 25, 1951. Mossadegh was elected Prime Minister by the Majlis on April 28, 1951. His assumption of power on April 28 was followed quickly by a nationalization of Anglo-Iranian oil assets on May 1, 1951. Initially commanding a great deal of popular support, Mossadegh threatened the power of the Shah. The Shah dismissed Mossadegh on July 18th, 1952, only to reinstate him 5 days later after a barrage of popular protest. However, support for Mossadegh fell by the middle of 1953. The Truman administration had attempted to broker a deal between the British and the Iranian government. With the advent of the Eisenhower administration, however, the U.S. government's interests in overthrowing Mossadegh increased. In late 1952, the British MI6 found an ear receptive to the idea of overthrowing Mossadegh in Allen Dulles, and final coup plans were jointly approved by the CIA and MI6 on June 18, 1953.

Churchill approved the coup plan on July 1, 1953, with Eisenhower's endorsement following 10 days later. The United States and the United Kingdom spent hundreds of thousands of dollars on lobbying politicians and hiring crowds of demonstrators (Gasirowski and Byrne, 2004). They also convinced the Shah to dismiss Mossadegh and assume power directly. On August 16th, the coup began, but failed owing to logistical and planning problems. However, anti-Mossadegh protests and violence over the next few days culminated in Mossadegh's overthrow on August 19, 1953.

Guatemala 1954

“The overthrow of the Communist-dominated government of Guatemala, while causing a cessation of shipments from that country for period of about 3 weeks, was a decidedly favorable development which will have far-reaching effects in the future.”- 1954 United Fruit Shareholder’s Report

Guatemala has been historically marked by a high degree of political and economic inequality (Mahoney 2002, Dunkerley 1985). The center-left Arevalo regime that came to power in 1945, following the first free elections in the country, immediately provoked the anger of the coffee planters by striking down the most repressive of the labor regulations. The 1951 successor government, led by Jacobo Arbenz, had a policy platform centered around a comprehensive land reform and modernization plan. The leftist government thus threatened both the domestic coffee landlords as well as the United Fruit company, which owned over 40% of Guatemala’s land, along with all the banana processing plants, virtually all of the shipping ports, and most of the railroads in the country (Gleijeses, 1991).

On June 17, 1952, the agrarian reform bill was passed, and redistribution began on August 7 of the same year. The land reform bill also encouraged peasant land occupations, which were violently suppressed by landowners. On December 12, 1952, workers at the Tiquisate plantation filed for 55,000 acres to be expropriated from United Fruit under the agrarian reform bill. United Fruit petitioned the Supreme Court, which demanded a stay on all land confiscation and redistribution. In response, the Arbenz-dominated congress voted to impeach the Supreme Court. On February 25, 1953, the Guatemalan government expropriated 234,000 more acres from United Fruit, and subsequently another 173,000 acres in the following year.

The United States foreign policy establishment, prodded by United Fruit’s intense public relations and lobbying effort, reacted to the 1952 implementation of the Arbenz land reform as evidence that the country was becoming communist. Allen Dulles, then Deputy Director of the CIA, promoted the coup vigorously to Director of Central

Intelligence (DCI) Walter Bedell Smith and President Harry Truman (Schlesinger and Kinzer, 2005). On August 18, 1952, Operation PBFortune was approved by Bedell Smith, only to be halted on October 8, 1952, as potential leaks of the coup plot were discovered. However, with the advent of the Eisenhower government, Allen Dulles was promoted to DCI, and approved a new plan to overthrow Arbenz on December 9, 1953, and full approval was given by Eisenhower given on April 19th, 1954.

The coup was launched on June 19, 1954 when US-backed Castillo Armas and his force of 150 troops invaded Guatemala from Honduras. At first the coup was unsuccessful. After 9 days, on June 28, 1954, the Arbenz government capitulated (Immerman, 1983).

Cuba 1961

“Stock prices, like bond prices, advanced at first in sympathy, and then declined with disagreement over the unsuccessful invasion attempt. For instance, on the big board, Cuban American Sugar, largely American owned, and with some diversification in this country, rose $4\frac{3}{8}$ points to $23\frac{3}{4}$, a new high for the year, but closed on Friday at $19\frac{3}{4}$.” - April 23, 1961 New York Times article.

On January 1, 1959, the Cuban dictator, Fulgencio Batista, fled Cuba to the Dominican Republic. On January 3rd, the new government was set up and on January 8 of 1959, Fidel Castro's march through Havana signalled that the Cuban revolution was a *fait accompli*.

Following an initially lukewarm reaction from the United States, and a friendly U.S. tour by Castro in April of the same year, relations chilled quickly when Castro obtained 100 advisors from the USSR and expropriated all foreign (largely U.S.) landholdings in May, 1959. Covert plans to overthrow Castro began in the fall of 1959, modelled on the Guatemalan intervention and with many of the same CIA officers involved. On March 17, 1960, Eisenhower gave presidential approval to the CIA's plan,

and later authorized 13 million dollars towards the overthrow of the Castro regime. The date of the coup was set for August 19, 1960. The plan involved a small group of trained Cuban exiles who would invade, establish a beachhead, and draw support in the countryside, eventually deposing Castro. Publicly, the U.S. responded to the increased closeness of the Castro government with the Soviet Union by progressively increasing economic sanctions and diplomatically ostracizing the new Cuban government. In retaliation, the Cuban government nationalized U.S. held assets in Cuba starting on August 5, 1960, and continuing in October of the same year.

When Kennedy assumed power in January 1961, he authorized continuation of the CIA plan on January 30, 1961, after extensive deliberation with advisors. The Bay of Pigs invasion failed to overthrow the Cuban government, generating ample speculation as to why. Firstly, there were regular leaks of the plans to the press. The CIA had also falsely predicted a popular anti-Castro uprising following the invasion. In addition, the U.S. operation against Cuba was characterized by a large number of miscommunications and logistical errors (Gleijeses, 1995; Weiner, 2007; Prados, 2006), culminating in Kennedy's decision not to provide air support to the exile invasion force (Kornbluh, 1998; Vandenbroucke, 1984). After 3 days of fighting, the last of the invaders were captured by the Cuban military. Relations between Cuba and the United States further deteriorated, with the CIA conspiring regularly to assassinate Castro in the decades following the coup attempt.

Chile 1971-73

"Anaconda was one of those on the plus side, rising $\frac{7}{8}$ to $22\frac{7}{8}$. Its strength was attributed partly to the revolt yesterday in Chile against the Marxist government, which, in 1971, expropriated the holdings of Anaconda and other U.S. companies.".- September 12, 1973 quote from the Wall Street Journal

The Allende government that narrowly won elections on September 4, 1970 had al-

ready overcome a long series of U.S. and domestic obstacles, beginning in 1958 with Allende's first run for president. Through the Alliance for Progress program, the United States had been heavily involved with Chilean domestic politics, trying to deflate the left-wing FRAP alliance (Sigmund, 1977) and more generally create a positive example of a free-market, democratic economy in Latin America. The Christian Democrats, backed by the U.S., handily won the 1964 municipal elections, as well as the 1965 senate elections. The September 4, 1970 elections were sufficiently close that Allende's ratification as president required a congressional vote on October 24, 1970, a fact that the first U.S. plan tried to exploit.

Copper was by far the most important industry in Chile. Within 2 months of assuming office, Allende had proposed nationalizing the mines, and on July 11, 1971, the Chilean legislature approved nationalization. While domestic pressure for "Chileanization" of the large copper mines was omnipresent, the Christian Democrats favored a majority shareholder stake for the government, together with generous compensation, and retention of both foreign management and rights of control. This was in contrast to the position of Allende's FRAP, which demanded outright nationalization and a much smaller compensation package. In particular, on September 28, 1971, the government declared that the copper multinationals had been making "excess profits" since 1946, and deducted this from the compensation package.

The U.S. began plotting for a coup even before Allende formally assumed power, with Nixon authorizing an anti-Allende plan on September 15, 1970. Coup planning and funding authorization after this was delegated to the 40 Committee, which was set up in the wake of the Bay of Pigs failure in order to operate as the mediating body between the upper echelons of the executive branch of the US government and the CIA. The CIA and the State Department began two tracks in the fall of 1970; Track 1, which involved public political support for Allende's domestic opponents, and Track 2 which involved covert political operations against the government. Track 1 ended with Allende's ratification by the legislature, but "Track 2 never really ended"²⁰.

²⁰CIA officer Tom Karamessines, cited in (Weiner, pg. 315).

On January 28, 1971, the 40 committee appropriated \$1.2 million for the overthrow of the Allende regime. This was followed by an additional \$1.4 million on October 26, 1972. Finally, on August 21, 1973, a few months after Allende managed to strengthen his electoral support in the March 4, 1973 municipal elections, the 40 committee allocated \$1 million to overthrow Allende. While the true extent of CIA participation in the 1973 coup that deposed Allende is unknown, it is known that they supported and had knowledge of Pinochet's coup plan (Kornbluh, 2003). On September 11, 1973, the Allende government was toppled in a military coup.

Appendix B: Data Appendix on Company Exposures

In Appendix B, we compute exposure ratios of multinational corporate assets to nationalization by foreign governments. We use the value of outstanding shares in the estimation window as the value of the company. We also compute the value of exposed assets for each company which satisfies our selection criterion. In later years, compensation requests were made by companies to the US government. Where this data is available, we use it. In the case of Iran and Guatemala, we reconstruct asset exposures using available valuations of sub-assets held by the multinational in the country.

Iranian Companies (Anglo-Iranian Oil Company)

After the coup, the Anglo-Iranian Oil Company (AIOC) received 40% of Iran's oil assets, while the rest went to a consortium of French and American companies. While we do not know exactly how much the oil assets are worth, we can calculate the expected compensation from what AIOC asked from the consortium. Bamberg (1982, pg. 501) writes that Fraser, the negotiator for AIOC vis-a-vis the British and American governments, asked for 530 million pounds directly from Iran together with 280

million pounds from the consortium (for the AIOC assets that the consortium was getting), a total of 810 million pounds in compensation.

To compute the total value of the Anglo-Iranian Oil Company, we use 143.7 pounds sterling, the mean share price from January to May of 1950. Unfortunately, the New York Times historical records from "Bonds and Shares on the London Market" does not contain the number of shares outstanding. Nevertheless, we obtain annual share volumes from Howarth *et al.* (2007), which reports 20,137,500 shares outstanding for Anglo-Iranian from 1930 to 1953. Concomitant with the change to British Petroleum, the company split the stock by a factor of 5. This generates a market value of 2.89 billion pounds sterling.

Guatemalan Companies (United Fruit Company)

United Fruit experienced 3 episodes of land expropriation under Decree 900 of the Arbenz government. The first, in March 1953, was the only one for which compensation was formally demanded via the State department. United Fruit asked for "more than 15 million"²¹, which Gleijeses found was 19.35 million, in compensation for roughly 234,000 acres²² valued at \$83.3 each. The Guatemalan government instead offered \$610,000 in agrarian bonds, paying 3% interest over 25 years, which equals \$1.3 million in total. The total land owned by UFCO in Guatemala was 550,000 acres, including improved and unimproved lands. Assuming a constant per-acre valuation, we can calculate the value of all of United Fruits land, which we calculate to be $550,000 \times 83.3 = \$45.8$ million.

The other major asset of United Fruit in Guatemala was their ownership of railroads, which was also threatened by the Arbenz government, even though no railroads were nationalized. Part of the threat came from modernization projects (e.g. an Atlantic highway) that threatened the profitability of the railroad as a monopoly on long-distance transit. The 1954 shareholders report for United fruit lists that the total

²¹UFCO 1954 shareholders report

²²FRUS:Foreign Relations, 1952-1954, vol. IV, pp. 1056-1057 (Document 13).

value of railways and tramways was US \$29.5 million. United Fruit had 185.17 miles of railways in Guatemala, out of 1,486.31 miles total, and 43.78 miles of tramways out of 181.49 total. Thus, the fraction of their railways in Guatemala is 0.124, and the fraction of tramways is 0.241. Thus, the total rail and tramway fraction in Guatemala is 0.137. Assuming a constant value of rail and tram across countries, we get that the value of rail and tram assets in Guatemala is 29.5 million dollars. Putting these two pieces of information together, we get that the total exposure of United Fruit in Guatemala was US \$45.8 million plus US \$29.5 million, totalling \$75.3 million dollars.

Chilean Companies

We calculate the exposure of the Chilean copper companies from Baklanoff (1975), who reports the amounts claimed by each of the copper companies. For the other companies reported as nationalized, we use the NACLA "New Chile" book, which gives the value of investment in 1970 for most foreign companies and US parent percentage equity, to calculate exposure. The NACLA numbers are obtained from a variety of sources. NACLA lists both the business press (e.g. Forbes) and official Department of Commerce publications, among others. However, it is not possible to determine where each company's investment numbers in Chile comes from. We cross-check the NACLA numbers with the Congressional testimony of ITT's executives as to the worth of their expropriated investments, and find, reassuringly, that ITT's investment in Chile is listed at \$153 million by both sources.

Cuban Companies

We obtain the value of expropriated assets from Baklanoff (1975), who provides a table of the top 10 claims filed by Cuban companies to Congress in 1972, obtained from Congressional records. In order to account for inflation, we calculate the mean inflation rate between 1959 and 1972, 3% from the BLS CPI-U index, and used it to calculate the value of the assets in 1959.

TABLE I: COUP SELECTION

Project	Country	Year	Planning Docs		Description	Coups	Exprop.
			Declassified				
Ajax	Iran	1953	Yes		Coup against Mossadeq	Yes	Yes
FU/Belt	Chile	1970-73	Yes		Coup against Allende	Yes	Yes
Bloodstone	Germany	1946	No		Recruitment of Nazis	No	DK
Brushfire	US	1955	Yes		Propaganda at Universities	No	No
Camelot	Chile	1960s	No		Funded Anthro. Research	No	DK
ST/Circus	Tibet	1955	No		Trained Tibetan Rebels	Yes	No
Democracy	Nicaragua	1985	No		Anti-Sandinista Operations	No	DK
IA/Feature	Angola	1975	No		Supported Savimbi	No	Yes
Fiend	Albania	1949	No		Insurgency	Yes	DK
Fortune/PB/Success	Guatemala	1952-54	Yes		Coup Against Arbenz	Yes	Yes
PM/Forget	All over	1950s	No		Don't Know	DK	DK
Haik	Indonesia	1956/57	No		Military Support for Rebels	Yes	Yes
HardNose	Vietnam	1965	No		Disrupt Viet Cong Supplies	No	No
Momentum	Laos	1959	No		Trained Hmong in Laos	No	No
Mongoose	Cuba	1961	Yes		Post-Bay of Pigs Operations	No	Yes
Opera	France	1951	No		Electoral Manipulations	No	DK
Paper	China	1951	No		Invasion from Burma	No	No
Stole	N. Korea	1950/51	No		Sabotage	No	No
Tiger	Syria	1956	Yes		Assassination Attempts	No	DK
Washtub	Guatemala	1954	Yes		Anti-Arbenz Propaganda	No	Yes
Wizard	Congo	1960	No		Lumumba Assassination	Yes	Yes
Zapata	Cuba	1960-61	Yes		Bay of Pigs	Yes	Yes

Notes: (1.) Project is the name of the operation, (2.) Country is the target country of the operation, (3.) Year is the year when the operation was carried out, (4.) Planning documents records yes if the planning documents are publicly available, (5.) Description is a description of the operation, (6.) Coups is recorded as yes if a coup was planned as part of the operation and no otherwise, and (7.) Exprop. refers to whether or not the regime nationalized (or expropriated) property from multinational firms operating within the country, (8.) DK denotes don't know.

TABLE II: COMPANY SELECTION

Company Name	Coup Country	Expropriation Description	Source	Exprop. Value	Total Value	Exposure Ratio
Anglo-Iranian Co.	Iran	Oil	Bamberg	810	2,607	0.280
United Fruit Co.	Guatemala	Land	Gleijeses	75	441	0.171
American Sugar Refining Co.	Cuba	Land	Baklanoff	49	52	0.940
International Tel & Teleg.	Cuba	Tel./Radio	Baklanoff	79	231	0.344
Standard Oil Co. of NJ	Cuba	Oil	Baklanoff	43	11,670	0.004
Texas Co.	Cuba	Oil	Baklanoff	30	3,614	0.008
United Fruit Co.	Cuba	Land	Baklanoff	52	385	0.134
Anaconda Co.	Chile	Mines	Baklanoff	320	1,054	0.303
General Motors Corp.	Chile	Car Factory	Nacla	0.08	22,800	0.000
General Tire & Rubber Co.	Chile	Rubber Plant	Nacla	6.66	474	0.014
International Tel & Teleg.	Chile	Tel./Radio	Baklanoff	153	3,030	0.073
Kennecott Copper Corp.	Chile	Mines	Baklanoff	217	1,558	0.139

Notes I: (1.) Company name refers to the name of the company at the time of the coup, (2.) Coup country is the country where the coup or coup attempt was made, (3.) Expropriation description lists the types of assets expropriated, (4.) Source lists the source of information on the expropriations, (4.) Baklanoff, Bamberg, Gleijeses, and Nacla are authors of books which list expropriations, (5.) Exprop. value list the nominal amount of the value of the expropriation in currency units of the estimation window year, (6.) All monetary values are expressed in US dollars with the exception of the Anglo Iranian Oil Company which is expressed in pounds, (6.) Total value lists the average stock price for the company in current currency units during the estimation window, (7.) Exposure ratio is the ratio of the value of expropriated assets to the total market value of the company.

Notes II: Many companies have changed their names. Anglo-Iranian is now called British Petroleum. The United Fruit Company is now called Chiquita Brands International. The Standard Oil Company of New Jersey is now called ExxonMobil. Texas Company is now called Texaco. International Telephone and Telegraph Corporation is now called ITT Corporation. American Sugar Refining Co. is now called Domino Foods, Inc.

TABLE III: Authorization Event Selection

Date	Country	Description	Good
June 18, 1953	Iran	CIA/British Intelligence Both Approve Coup	Y
July 1, 1953	Iran	British Prime Minister Approves Coup	Y
July 11, 1953	Iran	President Eisenhower Approves Coup	Y
August 18, 1952	Guatemala	DCIA Approves PBFortune (Coup to Overthrow Arbenz)	Y
October 8, 1952	Guatemala	PBFortune Halted	N
December 9, 1953	Guatemala	DCIA Approves PBSuccess (Coup to Overthrow Arbenz)	Y
April 19, 1954	Guatemala	Full Approval Given to PBSuccess	Y
March 17, 1960	Cuba	Eisenhower Approves Plan to Overthrow Castro	Y
August 19, 1960	Cuba	Eisenhower Approves \$13 Million to Overthrow Castro	Y
January 30, 1961	Cuba	Kennedy Authorizes Continuing Bay of Pigs Op	Y
September 15, 1970	Chile	Nixon Authorizes Anti-Allende Plan (Incl. Poss. Coup)	Y
January 28, 1971	Chile	40 Committee Appropriates \$1.2 Million	Y
October 26, 1972	Chile	40 Committee Appropriates \$1.4 Million	Y
August 21, 1973	Chile	40 Committee Appropriates \$1 Million	Y

Notes: (1.) Date is the date of the event, (2.) Country is the target country of the coup attempt, (3.) Description gives a brief description of the event, (4.) Good is coded as Y if the event should raise the share value of the company and N if the event should lower the share value of the company.

TABLE IVA: Public Event Selection

Date	Country	Description	Good
March 25, 1951	Iran	Iranian Parliament Backs Oil Nationalization	N
April 28, 1951	Iran	Prime Minister of Iran Quits and Mossadeq Elected	N
July 18, 1952	Iran	Ghavam Replaces Mossadeq as Prime Minister	Y
July 23, 1952	Iran	Mossadeq Comes Back As Prime Minister	N
August 4, 1953	Iran	Mossadeq Asks For Parliament to be Dissolved	N
November 11, 1950	Guatemala	Arbenz Elected	N
June 17, 1952	Guatemala	Arbenz Enacts Agrarian Reform Bill	N
August 7, 1952	Guatemala	Distribution of Land Under Agrarian Reform Bill Begins	N
December 12, 1952	Guatemala	Workers File for Expropriation of 55,000 Acres From UF	N
February 5, 1953	Guatemala	Congress Impeaches Court to Fasten Reform	N
February 24, 1954	Guatemala	Guatemala Confiscates 234,000 Acres	N
January 1, 1959	Cuba	Castro Comes to Power in Cuban Revolution	N
August 5, 1960	Cuba	Cuba Nationalizes Electricity, Oil, Telephone, Sugar	N
October 12, 1960	Cuba	Cuba Nationalizes Sugar, Beer, Liquor, Soap	N
October 24, 1960	Cuba	Cuba Nationalizes 166 More Businesses	N
September 4, 1970	Chile	Allende Wins Election	N
October 24, 1970	Chile	Legislature Votes for Allende	N
December 21, 1970	Chile	Allende Proposes Mine Nationalization	N
July 11, 1971	Chile	Amendment Allowing Nationalization of Copper	N
September 28, 1971	Chile	Excess Profits Subtracted From Nationalization Comp.	N
September 29, 1971	Chile	Chitelco (owned by ITT) Nationalized	N
May 12, 1972	Chile	ITT Expropriation Requested by Allende	N
March 4, 1973	Chile	Allende's Party Get 43% of Vote in Elections	N

Notes: (1.) Date is the date of the event, (2.) Country is the target country of the coup attempt, (3.) Description gives a brief description of the event, (4.) Good is coded as Y if the event should raise the share value of the company and N if the event should lower the share value of the company.

TABLE IVB: Coup Dates

	Date	Country	Successful
Begin	August 15, 1953	Iran	Yes
End	August 20, 1953		
Begin	June 19, 1954	Guatemala	Yes
End	June 28, 1954		
Begin	April 15, 1961	Cuba	No
End	April 20, 1961		
Begin	September 11, 1973	Chile	Yes
End	September 11, 1973		

Notes: (1.) Date lists the begin and end dates of coups, (2.) Country lists the country where the coup or coup attempt took place, (3.) Successful records whether or not the coup achieved its objectives in overthrowing the government in question.

TABLE V
Main Effects - Cumulative Abnormal Returns

		(0,0)	(0,3)	(0,6)	(0,9)	(0,12)	(0,15)
All	In-Sample	0.0018 (0.0024) N=5053	0.0171 (0.0066)*** N=5053	0.0184 (0.0101)* N=5053	0.0263 (0.0132)** N=5053	0.0312 (0.0147)** N=5053	0.0303 (0.0186) N=5053
	Out-Sample	0.0017 (0.0024) N=14	0.0178 (0.0078)** N=56	0.0204 (0.0099)** N=98	0.0261 (0.0137)* N=140	0.0339 (0.0155)** N=182	0.0313 (0.0170)* N=208
Top 3	In-Sample	0.0019 (0.0025) N=4203	0.0234 (0.0089)*** N=4203	0.0261 (0.0112)*** N=4203	0.0281 (0.0149)* N=4203	0.0389 (0.0171)** N=4203	0.0442 (0.0197)** N=4203
	Out-Sample	0.0017 (0.0028) N=11	0.0218 (0.0079)*** N=44	0.0224 (0.0110)** N=77	0.0269 (0.0152)* N=110	0.0339 (0.0166)** N=143	0.0405 (0.0209)* N=176
Chile	In-Sample	-0.0047 (0.0052) N=1039	0.0177 (0.0197) N=1039	0.0075 (0.0252) N=1039	0.0199 (0.0355) N=1039	0.0244 (0.0370) N=1039	0.0332 (0.0446) N=1039
Cuba	In-Sample	0.0018 (0.0043) N=850	0.0001 (0.0089) N=850	0.0035 (0.0243) N=850	0.0242 (0.0265) N=850	0.0218 (0.0315) N=850	-0.0044 (0.0397) N=850
Guat.	In-Sample	0.0068 (0.0032)** N=2352	0.0244 (0.0081)*** N=2352	0.0309 (0.0130)*** N=2352	0.0224 (0.0165) N=2352	0.0320 (0.0186)* N=2352	0.0306 (0.0244) N=2352
Iran	In-Sample	0.0035 (0.0034) N=812	0.0236 (0.0064)*** N=812	0.0307 (0.0139)** N=812	0.0447 (0.0166)*** N=812	0.0540 (0.0211)*** N=812	0.0763 (0.0287)*** N=812

Notes: (1.) All multi-country regressions control for an interaction of a country dummy with the NYSE, (2.) Regressions control for the NYSE index, (3.) Regressions use robust standard errors, (4.) All dates where a company changed its name or changed its outstanding shares by more than 5% were dropped, (5.) One day price changes greater than 50% in magnitude were dropped, (6.) Out-sample rows compute abnormal returns using the "out of sample" method and In-Sample rows compute abnormal returns using the "in sample" regression method, (7.) Column numbers at the top in parentheses denote the number of days before and after the authorizations which are included as part of the dummy variable for the authorization event.

* significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

TABLE VI
Public Information Controls

	Public Info	NY Times	No NY Times	No Public Info	Public and NY Times
All	0.0171 (0.0066)*** N=5053	0.0176 (0.0066)*** N=4084	0.0244 (0.0102)*** N=747	0.0171 (0.0066)*** N=5032	0.0175 (0.0066)*** N=4084
Chile	0.0177 (0.0197) N=1039	0.0177 (0.0198) N=1024	0.0629 (0.0161)*** N=203	0.0176 (0.0197) N=1030	0.0177 (0.0198) N=1024
Cuba	0.0000 (0.0089) N=850	0.0007 (0.0088) N=804	0.0173 (0.0149) N=44	-0.0002 (0.0089) N=846	0.0006 (0.0088) N=804
Guat.	0.0244 (0.0081)*** N=2352	0.0255 (0.0081)*** N=1472	0.0118 (0.0119) N=485	0.0244 (0.0081)*** N=2346	0.0255 (0.0081)*** N=1472
Iran	0.0235 (0.0064)*** N=812	0.0231 (0.0065)*** N=784	0.0000 0.0000 N=15	0.0237 (0.0064)*** N=810	0.0231 (0.0066)*** N=784

Notes: (1.) Estimates are on (0,3) day returns, (2.) All multi-country regressions control for an interaction of a country dummy with the NYSE, (3.) Regressions control for the NYSE index, (4.) Regressions use robust standard errors, (5.) All dates where a company changed its name or changed its outstanding shares by more than 5% were dropped, (6.) One day price changes greater than 50% in magnitude were dropped, (7.) Public regressions control for a four day dummy variable for time periods starting with public information days, (8.) NY Times regressions control for number of NY Times articles mentioning the country on that day, (9.) "No Public Info" and "No NY Times" regressions drop all observations where public information or NY Times respectively are positive.

* significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

TABLE VII
Robustness

	Raw Returns	Month Cluster	Industry Controls	NYSE Placebo	Industry Placebo	Country Portfolios	Extended Sample	Trend Controls
All	0.0196 (0.0078)*** N=5077	0.0171 (0.0076)*** N=5053	0.0169 (0.0017)*** N=5053	0.0043 (0.0026) N=5101	0.0011 (0.0035) N=5101	0.0161 (0.0076)** N=5053	-0.0018 (0.0044) N=13640	0.0210 (0.0080)*** N=5053
Chile	0.0257 (0.0240) N=1039	0.0177 (0.0224) N=1039	0.0175 (0.0203) N=1039	0.0068 (0.0065) N=1039	0.0004 (0.0032) N=1039	0.0177 (0.0197) N=1039	-0.0088 (0.0073) N=6220	0.0244 (0.0228) N=1039
Cuba	0.0056 (0.0100) N=850	0.0000 (0.0142) N=850	-0.0019 (0.0092) N=850	0.0097 (0.0012)** N=854	0.0063 (0.0043) N=854	-0.0102 (0.0139) N=852	-0.0029 (0.0051) N=4256	0.0088 (0.0137) N=850
Guat.	0.0202 (0.0092)** N=2352	0.0244 (0.0060)*** N=2352	0.0244 (0.0081)*** N=2352	-0.0051 (0.0034) N=2357	-0.0004 (0.0111) N=2357	0.0242 (0.0076)*** N=2352	0.0244 (0.0081)*** N=2352	0.0270 (0.0092)*** N=2352
Iran	0.0243 (0.0064)*** N=836	0.0236 (0.0032)*** N=812	0.0236 (0.0064)*** N=812	0.0046 (0.0048) N=851	-0.0011 -0.0032 N=851	0.0236 (0.0080)*** N=812	0.0236 (0.0064)*** N=812	0.0137 (0.0096) N=812

Notes: (1.) Estimates are on (0,3) returns, (2.) Multi-country regressions control for an interaction of a country dummy with the NYSE, (3.) Regressions control for the NYSE index, (4.) Regressions use clustered standard errors, (5.) Dates where a company changed its name or changed its outstanding shares by more than 5% were dropped, (6.) One day price changes greater than 50% in magnitude were dropped, (7.) Raw returns do not control for the NYSE, (8.) Month clusters cluster on month for a given year and country, (9.) Industry controls control for 3-digit industry returns, (10.) Country portfolios redefines our treatment companies as a portfolio of all companies operating within a country which were mentioned by name in CIA documents and which had over 15% of company assets in the coup country, (11.) Trend controls control for trends by creating an additional dummy in an 20 day symmetric window around the authorization days, (12.) Extended sample includes a wider selection of less highly exposed companies (aall companies in Table II), (13.) NYSE and Industry Placebos replace company returns with the NYSE index and the industry index respectively.

* significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

TABLE VIII
Time-Shifted Placebos

Date	Abnormal Ret	Date	Abnormal Ret	Date	Abnormal Ret
-30	0.0037 (0.0069) N=5054			30	0.0068 (0.0069) N=5025
-20	0.0017 (0.0083) N=5054			20	-0.0030 (0.0087) N=5035
-15	-0.0044 (0.0069) N=5054			15	-0.0010 (0.0104) N=5040
-10	-0.0002 (0.0094) N=5054			10	-0.0010 (0.0078) N=5045
-5	-0.0003 (0.0096) N=5054			5	0.0064 (0.0101) N=5050
		0	0.0171 (0.0066)*** N=5053		

Notes: (1.) Regressions are pooled across countries, (2.) Regressions control for the interaction of a country dummy with the NYSE, (2.) All single country regressions control for the NYSE index, (3.) All standard errors are robust, (4.) All dates where a company changed its name or changed its outstanding shares by more than 5% were dropped, (5.) All one day price changes greater than 50% in magnitude were dropped, (6.) Authorization event days are shifted forward by number of days in date column.

* significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

TABLE IX
Coup Event

	Coup Window	First Day of Coup	First Day After Coup
ALL	0.0503 (0.0207)*** N=5053	0.0223 (0.0074)*** N=5053	0.0346 (0.0073)*** N=5053
Chile	0.0464 (0.0198)*** N=1039	0.0464 (0.0198)*** N=1039	0.0464 (0.0198)*** N=1039
Cuba	-0.0548 (0.0480) N=850	-0.0272 (0.0160)* N=850	-0.0339 (0.0160)** N=850
Guatemala	-0.0119 (0.0436) N=2352	-0.0013 (0.0107) N=2352	0.0373 (0.0106)*** N=2352
Iran	0.0857 (0.0474)* N=812	0.0168 (0.0157) N=812	0.0206 (0.0157) N=812

Notes: (1.) All multi-country regressions control for an interaction of a country dummy with the NYSE, (2.) All single country regressions control for the NYSE index, (3.) Due to small sample sizes, only multi-country regressions have clustered standard errors, (4.) Dates where a company changed its name or changed its outstanding shares by more than 5% were dropped, (5.) One day price changes greater than 50% in magnitude were dropped, (6.) Coup window estimates are obtained from regressions of returns on a dummy variable which takes on a value of one during the coup window, then are multiplied by the length of the coup window, (7.) First day of coup regressions are regressions of returns on a dummy variable for the first day of the coup, (8.) First day after coup regressions are regressions of returns on a dummy variable for the first day after the end of the coup. In the case of Cuba this is the first day after the end of the failed invasion, (9.) Coup effects for Cuba are negative because stock prices dropped in reaction to the failed coup.

* significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

Table X
Bernoulli Test Results

	Number Events	Number Above Median	P-Value: Computed	P-Value: Simulated	Number Above 90th	P-Value: Computed	P-Value: Simulated
Chile	4	3	0.6250	0.6362	1	0.6878	0.6165
Cuba	3	1	1.0000	1.0000	0	1.0000	1.0000
Guatemala	4	4	0.1250	0.1336	3	0.0074	0.0089
Iran	3	3	0.2500	0.2651	2	0.0560	0.0523
3 Country	11	9	0.0654	0.0617	6	0.0006	0.0005
4 Country	14	11	0.0574	0.0543	6	0.0030	0.0031

(1.) Number above median is the number of 4-day events above the median abnormal return in the estimation window (2.) P-Value: Computed reports the associated P-Value using the Binomial Distribution to give the probability of having at least X number of events above the median (90th percentile) or Y-X below the median (90th percentile) out of Y total events, (3.) P-Value: Simulated reports the p-value for a simulated placebo distribution of the abnormal return counts above a cutoff (median or 90th percentile respectively), (4.) Number above the 90th percentile reports the number of 4-day events above the 90th percentile of the abnormal return distribution in the estimation window, (5.) 3 country refers to the 3 country sample excluding Cuba and 4 country refers to the full sample.

TABLE XI
Uniform Test (Rank Test)

	Number Events	Mean Raw Rank	Total Number of Dates	Mean Percentage Rank	P-Value: True	P-Value: Simulated
Chile	4	25.25	59	0.57	0.6398	0.6060
Cuba	3	31.33	62	0.49	0.9550	0.9290
Guatemala	4	9.75	71	0.86	0.0082	0.0140
Iran	3	9.00	65	0.86	0.0247	0.0310
3 Country	11	N/A	N/A	0.76	0.0034	0.0040
4 Country	14	N/A	N/A	0.70	0.0009	0.0080

(1.) Mean raw rank refers to the average raw rank of abnormal returns for events relative to the estimation window in the country or group of countries, (2.) total number of dates refers to the number of 4-day return observations in the estimation window, (3.) Mean percentage rank is the average percentage rank of abnormal returns for events relative to the estimation window, (4.) P-Value: Computed reports the p-value of the average rank for the sum of K unit uniforms where K is the number of events, (5.) P-Value: Simulated reports the p-value for a simulated placebo distribution of the abnormal return ranks, (6.) 3 country refers to the 3 country sample excluding Cuba and 4 country refers to the full sample.

TABLE XII
Relative Gains From Coup and Authorization Events

	Per Event Authorization Event Gain	Total Gain from Authorization Events	Gain From Coup Event	Total Gain from Coup	Relative Gain From Auth. Events
All	0.0312	0.0966	0.0346	0.1345	0.7363
Top 3	0.0385	0.1201	0.0348	0.1591	0.7755
Chile	0.0303	0.1268	0.0464	0.1791	0.7321
Cuba	0.0154	0.0469	0.0339	0.0824	0.5805
Guatemala	0.0313	0.0636	0.0373	0.1033	0.6303
Iran	0.0540	0.1709	0.0206	0.1950	0.8924

Notes: (1.) Per event authorization event gain is the cumulative abnormal return over a thirteen day period for a company in a country estimated individually, (2.) Total gains from authorization events is one plus the abnormal return to the power of the number of net events; in the case of Guatemala, the number of net events is 2 out of total 4 events since one event was a coup abortion and thus counted as negative, (3.) The gain from the coup event is the estimated abnormal returns from the first day of the new government after the end of the coup except in the case of Cuba where we report the loss from the first day of the new government, (4.) The total gain from the coup is one plus the cumulative percentage gain from the authorization events times one plus the gain from the coup itself minus one, (5.) The relative gain from authorization events is the share of the total gain from the coup (including pre-coup stock market rises) due to authorization events.

TABLE XIII
Calibration

Country	Good for Coup	Days Before Coup	Discount Rate	Stock Growth Rate	Exposure	Event Effect	Prob. Change	Cum- ulative Prob.
Chile	Y	37	0.9998	0.0001	0.303	0.0244	0.05	0.05
Chile	Y	957	0.9998	0.0001	0.303	0.0244	0.02	0.07
Chile	Y	320	0.9998	0.0001	0.303	0.0244	0.04	0.11
Chile	Y	21	0.9998	0.0001	0.303	0.0244	0.05	0.17
					Mean		0.04	
Cuba	Y	394	0.9998	0.0001	0.940	0.0218	0.00	0.00
Cuba	Y	239	0.9998	0.0001	0.940	0.0218	0.00	0.00
Cuba	Y	75	0.9998	0.0001	0.940	0.0218	0.00	0.00
					Mean		0.00	
Guat.	Y	92	0.9998	0.0001	0.171	0.0320	0.14	0.14
Guat.	N	56	0.9998	0.0001	0.171	0.0320	-0.15	-0.01
Guat.	Y	192	0.9998	0.0001	0.171	0.0320	0.13	0.12
Guat.	Y	61	0.9998	0.0001	0.171	0.0320	0.15	0.27
					Mean		0.14	
Iran	Y	58	0.9998	0.0001	0.280	0.0540	0.10	0.10
Iran	Y	45	0.9998	0.0001	0.280	0.0540	0.11	0.21
Iran	Y	35	0.9998	0.0001	0.280	0.0540	0.13	0.34
					Mean		0.11	

Notes: (1.) This table shows the inputs and outputs of a calibrated model of asset price determination with a time-varying prob. of a coup, (2.) Country is the country where the coup attempt took place, (3.) Good for Coup is Y for authorizations and N for deauthorizations, (4.) Days before coup is the number of trading days before the planned coup; in Guatemala and Chile, this entails using two different dates for two coup plans each, (5.) Discount factors are 12-day equivalents based upon an annual rate of 0.95, (6.) Stock growth rate is the average daily growth rate of companies in our broad sample in the 3 year period before and including the estimation window, (7.) Exposure is the percentage of company assets in the coup country, (8.) Event effect is the estimate of the impact of the 13-day authorization event, (9.) Probability change is the calibrated change in probability due to an authorization event; cumulative prob. is the cumulative net change in probability in the country, (10.) Mean effect is the mean calibrated change in probability across events in a country, (11.) Events are listed in chronological order but days before coup sometimes increases due to failed coup attempts.

Figure I:
Cumulative Abnormal Returns
(In-Sample Method)

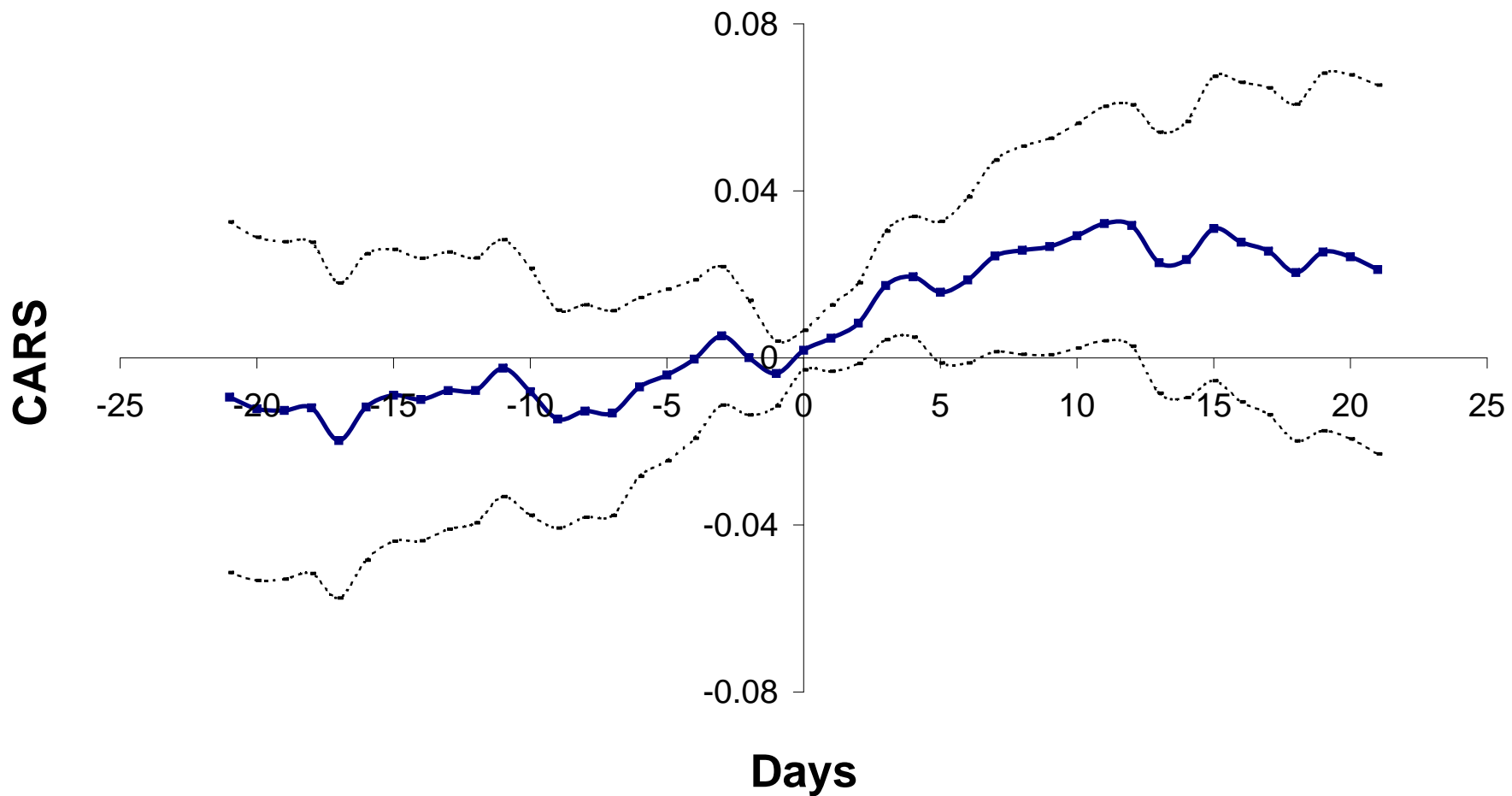


Figure II:
Time-Shifted Placebos
(In-Sample Method)

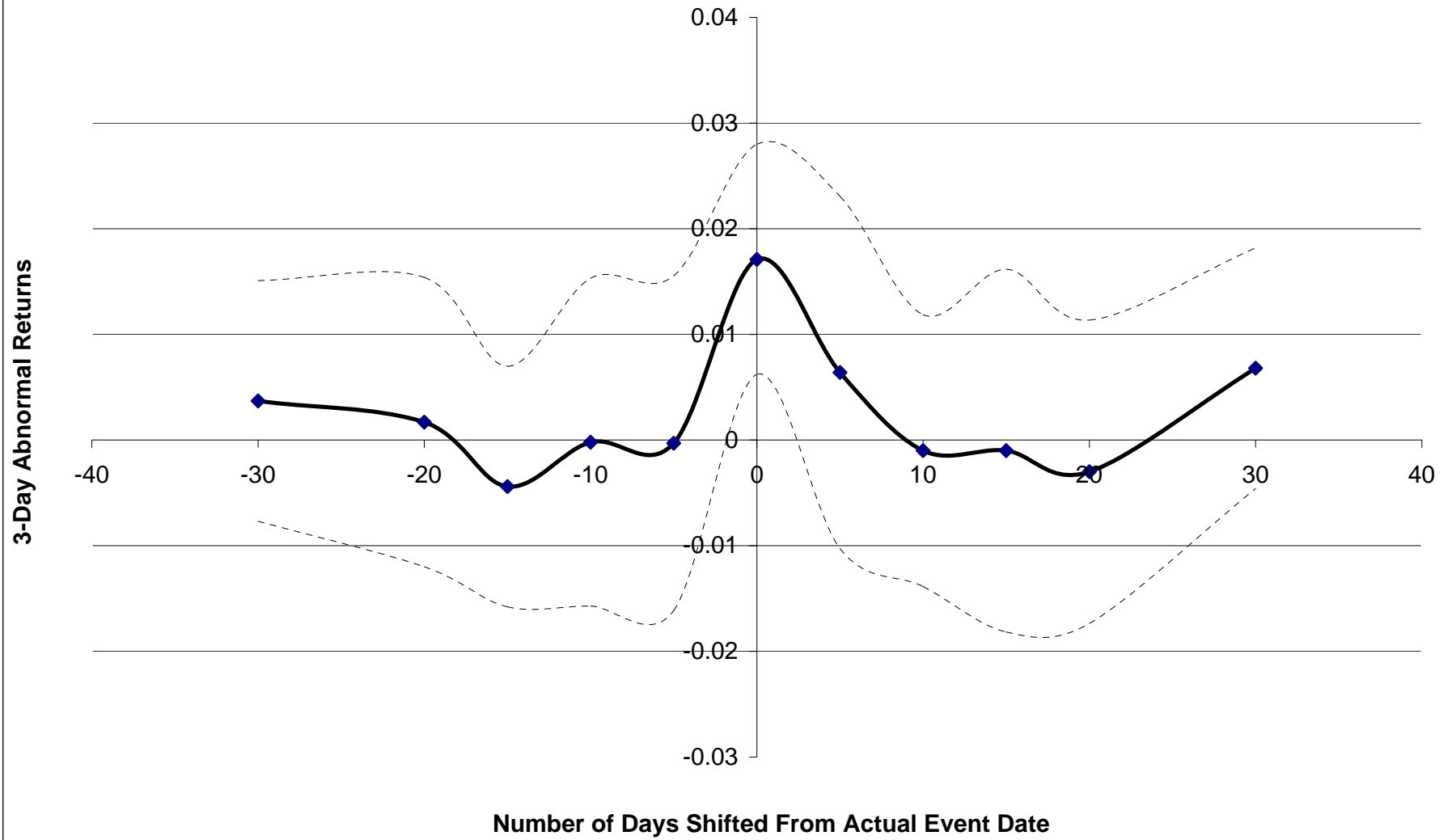
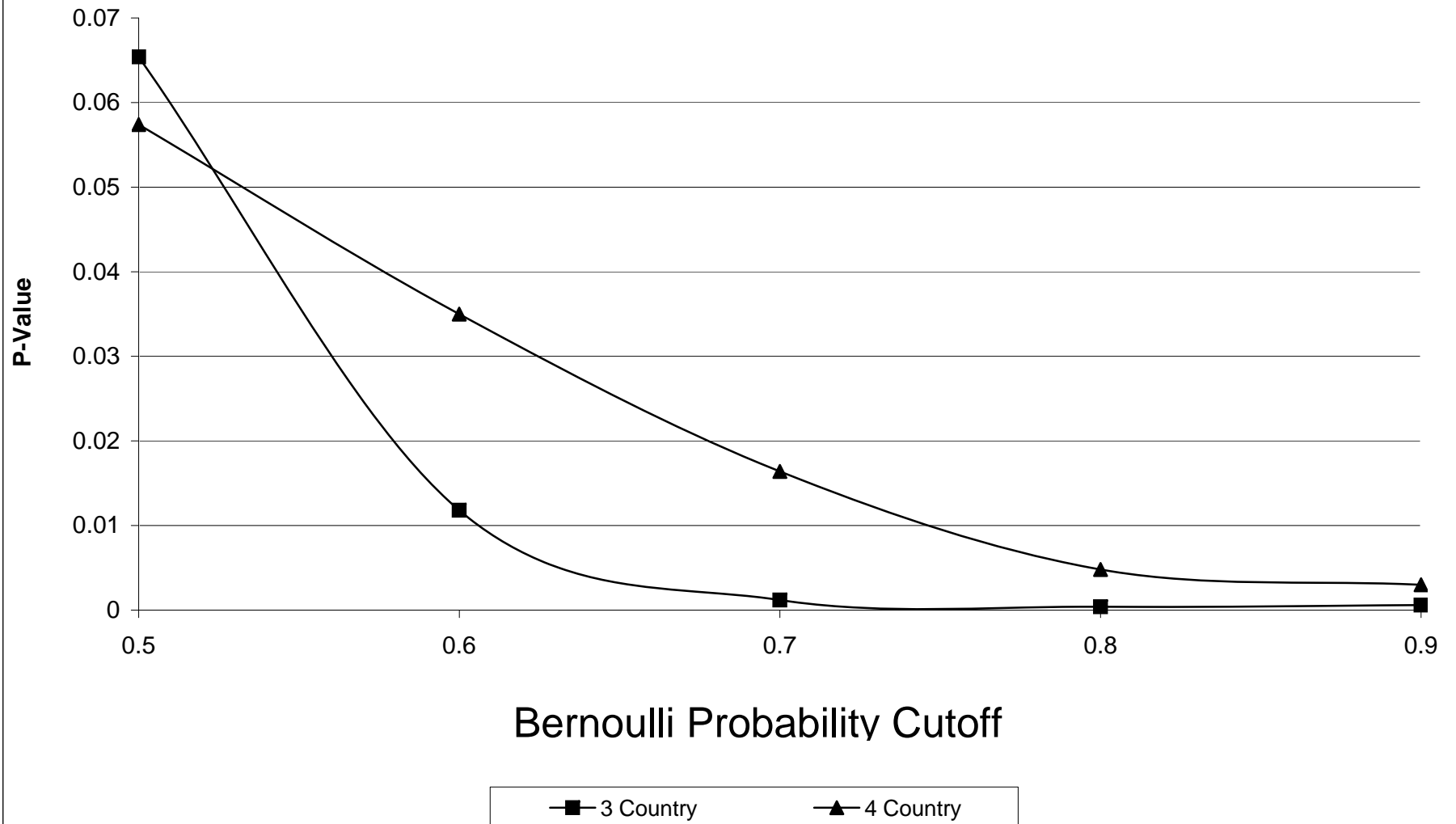
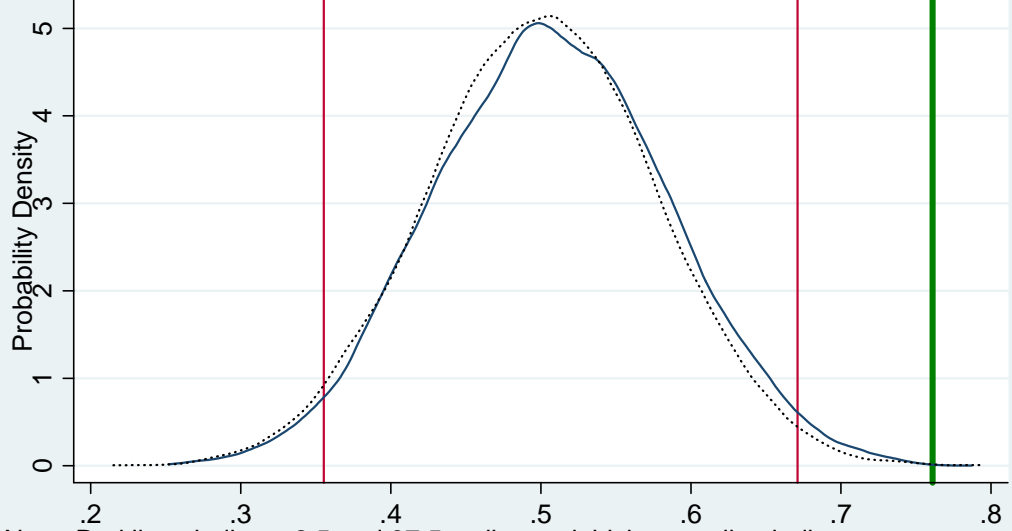


Figure III:
P-Values for Binomial Tests
(Out-Sample Method)



Graph IV

Kernel Density: Simulated Avg. of 14 Unit Uniforms - Theoretical and Empirical



Note: Red lines indicate 2.5 and 97.5 pctiles and thick green line indicates avg. event pctile

— Empirically Simulated Density Theoretical Density