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Beyond the Front Lines: Who Were the True Winners of the Iraq War?

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Abstract

We study whether the US and UK invaded Iraq to gain access to oil resources. Our findings provide evidence that events decreasing conflict intensity lead to significantly positive abnormal returns for the US and UK oil companies. We find no evidence that the US and UK companies experience abnormal returns following events increasing conflict intensity. However, they significantly outperform all control groups following these events. Following the capture of Saddam Hussein, we find that the US and UK companies experience significantly greater long-term cumulative abnormal returns than the control group consisting of oil companies from all other countries. These results are, however, sensitive to changes in the control group composition.

Keywords – Iraq War, Operation Iraqi Freedom, Petroimperialism, Saddam Hussein, Event Study, Difference-in-Differences

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1 Introduction

Operation Iraqi Freedom (OIF), commonly known as the Iraq War, is among the twenty-first century's most controversial conflicts. According to estimates from Hagopian et al. (2013), the war killed nearly half a million people. In addition to the human deaths, the war caused severe infrastructure damage and financial costs for both Iraq and the invading nations. Schumer and Maloney (2008), estimated that the economic costs related to OIF for the United States alone amounted to 1.3 trillion dollars in the time period 2003-2008.

US President George W. Bush stated that their mission in Iraq was *"to disarm Iraq of weapons of mass destruction, to end Saddam Hussein's support for terrorism, and to free the Iraqi people"* (George W. Bush, 2003). The Prime Minister of the UK, Tony Blair, referred to the same mission statement when he announced the invasion (Tony Blair, 2003). The operation was part of President Bush's Global War on Terror, a campaign he announced shortly after the 9/11 terrorist attacks, the most deadly attacks in American history. By framing the invasion as part of the war on terror, Bush potentially secured critical public support for the operation; polls indicated that two-thirds of Americans supported the invasion of Iraq to remove Saddam Hussein from power (Benedetto, 2003).

Critics of OIF argued that the evidence proving that Iraq had weapons of mass destruction (WMD) was weak. Other common critiques were related to whether the war was motivated by different objectives than the ones stated by Bush and Blair, such as greater Middle Eastern control and access to Iraqi oil fields, also referred to as petroimperialism (Jhaveri, 2004). The critique is reasonable, given that Iraq holds the world's fifth largest proven oil reserves, accounting for around 8% of total proven reserves globally (U.S. Energy Information Administration, 2022). Defense Secretary Donald Rumsfeld addressed this concern months before the invasion, insisting that *"The conflict with Iraq is about weapons of mass destruction. It has nothing to do with oil, literally nothing to do with oil."* (Esterbrook, 2002). Despite the magnitude of this debate, limited quantitative research exists to address these claims.

This paper uses financial data from petroleum companies to assess the allegations of the US and UK having petroimperialistic motives in Iraq during OIF. Our approach is based on analyzing investor behavior, as well-informed investors and insiders in petroleum

companies may provide valuable insights into the effects of the conflict on the companies in which they were invested. This paper will not delve into the broader political implications of OIF but will focus on investor behavior and petroleum companies' market reactions to make a quantitative assessment of the petroimperialistic claims. We focus on the events before and during OIF that increased or decreased conflict intensity. Event selection is based on a qualitative assessment of multiple timelines for OIF and the frequency of news wire reports on the days before, during, and after these events occurred.

Overall, we find that events reducing conflict intensity lead to a significant increase in abnormal returns of 0.67% for oil companies from the US and UK. We find no effect for events that increase conflict intensity. However, the US and UK oil companies significantly outperform all control groups with around 1.1 percentage points following conflict intensity increasing events. Further, we estimate the difference in long-term cumulative abnormal returns (CAR) following the capture of Saddam Hussein. We find that the US and UK oil companies experience a significantly greater CAR than companies from all other countries following this event. The positive difference amounts to approximately 26 and 33 percentage points for a post-period of two and three years, respectively. The difference in CAR following the capture is, however, insignificant when we remove companies from countries that are permanent members of the UN Security Council. Therefore, we conclude that US and UK oil companies generally were the primary beneficiaries of the Iraq War, although the relative long-term financial impact of Saddam Hussein's capture varies across model specifications.

2 Literature Review

We investigate the allegations regarding the petroimperialistic motives of the US and UK in Iraq during OIF by analyzing the stock returns for petroleum companies headquartered in the US and UK. If these allegations are true, we expect that the stock returns of US and UK oil companies will be affected by the conflict-related events as the petroleum industry is closely connected to political decisions. Hence, our thesis connects two distinct fields of study; (1) studies on the impact of conflicts on financial markets[1] and (2) studies on financial benefits of political connections[2].

Our research framework closely relates to the study conducted by Guidolin and La Ferrara (2007), wherein the authors attempt to provide evidence as to whether violent conflict may be perceived as an advantage by investors. Their study examines the abnormal returns of diamond mining companies holding concessions in Angola during the Angolan Civil War. Contrary to their findings, our analysis of multiple events during the Iraq War, employing the same methodology, finds evidence that US and UK oil companies experienced significantly positive abnormal returns following events decreasing conflict intensity. However, we find no significant effect on abnormal returns following events increasing conflict intensity.

Our study contrasts with that of Guidolin and La Ferrara (2007) by shifting the focus from the impact on companies with concessions in the country experiencing conflict to examining the financial effects on companies headquartered in the US and UK. We specifically explore the implications of the alleged use of military invasion to access Iraqi oil fields on these companies' financial performance. The decision to analyze the financial performance of companies during the Iraq War through the lens of economic and political interests draws inspiration from D. Fisman et al. (2012). This paper studies the allegations that former US Vice President Richard Cheney gave favorable treatment to companies that were well connected to him in the wake of the Iraq War. These allegations originate from the fact that Halliburton, an oil service company where Cheney was chairman and CEO before taking office, more than doubled in value during the two years following the Iraq War. The study finds no significant effects on the stock returns of firms connected to

[1] E.g., Leigh et al. (2003), Schneider and Troeger (2006) and DellaVigna and La Ferrara (2010)
[2] E.g., Faccio (2006), Goldman et al. (2009) and R. Fisman (2001)

Cheney for all the events in their analysis.

Instead of personal connections, we use the countries where the companies are headquartered as a proxy for political ties. In the three-day window starting on the event date for each event, US and UK companies outperform all control groups when conflict intensity increases. Furthermore, US and UK oil companies also show significantly higher abnormal returns than the control group consisting of oil companies from all other countries two and three years after Saddam Hussein's capture. However, when oil companies headquartered in countries that are permanent members of the UN Security Council are excluded from the control group, no significant difference in long-term abnormal returns is observed. These results indicate that political connections, as represented by the headquarters country, impacted economic value during the Iraq War.

3 Background

3.1 From Allies to Enemies

3.1.1 The Iran-Iraq War

Saddam Hussein became the president of Iraq in 1979. In 1980, Iraq attacked its neighbor country, Iran. The US supported Iraq with weapons during the eight-year conflict, as they viewed Iran as the more significant threat in the Middle East against US interests (Woods et al., 2023). In the same year, President Jimmy Carter stated during his State of the Union address that the US would use military force against any nation attempting to gain control over the Persian Gulf region. This foreign policy initiative is often called the Carter Doctrine (Samuels, 2023).

3.1.2 The Gulf War

The Carter Doctrine became topical in 1990 when Iraq attacked Kuwait. Following this attack, Iraq quickly transitioned from being an ally of the US to becoming an enemy. UN approved a US-led coalition to push their troops back, which marked the start of the Gulf War between Iraq and the coalition. The Gulf War ended quickly with an Iraqi withdrawal, and Iraq signed a cease-fire agreement on February 28th, 1991.

In the aftermath of the Gulf War, many American politicians criticized the US for not removing Saddam Hussein as part of the military operations. Among the critics were Dick Cheney and Donald Rumsfeld, who later served in the George W. Bush administration as Vice President and Secretary of Defense, respectively. The idea that the US should remove Hussein as Iraq's president gained traction among neoconservative politicians (United Nations, 2023).

3.1.3 Oil-for-Food Program

The United Nations imposed Resolution 661 after the invasion of Kuwait, which involved stringent economic sanctions on Iraq to limit its ability to strengthen its military further. The sanctions led to a humanitarian crisis. To restrict the impact of the sanctions on

civilians in Iraq, the UN initiated the Oil-for-Food program in 1995. The program enabled Iraq to export oil, but the revenue was restricted to humanitarian goods like food and medicine. The average daily caloric intake doubled between 1996 and 2001, indicating that the program improved the humanitarian situation. However, the program was not flawless, as multiple reports stated that it involved corruption and financial exploitation. The US Government Accountability Office estimated that the Iraqi regime exploited the program to gain over $10 billion in illegal oil revenues (Christoff, 2004, p. 4). The UN Independent Inquiry Committee also found that 2,253 companies paid kickbacks to win oil and humanitarian contracts under the program (Volcker et al., 2005, p. 1).

3.1.4 The Global War on Terror

On October 20th, 2001, nine days after the 9/11 attacks, Bush announced the Global War on Terror (GWOT). The invasion of Afghanistan followed only weeks later. Importantly, Bush signaled that the GWOT was broader than just Afghanistan and al Qaeda, stating, *"Our war on terror begins with al Qaeda, but it does not end there. It will not end until every terrorist group of global reach has been found, stopped, and defeated."* (George W. Bush, 2001). On January 29th, 2002, President George W. Bush labeled Iraq as a member of an *"axis of evil"*, stating that the country was arming itself to pose a threat to world peace. He pointed out that Weapons of Mass Destruction (WMD) were the means by which Iraq could threaten world peace, intensifying the focus on Iraq as part of the GWOT (George W. Bush Library, n.d.).

3.1.5 Weapons of Mass Destruction

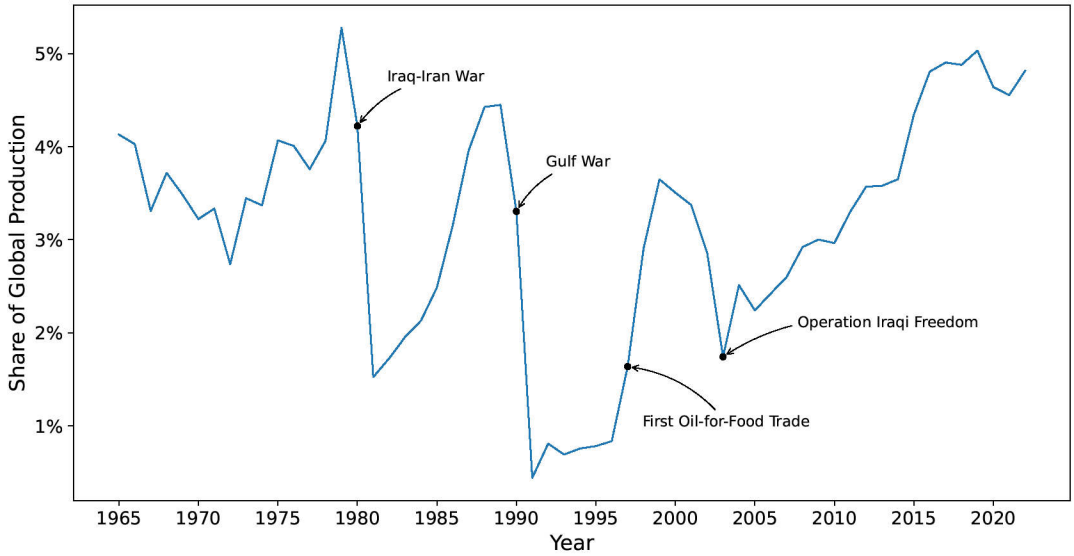
Following President Bush's claims about Iraq having WMD, the US could justify a more aggressive relationship with Iraq. On November 8th, 2002, the UN passed Resolution 1441, demanding Iraq to comply with its existing disarmament obligations. It also authorized weapon inspectors to enter Iraq and warned about "serious consequences" if failing to comply (UN Security Council, 2002). Two months later, Chief Inspector Hans Blix stated that they had not found any "smoking guns" in Iraq during their inspections (The Guardian, 2003). In other words, there was no evidence that Iraq possessed WMD. Despite the lack of evidence, Bush decided that the US would invade Iraq on March 20th, 2003.

3.2 Iraq's Oil History

Iraq's first oil, drilled in Kirkuk in 1927, laid the foundation for an economy heavily reliant on petroleum. Iraq Petroleum Company (IPC), owned by large international oil corporations (IOC) like BP, Shell, and ExxonMobil, quickly became the largest oil company. By 1938, IPC controlled nearly all oil fields in Iraq. At that time, the relatively Western-friendly Hashemite monarchy ruled Iraq, which benefited IPC, as Western oil companies owned the company. In 1958, the monarchy was overthrown by a group of Iraqi military officers. This started a more nationalist approach towards oil production in Iraq. 14 years later, in 1972, IPC was fully nationalized (Brown, 1979, pp. 107–108).

As previously mentioned, the UN imposed economic sanctions on Iraq after the Gulf War started in 1990, followed by the Oil-for-Food program in 1995. Figure 3.1 shows that the sanctions and the Oil-for-Food program greatly impacted petroleum production in Iraq.

Figure 3.1: Iraq's Share of Global Oil Production from 1965-2022



Notes: Iraq's share of oil production is computed by dividing Iraq's annual oil production by the worldwide annual oil production, both measured in barrels per day. The data is sourced from Energy Institute (2023).

In February 2007, the Iraqi cabinet approved a draft law that allows regional authorities to negotiate oil contracts with IOC's (Al Jazeera, 2007). The path towards internationalization of the oil industry in Iraq continued in June 2008, when 35 companies were allowed to bid on the rights to redevelop six oil fields and two natural gas fields (CNN, 2008). This was the first of many licensing rounds that allowed international companies to participate in the Iraqi oil industry.

Petroleum still plays a vital role in Iraq's economy. According to estimates from the The World Bank (2022), these resources have constituted 99% of the country's exports, supplied 85% of the government's budget, and made up 42% of the Gross Domestic Product (GDP) in the last decade. Despite Iraq holding a significant share of the world's proven oil reserves, the country lags economically, ranking 149th out of 229 nations in real GDP per capita according to the Central Intelligence Agency (2023). Annual GDP growth in the 1970s averaged approximately 14%. The attacks on Iran and Kuwait became the beginning of Iraq's economic slowdown. Following the adoption of United Nations Resolution 661 in 1990, Iraq's GDP plummeted to levels not observed since the 1940s (Le Billon, 2005, p. 14). This created opportunities for foreign oil companies to exploit the chaotic and desperate condition of Iraq's economy.

4 Conceptual Framework

Our thesis aims to provide economic insight into whether US and UK oil companies benefited from conflict-related events during the Iraq War. We analyze financial market data to study whether investors interpreted the events as an advantage or disadvantage for oil companies. These findings will serve as a foundation for discussing whether US and UK oil companies exploited the Iraq War for financial gain.

We expect the equity market to respond differently to two categories of events: events increasing and decreasing conflict intensity. This categorization of events is inspired by the DellaVigna and La Ferrara (2010) paper, which uses the same event categories but is also in line with Schneider and Troeger (2006), which separates events into conflictive and cooperative events. We examine the abnormal returns of the companies' securities to assess how markets perceived these events for US and UK oil companies. This leads us to our first hypothesis:

Hypothesis 1: *Petroleum companies headquartered in the United States or United Kingdom experienced significantly positive (negative) abnormal returns during events increasing (decreasing) conflict intensity.*

To investigate whether the financial market perceived the events as an advantage or disadvantage for US and UK oil companies, we analyze whether the market responded differently to oil companies headquartered in the US and UK compared to oil companies from all other countries in our sample. In addition to this comparison, we also explore differences to other relevant compositions of countries. These comparisons will provide valuable insights to discuss whether US and UK oil companies benefited from the war.

The second control group consists of companies headquartered in countries that were against the US-led invasion of Iraq. The most ardent opposing countries included France and Germany, who formed an *"Axis of Opposition"* against the invasion (Jae-Seung Lee, 2007). Shortly after the invasion in March 2003, these countries and Russia called for a quick transfer of sovereignty to the Iraqi people (Landler, 2003). A survey conducted by the Pew Research Center (2002) interviewed more than 38,000 respondents with questions regarding Iraq. From this survey, the majority of respondents from France (75%), Germany (54%), and Russia (76%) agreed with the statement that an American use of force against

Iraq is to control Iraqi oil resources. Due to these nations' opposition and belief in the narrative that the US wanted control over Iraqi oil, we expect that the financial market responded differently for oil companies from US/UK compared to these three countries.

As a third comparison, we examine the difference between US and UK oil companies and oil companies from all countries, excluding the permanent members of the UN Security Council (UNSC). The motivation for this analysis is that the US attempted to toughen the UN sanctions on Iraq by mid-2002, but was met with determined opposition from the permanent members Russia, France, and China, who favored even looser restrictions (Duffield, 2005). The Security Council ultimately favored the opposition and agreed to loosen the sanctions on Iraq. The veto power held by the permanent members of the Security Council increases their involvement in geopolitical conflicts. By excluding oil companies from these countries, we aim to examine whether US and UK oil companies performed differently than oil companies from countries that were less involved in the political debate regarding Iraq shortly before the invasion. This leads us to the second hypothesis:

Hypothesis 2: *Petroleum companies headquartered in the United States or United Kingdom experienced significantly higher (lower) abnormal returns compared to control groups (a)-(c) during events that increased (decreased) conflict intensity.*

(a) *Petroleum companies headquartered in all other countries.*

(b) *Petroleum companies headquartered in countries opposed to the war (France, Germany, Russia).*

(c) *Petroleum companies headquartered in countries that are not permanent members of the UN Security Council (All except China, France, Russia).*

After reviewing previous research on the Iraq War and understanding the significance of each event, one particular event emerged as especially prominent. The capture of Saddam Hussein by US troops marked a symbolic end to his regime. This event represented an important turning point, potentially influencing increased Western involvement in Iraqi oil operations. As opinionated by the American oil and energy analyst Juhasz (2013):

"Before the invasion, just two things were standing in the way of Western oil companies operating in Iraq: Saddam Hussein and the nation's legal system."

In Hypotheses 1 and 2, we examine the short-term market response to events based on their impact on conflict intensity. However, the effect an event has on conflict intensity does not necessarily determine the impact it has on the US and UK's political position in Iraq. It is challenging to assess how each event in our sample impacts the political stance of the US and UK in Iraq. Nonetheless, it is apparent that the capture of Saddam Hussein[3] did strengthen their political position in Iraq. As noted in Section 3.1.2, there was political interest in removing Saddam even before the US Invasion started. In the years before the invasion, Saddam Hussein also signed contracts to develop new oil fields with countries supporting his regime, such as China and Russia, while the US was frozen out of the deals (Duffield, 2012). Thus, we expect that US and UK oil companies benefit more than oil companies in the control groups in the years following Hussein's capture. This sets the basis for our last hypothesis:

Hypothesis 3: *Petroleum companies headquartered in the United States or United Kingdom experienced significantly greater abnormal long-term returns than the control groups (a)-(c)[4] after US troops captured Saddam Hussein.*

[3]Event 4 in Table A5.
[4]These control groups are the same as in Hypothesis 2.

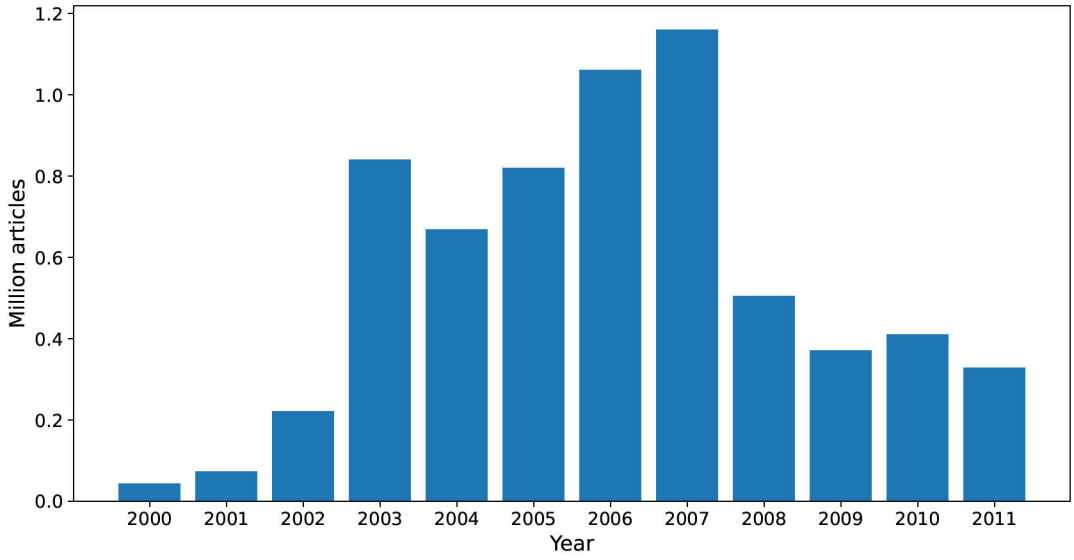
5 Data

This section outlines the criteria and rationale for choosing the events and companies examined in our study. The analysis concentrates on the period from 2003 to 2008.

5.1 Event Selection

In Figure 5.1, we illustrate the total number of news articles mentioning Iraq in each year between 2000-2011. This yearly news article count serves as a useful proxy to determine which years the conflict received the most attention. There is a significant increase in 2003, the year of the invasion. The high attention is sustained through 2007. Post-2007, there is a gradual decline, indicating diminishing media focus on Iraq. This decline is likely because the US accelerated its withdrawal at the end of 2008, following the presidential election of Barack Obama (CBS, 2008).

Figure 5.1: Total Number of Articles Mentioning *Iraq* in 2000-2011



Notes: The data is sourced through LexisNexis (2023).

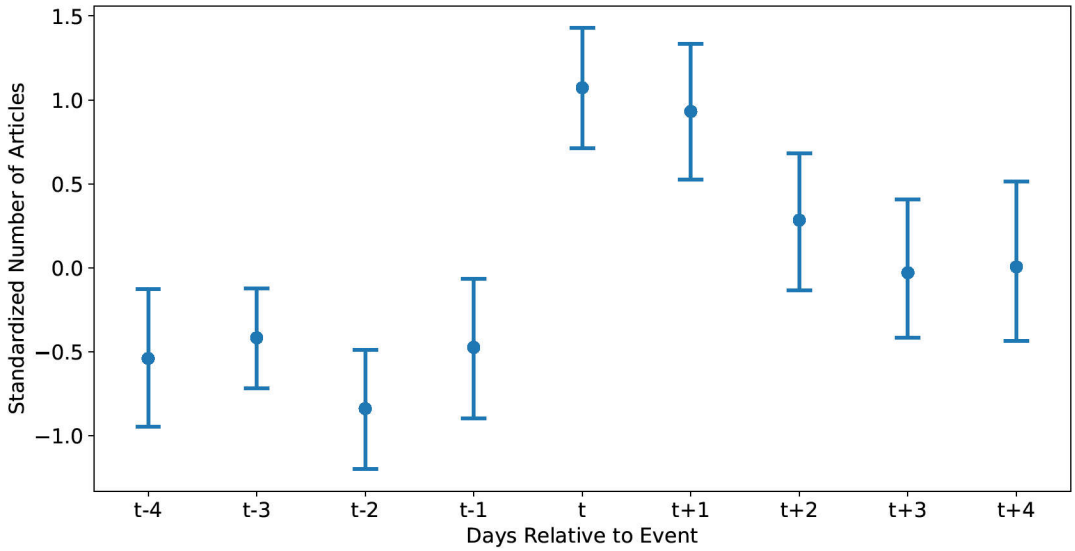
The event selection is based on four criteria: (1) The event must either increase or decrease conflict intensity, (2) the event gained attention from the media and investors, (3) the event was unanticipated, and (4) the event was not closer than 30 days from another event. For events preceding the invasion, we assess their impact on conflict intensity by examining how they affect the likelihood of invasion. For events post-invasion, we

categorize events as conflict intensity increasing if they are violent or if major parties make explicit statements advocating increased military action. Given the numerous violent events during the war, we focus on the events that involved key persons or were, in other ways, exceptional in scale or impact. Conversely, peace agreements or explicit statements from major parties indicating reduced military involvement were classified as conflict intensity decreasing.

We employ a more focused keyword search for the event date, t, and the following day, t+1, for the second criterion. For instance, the keyword combination *"Iraq + Saddam Hussein + Capture"* is used to assess the coverage of the capture of Saddam Hussein on December 14 and 15, 2003. Given the variation in wording across news companies, this approach may not capture all articles relevant to the event. Hence, we verify that major news outlets have reported on the event rather than setting a specific numerical threshold.

We use an event surprise factor for the third criterion, following DellaVigna and La Ferrara (2010). This factor is calculated by dividing the number of news mentioning *Iraq* in [t,t+1] by the news count in [t-4, t-1]. We keep the events with an event surprise of at least 1.1, i.e. there was at least a 10% increase in the average number of news articles from [t-4, t-1] to [t, t+1]. For events occurring within a 30-day trading window, i.e. violating criterion (4), we retain only the most impactful event to avoid overlapping effects. Figure 5.2 shows a significant increase in news articles from t-1 to t. The increase in articles goes down slightly on day t+1 before normalizing on t+2, which supports the choice of using t and t+1 as the window for measuring event surprise. The news article count is standardized for each event, as there are large differences in the number of articles published for the different events. An overview of the 12 events and the event surprise factors are shown in Table A5 in the appendix.

Figure 5.2: Standardized Number of News Articles Mentioning *Iraq* in Days Relative to Event Date with 95% Confidence Intervals



Notes: This plot illustrates the average standardized number of news articles mentioning *Iraq* from t-4 through t+4 for all events in Table A5. The news article count is standardized for each event by subtracting the average article count from the [t-4, t+4] period and dividing it by the event's standard deviation of the article count in the same period. The data is sourced through LexisNexis (2023).

5.2 Company Selection

The company selection is based on two criteria: (1) The company must operate within the oil and gas industry, including operations from raw material extraction to production and logistical support. (2) The company must be listed on an exchange during the years 2002-2008[5]. We extend our company selection beyond companies operating in Iraq during the war, mainly due to the lack of reliable data. The lack of reliable data on which oil companies held concessions in Iraq is tied to the strict sanctions in the years before the war and limited transparency. Additionally, IOCs likely refrained from openly disclosing their activities in Iraq during this time, further contributing to the data limitations.

For the first criterion, we select the NAICS codes that covers the relevant companies. An overview of these NAICS codes, along with their descriptions and the count of companies falling under each code, is provided in Table A1. For the second criterion, we export all available stock market data for companies under the selected NAICS codes through

[5]Although none of the events are in 2002, these observations are used to compute expected returns.

Compustat. Only companies that have common shares[6] trading on a stock exchange were included. Furthermore, we only keep companies with at least 200 observations every year in 2002-2008 to ensure an approximately equal number of observations for each event.

The Fama-French factor data is obtained from the Kenneth French Data Library (2023). Additionally, exchange rate data is sourced from the Bloomberg Terminal, and Brent oil prices are acquired from the US Energy Information Administration (2023). After currency conversion and abnormal return calculation, the dataset consists of 159,904 observations across 107 companies and 28 countries. Cleaning steps and the number of observations and companies removed through each step are shown in Table A4. Figure A1 illustrates the country distribution for the companies in the cleaned dataset.

[6]Preferred shares, warrants, and other special types of shares were not included in the analysis, as these often involve different voting rights, dividends, and liquidity characteristics

6 Methodology

The research design used to examine the empirical questions in our hypotheses is motivated by the event study methodology outlined by MacKinlay (1997), the difference-in-difference (DiD) design discussed by Cunningham (2021), the triple difference (DDD) introduced by Gruber (1994) and inspired by the event study and DDD framework utilized by Casi-Eberhard et al. (2023).

We apply the event study methodology to investigate the market response to the multiple events within our sample. We follow the approach outlined by MacKinlay (1997) for defining the event windows, the estimation window for measuring the normal performance, as well as the abnormal returns. Moreover, we aggregate the abnormal returns over the specified days of interest to determine the overall market reaction to these events. To analyze how market reactions differ for US and UK companies and a selection of companies headquartered in other countries, we use a difference-in-difference design discussed by Cunningham (2021). Since we also aim to examine the varied reactions to events that increased or decreased conflict intensity, we find that the DDD approach, introduced by Gruber (1994), is better suited. The combination of the event study and DDD methodology draws inspiration from the framework of Casi-Eberhard et al. (2023), particularly in our use of categorical variables for all days within the multiple event windows, including all events in the regression model and keep observations from outside the event windows as the omitted category. Lastly, a standard DiD framework is applied to examine whether the market responded differently to US and UK companies and those from other countries following the capture of Saddam Hussein.

6.1 Event Study Methodology

6.1.1 Definition of Event Window

In Section 5.2, we defined the events of interest. To examine the impact of these events on the security prices of the firms in our sample, we identify the event window of interest. The event window typically includes at least the event day, t, and the following day, t+1, to capture the price movements after the market closes on the event day (MacKinlay, 1997).

As illustrated in Figure 5.2, we find a significant increase in the number of news articles published regarding Iraq on day t through t+1 for the events. This observation implies that most media coverage regarding the events happens on these two days. To ensure that we capture all the relevant price movements, we also include t+2 in the event window, as the news coverage is slightly above average on this day. Following Casi-Eberhard et al. (2023), we define the window of interest to be 31 trading days [t-15,t+15] centered on the event day t for each event. Using the number of news articles published as a measure of when markets get informed of the events, we identify the event window to be three trading days from event date t through t+2 to examine the stock market reaction.

6.1.2 Estimation of Normal and Abnormal Return

To analyze the market response to the events, the general approach is to start with a proxy for what the returns would have been in the absence of the events (Bodie et al., 2021). To estimate the normal performance of our sample firms, we follow the suggestion of MacKinlay (1997) and use 250 trading days for our estimation window. This also aligns with Armitage (1995), stating that estimation windows range from 100 to 300 days when using daily data. To get a proxy for normal returns, we estimate the expected returns using the Fama-French three-factor model:

$$R_{it} - R_{Ft} = \alpha_i + \beta_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t + \varepsilon_{it} \tag{6.1}$$

Where R_{it} and R_{Mt} are the expected return on security i and the market portfolio, respectively, at time t, R_{Ft} is the risk-free rate, α_{it} is the intercept, β_i is the security's exposure to market returns, and ϵ_{it} is the error term. The left side of the equation is the excess returns.

The Fama-French three-factor model is building on the single-factor Capital Asset Pricing Model (CAPM) with two additional factors, SMB_t and HML_t. These are firm characteristics factors, or risk premia, and are constructed using portfolios of companies with the associated characteristics. s_i and h_i are security i's exposure to the factors, respectively. SMB_t (small minus big) is the size factor and is the difference between the returns of small and big firms based on market capitalization. While HML_t (high minus

low) is the value factor, which is the difference between the returns of firms with high and low book-to-market ratios. Fama and French (1992) show that small firms (low market capitalization) and value firms (high book-to-market) earn higher returns all else equal than large (high market capitalization) and growth firms (low book-to-market). Fama and French (1993) argue that the returns are better adjusted for these market anomalies by using the three-factor model. We estimate returns using 2002 data to avoid Iraq War-related events in the estimation window.

MacKinlay (1997) states that the variance reduction from employing multi-factor models for event studies generally is limited. Nevertheless, in cases where the sample firms have a common characteristic, e.g. they are all in the same industry, the use of a multi-factor model calls for consideration, according to the paper. Our firm sample consists only of firms in the petroleum industry. It includes firms with large variations in size and value, thus large variations in the exposure to the SMB_t and HML_t risk premia. Consequently, we decide to use the Fama-French three-factor model as the theory supports this model choice for our study.

The abnormal return is the actual ex-post return of the securities subtracted by the estimated expected return of the securities (MacKinlay, 1997). The abnormal returns are calculated by subtracting the expected excess returns, estimated using Equation 6.1, from the actual excess returns:

$$AR_{it} = R_{it} - \hat{R}_{it} \tag{6.2}$$

The abnormal returns are winsorized at the 2.5% level on the full sample to reduce the influence of outliers in our data. The winzorised abnormal return distributions for the US/UK group and the control groups are illustrated in Figure A2.

6.1.3 Aggregating the Abnormal Return

To estimate the overall market reaction of the events on the stock market performance of the companies in our sample, the abnormal returns estimated in Equation 6.2 must be aggregated (MacKinlay, 1997). We aggregate the abnormal returns using cumulative

abnormal returns (CAR), which is the sum of the abnormal returns in a specified window:

$$CAR_{it} = \sum_{t}^{T} (R_{it} - E(R_{it})) \tag{6.3}$$

CAR captures the total firm-specific stock movement for the period that the market might be responding to new information (Bodie et al., 2021). The T in Equation 6.3 represents the different lengths of windows wherein abnormal returns are aggregated. Hence, when analyzing the short-term stock market response in hypotheses 1 and 2, we use a 3-day rolling window to calculate the CAR. When examining the long-term financial performance of petroleum companies in Hypothesis 3, we calculate the CAR over one-year, two-year, and three-year windows.

6.1.4 Panel Fixed Effects & Standard Error Clustering

Utilizing our unbalanced panel data, which comprises daily observations across various individual companies, we employ a fixed effects regression methodology to account for unobservable omitted variables. Time-fixed effects serve to control for variables that remain constant across entities but undergo changes over time (Stock & Watson, 2020). By incorporating year-fixed effects into our model, we can control for time-invariant factors such as macroeconomic conditions, trends within the oil sector, and other global events that might affect all firms equally within each year. Since we estimate expected returns using 2002 data, year-fixed effects will capture systematic differences in returns specific to each year.

The standard errors in the DDD and DiD regressions are clustered at the entity (company) level. We employ clustered standard errors to account for the potential presence of heteroskedasticity and autocorrelation within entities (Stock & Watson, 2020). Given our relatively small sample of companies and varying group sample sizes, we adjust the degrees of freedom. In general, small-sample corrections for degrees of freedom are necessary when clustering standard errors, as clustered standard errors tend to be biased downwards for small samples without this adjustment (Cameron et al., 2011). In essence, this adjustment is crucial to mitigate the risk of overestimating the significance of the estimated coefficients.

6.1.5 Hypothesis 1 Regression Model

To test Hypothesis 1, we estimate the market response for US and UK oil companies to events increasing and decreasing the conflict intensity. We use a financial event study framework with the following regression model:

$$CAR_{it}^{t,t+2} = \alpha + \beta_1 Increase_t + \beta_2 Decrease_t + \beta_3 X_{it} + \gamma_t + \epsilon_{it} \tag{6.4}$$

where $Increase_t$ is a dummy that takes a value of 1 if there is an event that increases conflict intensity at day t. Conversely, $Decrease_t$ is a dummy that takes a value of 1 if there is an event that decreases conflict intensity at day t. X_{it} denotes a vector of observable control variables; firm size, oil price change and sector. Firm size is measured by the average market capitalization for the sample period. The oil price change is the cumulative percentage change in the oil price in event window $[t, t+2]$. The control variables for sector are dummies for each NAICS code. β_1 is the estimated coefficient for events increasing conflict intensity, which we expect to be positive from Hypothesis 1. Conversely, we expect the estimated coefficient for events decreasing conflict intensity, β_2, to be negative.

The coefficients in this model and all the following regression models are estimated using weighted-least squares (WLS), where we use the average market capitalization in the sample period as regression weights. By using market capitalizations as weights, we give more importance to the returns of the securities of larger companies in the estimates. This reflects the significance of these larger companies' returns in the market. We also include average market capitalization as a control variable because the size of a company is a factor that typically affects the market performance of a company's stock. As illustrated in Figure A4, the correlations between abnormal return and oil price change differ for the sectors. Hence, we add the oil price change as a control variable, even though we only examine companies from the petroleum industry.

6.2 Difference-in-Differences Methodology

6.2.1 Construction of Control Groups

We construct three control groups to investigate the market responses for petroleum companies headquartered in the US and UK versus those from other countries, as outlined in hypotheses 2 and 3 under Section 4.

All other (a): Petroleum companies headquartered in all countries in our sample.

War-opposing (b): Petroleum companies headquartered in the countries opposed to the war: Germany, France, and Russia.

Non-UNSC (c): Petroleum companies headquartered in all countries in our sample, excluding the permanent members of the security council: China, France, Russia.

The control groups are constructed by assembling publicly traded companies from the countries specified above. As we expect all the portfolios to be affected by the events to some degree, we apply a Difference-in-Differences (DiD) design to examine whether the performance of US and UK companies was significantly better (or worse) than the control groups. This approach provides a more nuanced analysis than Hypothesis 1 by comparing US/UK oil companies' CAR relative to the control groups instead of examining it in isolation.

6.2.2 Hypothesis 2 Regression Model

To test Hypothesis 2 we combine the event study and DiD methodology. We are both interested in the difference between the US/UK group and each control group, as well as the difference between conflict intensity increasing and decreasing events. Hence, we use a Difference-in-Difference-in-Differences (DDD) methodology. Since we investigate multiple events, we refer to this approach as a Multi-Event DDD. Using the [t,t+2] event windows discussed in Section 6.1.1, we examine the short-term market response differences between US and UK companies and the control groups resulting from the events. We use the following regression model to examine these differences:

$$CAR_{ijt} = \alpha + \theta_j Increase_t USUK_i Window_{jt} + \lambda_j Decrease_t USUK_i Window_{jt} + \beta_j X_{ijt} + \gamma_t + \epsilon_{ijt} \quad (6.5)$$

where the outcome variable CAR_{ijt} is the 3-day CAR for firm i, in window j, at day t. The estimated coefficients of interest are the triple difference coefficients θ_j and λ_j. θ_j measure the differential effect on the average CAR for US and UK companies during event windows that increased conflict intensity relative to the control group and non-event windows. X_{ijt} is a vector containing the same control variables as explained in Equation 6.4, in addition to $Decrease_t$, $Increase_t$, $USUK_i$ and $Window_{jt}$. γ_t is the year fixed effects, and ϵ_{ijt} is the error term. The estimated coefficients are weighted by average market capitalization in the sample period.

$Increase_t$ and $Decrease_t$ are similar to the ones used in Equation 6.4. The difference in this model is that these dummies are equal to 1 throughout each $[-15, +15]$ window, not solely in the $[t, t+2]$ event window. $Window_{jt}$ is a dummy for the event window j at day t. The event windows, each covering a 3-day period, range from t through $t+2$. While our primary focus is on the windows where t corresponds to an event date, we also consider all 3-day event windows spanning from $t-15$ through $t+15$. The pre-event coefficients serve to inspect the differences in abnormal returns prior to the event dates. These coefficients are crucial to evaluate whether the parallel trends assumption holds. This assumption will be further elaborated on in Section 6.2.4. From Hypothesis 2, we expect θ_j to be significantly positive and λ_j to be significantly negative for the 3-day windows starting on the event dates.

6.2.3 Hypothesis 3 Regression Model

To test Hypothesis 3, we investigate whether US and UK oil companies benefited more from the capture of Saddam Hussein compared to the control groups. For this analysis, we apply a standard DiD framework where we estimate the following regression model to analyze the differences:

$$CAR_{it} = \alpha + \beta_1 USUK_i + \beta_2 Post_t + \beta_3 USUK_i Post_t + \beta_4 X_{it} + \gamma_t + \epsilon_{it} \quad (6.6)$$

where the outcome variable CAR_{it} is the CAR composed of daily abnormal returns for firm i in day t. $USUK_i$ is a dummy that equals 1 if firm i is headquartered in the US or UK, $Post_t$ is a dummy that equals 1 for every day after the capture of Saddam Hussein, X_{it} is a vector of the same control variables as in Equation 6.4, and γ_t is the year fixed effects. β_3 is the DiD estimator that quantifies the difference in CAR between US/UK companies and each of the control groups after Saddam Hussein was captured. Similar to the models used to assess hypotheses 1 and 2, the coefficients in this DiD model are estimated using WLS with average market capitalization as regression weights. To evaluate the long-term effect of the Saddam Hussein capture, we run the regressions on sample periods of one, two, and three years post-capture. The pre-event period spans from the first trading day in 2002 to the day before Saddam Hussein was captured.

6.2.4 Parallel Trend Assumption

The parallel trend assumption is the most important assumption in the DiD design to identify the causal effect of a treatment (Cunningham, 2021). The assumption states that the treatment and control groups would have followed similar trends over time in the absence of the treatment. Applying this assumption to our study, we must show that the abnormal returns of US and UK companies follow the same trends as the abnormal returns of the petroleum companies in our control groups in the pre-event periods.

To test for pre-event parallel trends, we visually inspect the pre-event dynamics of US and UK companies and the control groups as suggested by Cunningham (2021). Since we analyze multiple events in the DDD approach, a visual inspection must be done for all events in our sample. For the parallel trend assumption to hold in the Multi-Event DDD model used to test Hypothesis 2, the pre-event triple-interaction coefficients should be insignificant and show no consistent upward or downward trend. We visually inspect the daily CAR in the pre-event period to analyze the long-term impact of the single event in the DiD approach used to test Hypothesis 3. For the parallel trend assumption to hold in this DiD model, the daily CAR should exhibit similar patterns for each group throughout the pre-period.

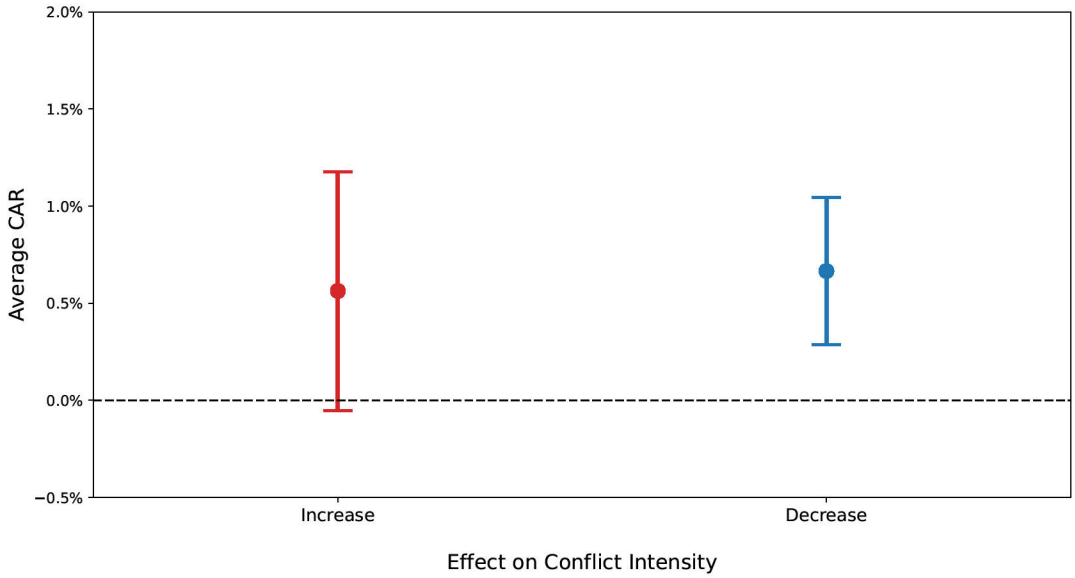
7 Results and Discussion

This section presents and discusses the results of our analyses. We will address the hypotheses in chronological order. For each hypothesis, we will start with the general results, followed by additional analyses and discussion.

7.1 Hypothesis 1

In Figure 7.1, we observe the results of the estimated Equation 6.4, which tests Hypothesis 1. A summary table for this regression is also available in Table A6. The results indicate that events increasing conflict intensity, on average, lead to a 0.56% increase in CAR. The result is, however, only significant at the 10% level, as shown in Table A6. Thus, it fails to meet the 5% significance threshold. Consequently, these findings imply that investors deemed these events as insignificant for the performance of US and UK oil companies. Furthermore, our results indicate that US and UK oil companies experienced an increase in abnormal returns of 0.67% during events that decreased the conflict intensity. This result is significant at the 1% level, as shown in Table A6.

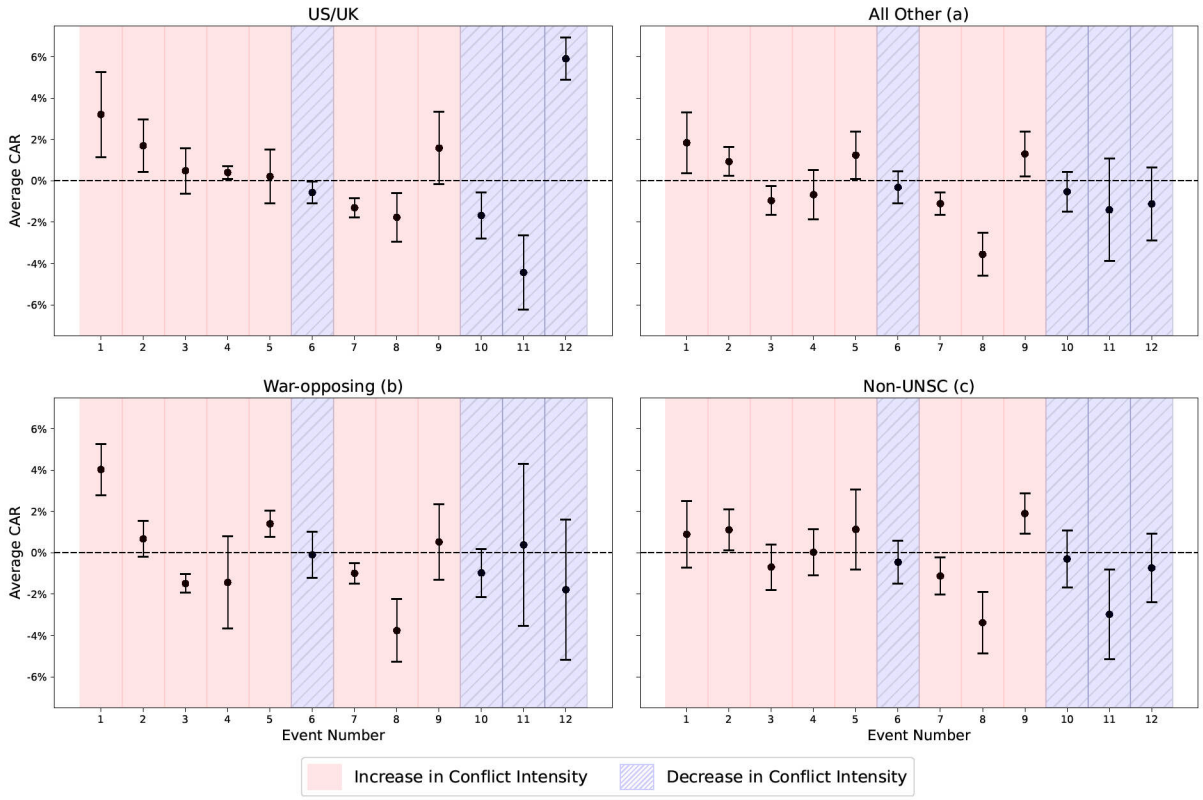
Figure 7.1: Average CAR for US/UK Oil Companies by Conflict Intensity



Notes: The figure displays the coefficients for $Increase_t$ and $Decrease_t$ in Regression 6.4, with 95% confidence intervals. The dependent variable is CAR in the event window [t,t+2]. Average market capitalization in the sample period is used as regression weights. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. The regression has 37,781 observations. The summary table for the regression is available in Table A6.

The findings in Figure 7.1 contradict our initial hypothesis, which stated that US and UK oil companies were expected to experience positive abnormal returns when conflict intensity increased and negative abnormal returns when conflict intensity decreased. To further examine the reactions at the event level, we adjust the regression by incorporating dummy variables for each specific event rather than using dummies for conflict intensity increase and decrease. Although Hypothesis 1 does not involve control groups, we conduct the same regression on the control groups used in Hypothesis 2 and 3 for comparative purposes. This allows for a preliminary observation of how each event's impact on US and UK oil companies contrasts with the reactions of these control groups, setting the basis for a more formal analysis in Hypotheses 2 and 3. The coefficients for the event-specific regression are illustrated in Figure 7.2.

Figure 7.2: Average CAR for Each Event



Notes: The figure displays the coefficients for a modified version of Regression 6.4, where dummies for each event in Table A5 are used instead of $Increase_t$ and $Decrease_t$. The error bars indicate the 95% confidence interval for each coefficient. The dependent variable is CAR in the event window [t,t+2]. Average market capitalization in the sample period is used as regression weights. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. The regression has 37,781 observations. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1. The event numbers correspond to Table A5.

Figure 7.2 shows that among the events increasing conflict intensity, events 1, 2, and 4 are significantly positive for US and UK oil companies at the 5% level. Conversely, events 7 and 8 are significantly negative. This suggests that investors in US and UK oil companies reacted inconsistently to events that increased conflict intensity. Moreover, the coefficients are constantly declining as the war progresses, up until Event 9. Kiley (2023) report a sharp decline in support for the Iraq War among American adults from 2003 to 2004. The reduced support by the public might have affected investors' perceptions of the advantages US/UK oil companies gained from increasing conflict intensity. Thus, a plausible explanation for the declining coefficients is the falling support for the war.

Although US and UK oil companies, on average, experienced positive abnormal returns from events decreasing conflict intensity, the only specific event with a significantly positive effect is Event 12, as shown in Figure 7.2. Evidently, this event singularly contributes to the observed average positive effect from events decreasing conflict intensity. Conversely, Event 12 has no significant effect on the other control groups. We find that a plausible explanation for the contrasting effects is that Event 12 involved the signing of two essential documents that sought to improve the relationship between the United States and Iraq:

1. *Strategic Framework Agreement for a Relationship of Friendship and Cooperation between the United States and the Republic of Iraq*
2. *Agreement Between the United States of America and Republic of Iraq On the Withdrawal of United States Forces from Iraq and the Organization of Their Activities during Their Temporary Presence in Iraq*

In the first document, the US and Iraq agreed to *"promote Iraq's development of the Iraqi electricity, oil, and gas sector, including the rehabilitation of vital facilities and institutions and strengthening and rehabilitating Iraqi capabilities."* (US Office of Treaty Affairs, 2008, p. 4). This agreement was likely interpreted as positive for international oil companies, particularly American companies. As the UK was closely associated with the US in Iraq, this strategic framework was likely also beneficial for oil companies from the UK.

Event 4 is the only conflict intensity increasing event with a significantly positive effect for US and UK oil companies and no significant effect for all the control groups. This is the event where US troops captured Saddam Hussein. Although the effect is significantly

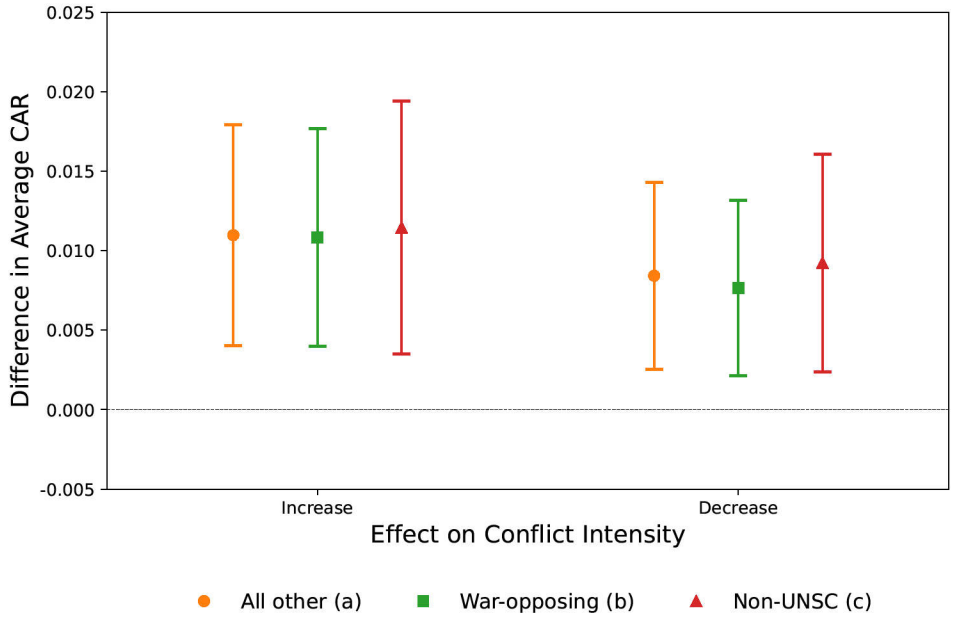
positive for US and UK oil companies, the average CAR is lower than for the other significantly positive conflict intensity increasing events. A possible explanation is that investors could not immediately interpret the event's long-term effect on US and UK oil companies due to uncertainty about the future stability of Iraq. We examine this event further in Section 7.3.

Among the events increasing conflict intensity, events 7 and 8 are the only events with a significantly negative average CAR for US and UK oil companies. However, we observe that the reaction for the control groups was similar to the US/UK group following Event 7. In contrast, for event 8, the average market response was more negative for the control groups. These observations lay the foundation for the next hypothesis, where we aim to estimate whether US and UK oil companies performed better than those in the control groups following the events.

7.2 Hypothesis 2

In Figure 7.3, we observe the results of the estimated Equation 6.5, which tests Hypothesis 2. A summary table for this regression is also available in Table A7. The figure shows that US and UK oil companies, on average, experienced significantly higher abnormal returns than all control groups for both event categories with a 5% significance threshold. These results are also significant at the 1% level, as shown in Table A7. Moreover, the coefficients indicate a larger impact from events that increase conflict intensity compared to those decreasing conflict intensity. From Hypothesis 1, we found no effect from conflict intensity increasing events on the abnormal returns of US and UK oil companies. However, the results from the test of Hypothesis 2 suggest that investors perceived these events as more advantageous for US and UK oil companies than for those in the control groups. Our initial hypothesis was that the difference would be positive for conflict intensity increasing events and negative for conflict intensity decreasing events. Consequently, the results for events increasing conflict intensity align with our hypothesis, while the results for events decreasing conflict intensity do not.

Figure 7.3: Difference in Average CAR for US and UK Oil Companies Relative to Control Groups (a)-(c) by Conflict Intensity



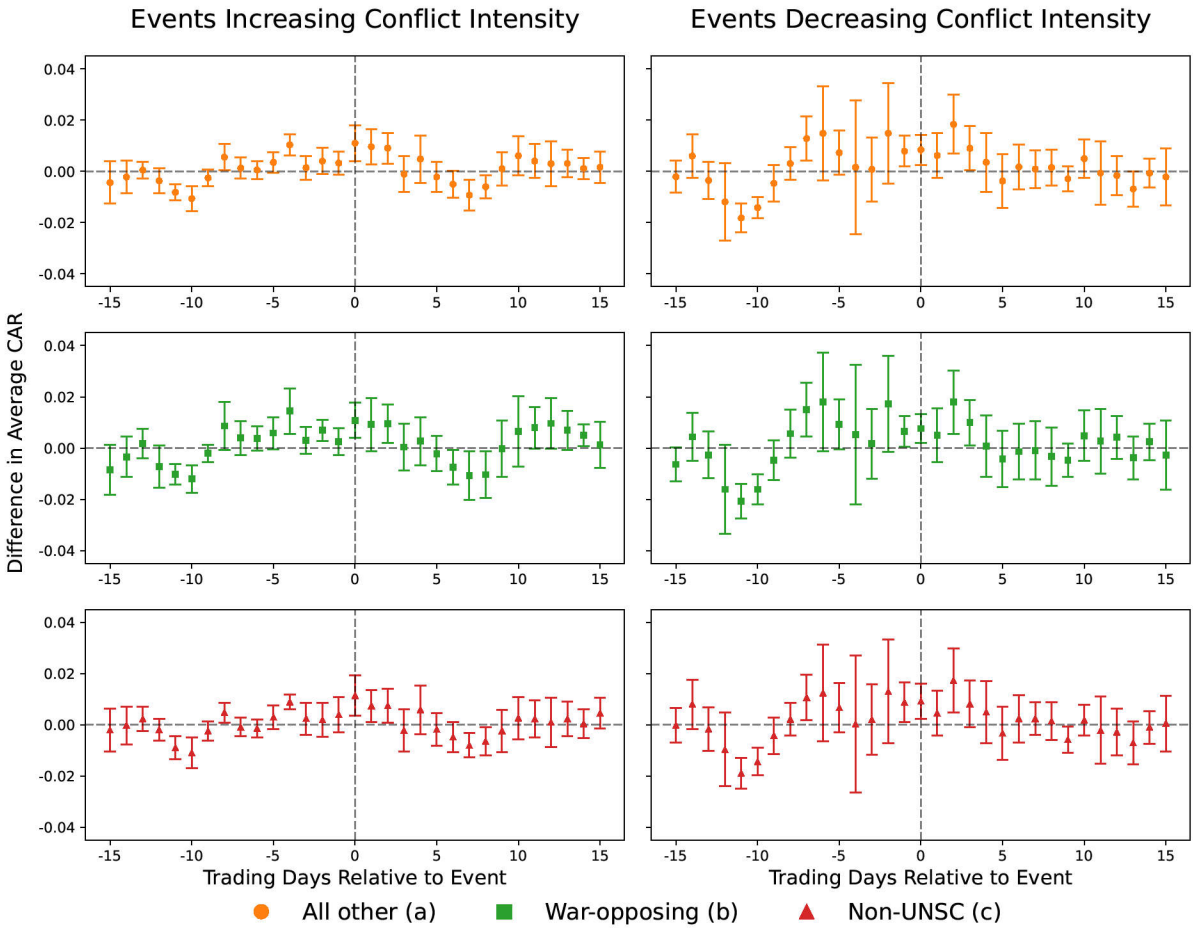
Notes: The figure plots the DDD coefficients *Increase:USUK:Window[0,2]* and *Decrease:USUK:Window[0,2]* in Table A7. These indicate the average difference in CAR in the event window [t,t+2] for US/UK companies compared to the control groups following events increasing and decreasing conflict intensity, respectively. Average market capitalization in the sample period is used as regression weights. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

Figure 7.4 illustrates the DDD coefficients for all 3-day windows in the 31-day window surrounding the events. The coefficients at $t = 0$ in this figure are the same as those reported in Figure 7.3. Optimally, all coefficients in the pre-event period should be insignificant for the parallel trends assumption to hold, meaning that the differences between the US/UK group and the control groups are statistically indifferent from zero.

Our assessment of the pre-event trends for conflict intensity increasing events is that the trends between the US/UK group and the control groups are not perfectly parallel, as several coefficients are significantly different from zero. However, for the events increasing conflict intensity, the pre-event coefficients are close to zero, and exhibit no clear trends. Conversely, for the events decreasing conflict intensity, the pre-event coefficients are further from zero and the trends appear more systematic. Thus, we evaluate the pre-event trends as parallel enough to estimate the causal difference between the groups for increasing conflict intensity events. On the other hand, the pre-event trends for events decreasing conflict intensity are not considered to be parallel.

The large differences in CAR in the pre-event period for events decreasing conflict intensity indicate that there could be information leakage associated with these events. Additionally, the post-event coefficients for these events are closer to zero and have less apparent trends than the pre-event coefficients. This change in trends further substantiates that the reason for the pre-trends could be information leakage. As events decreasing conflict intensity involve agreements or political changes, they are inherently more predictable than events increasing conflict intensity. Consequently, we assess that we cannot estimate the causal difference from events decreasing conflict intensity in Hypothesis 2 due to the lack of parallel pre-trends. Hence, the results for conflict intensity decreasing events presented in Figure 7.3 are not considered to be reliable, and will not be used to answer our research question.

Figure 7.4: DDD 3-day Average CAR Coefficients



Notes: The figure plots the coefficients for regression Equation 6.5 from 15 days before an event through 15 days post-event. The error bars show the 95% confidence intervals for each coefficient. Average market capitalization in the sample period is used as regression weights. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

As highlighted in Section 7.1, the only conflict intensity increasing event with a significantly positive short-term market reaction for US and UK oil companies and no significant reaction for the companies in the control groups is Event 4. This divergence sets the basis for the next hypothesis, where we will compare the long-term financial performance of US/UK oil companies to those in the control groups following the capture of Saddam Hussein.

7.3 Hypothesis 3

In Table 7.1, we observe the results of the estimated Equation 6.6, which tests Hypothesis 3. The DiD estimator, *post:USUK*, estimates the differences in CAR between US and UK oil companies and the control groups one, two, and three years following the capture of Saddam Hussein. As the table shows, the DiD estimator for control group (b) is significant at the 1 percent level for all three time horizons. For control group (a), the DiD estimator is significant at the 10% level one year after the event and the 5% level two and three years after. Conversely, for control group (c), the DiD estimator is insignificant across all the time horizons. The DiD estimator for control group (a) fails to meet the 5% significance threshold at a one-year horizon. Regardless, control groups (a) and (b) support our hypothesis that the long-term CAR was significantly greater for US and UK oil companies compared to the control groups following the event. However, we find no evidence that US and UK oil companies performed better compared to control group (c) following the capture of Saddam Hussein for any of the time horizons.

Table 7.1: Hypothesis 3 Regression Model Output

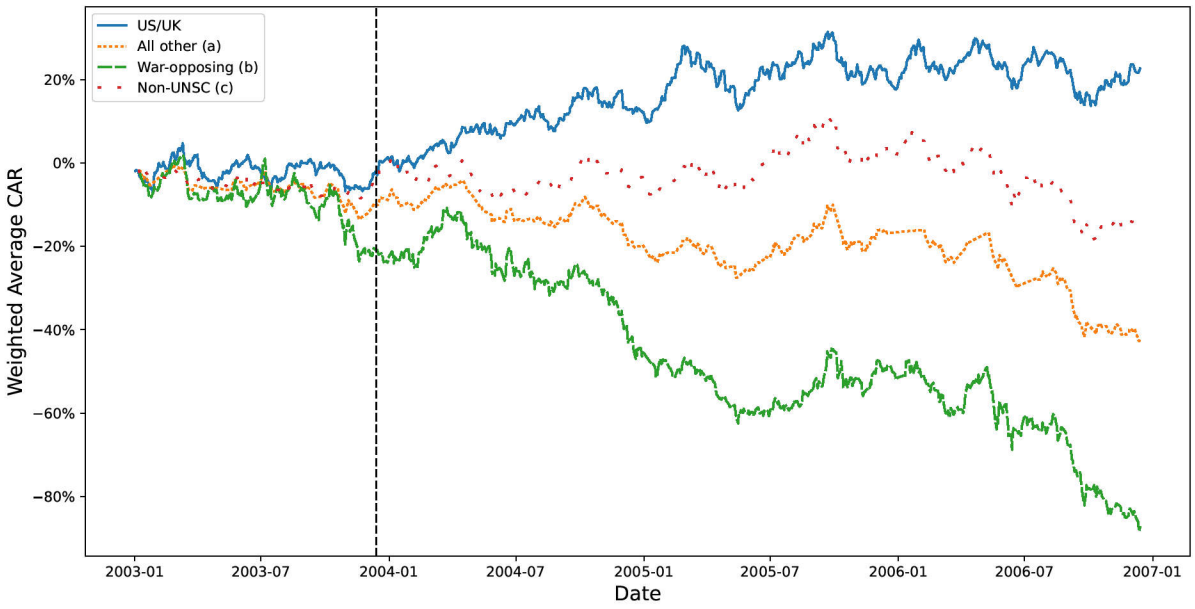
	Dependent Variable: CAR								
	All other (a)			War-opposing (b)			Non-UNSC (c)		
	1yr	2yr	3yr	1yr	2yr	3yr	1yr	2yr	3yr
post	-0.08	-0.13	-0.16	-0.21***	-0.35***	-0.43***	-0.02	-0.05	-0.08
	(0.06)	(0.08)	(0.10)	(0.06)	(0.11)	(0.13)	(0.09)	(0.12)	(0.16)
USUK	0.09	0.13	0.17	0.07	0.08	0.09	0.09	0.11	0.15
	(0.08)	(0.10)	(0.13)	(0.07)	(0.09)	(0.11)	(0.13)	(0.16)	(0.19)
post:USUK	0.15*	0.26**	0.33**	0.26***	0.47***	0.58***	0.09	0.14	0.17
	(0.08)	(0.12)	(0.16)	(0.08)	(0.12)	(0.16)	(0.11)	(0.16)	(0.22)
Observations	52,078	78,982	105,752	16,266	24,664	33,024	44,692	67,814	90,924

Notes: The dependent variable is CAR starting from January 2nd, 2002. The length of the post periods are 1, 2, and 3 years, starting from December 14th, 2003. The treatment group is companies headquartered in U.S and U.K. Control groups (a)-(c) are defined in Section 4. Standard errors, clustered at company level, are reported in parentheses. Average market capitalization in the period is used as weights.
*** p<0.01, ** p<0.05, * p<0.1

In Figure 7.5, we illustrate the long-term development of the weighted average CAR for US and UK oil companies and the three control groups. The timeline spans from the first trading day in 2003 to three years after the capture of Saddam Hussein. The figure is consistent with the DiD coefficients in Table 7.1, as the coefficients for control group (b) exceed those for control group (a), which in turn are larger than those for control group (c).

For the DiD estimator to be valid, the abnormal return trend of US and UK oil companies should be parallel to each of the control groups. Figure 7.5 demonstrates that US and UK oil companies and the control groups (a) and (c) exhibit similar trends in the period before the capture of Saddam Hussein. For control group (b), the trends are similar until approximately two months before the event for the war-opposing group. From this point, the weighted average CAR exhibits a more pronounced decline than the US/UK group. Thus, we assess the parallel trends assumption to hold for control group (a) and (c), while the assumption is violated for control group (b). Hence, we are not able to accurately draw a conclusion on the causal difference between the US/UK group and the war-opposing group based on the results in Table 7.1. Therefore, we will not further discuss the results for control group (b).

Figure 7.5: Weigthed Average CAR Pre- and Post Saddam Hussein Capture



Notes: The figure illustrates the daily weighted average Cumulative Abnormal Return (CAR) for the US/UK group and the three control groups (a)-(c). The time period spans from January 2nd, 2002 through December 14th, 2006. The dotted vertical line marks the date where Saddam Hussein was captured (Event 4 in Table A5). Average market cap in the period is used as weights.

From Figure 7.5, it is evident that the US/UK group maintained a larger weighted average CAR after the capture of Saddam Hussein than control groups (a) and (c). As discussed above, the DiD coefficients are only significant for control group (a). The only difference between these two control groups is that companies from countries that are permanent members of the UN Security Council are excluded in control group (c). Hence, control group (c) consists of companies headquartered in countries with less influence on the political discourse regarding the Iraq War. Put differently, these results suggest that the oil companies headquartered in countries that are permanent members of the UNSC performed worse than those from the US and UK following the capture.

As highlighted in Section 4, US' attempt to toughen the UN sanctions against Iraq prior to the invasion was opposed by Russia, France and China. One interpretation of our findings is that these countries' political stance was influenced by self-interests, particularly within the oil industry. Furthermore, Saddam Hussein had signed contracts for the development of new oil fields with China and Russia in the years before the war, while the US was frozen out of these deals. Thus, a plausible explanation is that Saddam Hussein's presidency was beneficial to oil companies from China and Russia. Our findings support this explanation, as China and Russia are permanent members of the UNSC. Moreover, the findings indicate that the US/UK did not perform significantly better than countries with a weaker political position in the debate on the Iraq War, i.e., those not in the UN Security Council.

8 Limitations

In this section, we discuss the most central limitations of the thesis. Furthermore, we modify the models to evaluate whether they account for these limitations. First, we address the limitation that larger oil companies most likely are more affected by the events than smaller oil companies. Second, we address the limitation that the importance of the events is implicitly assumed to be equal in the analysis.

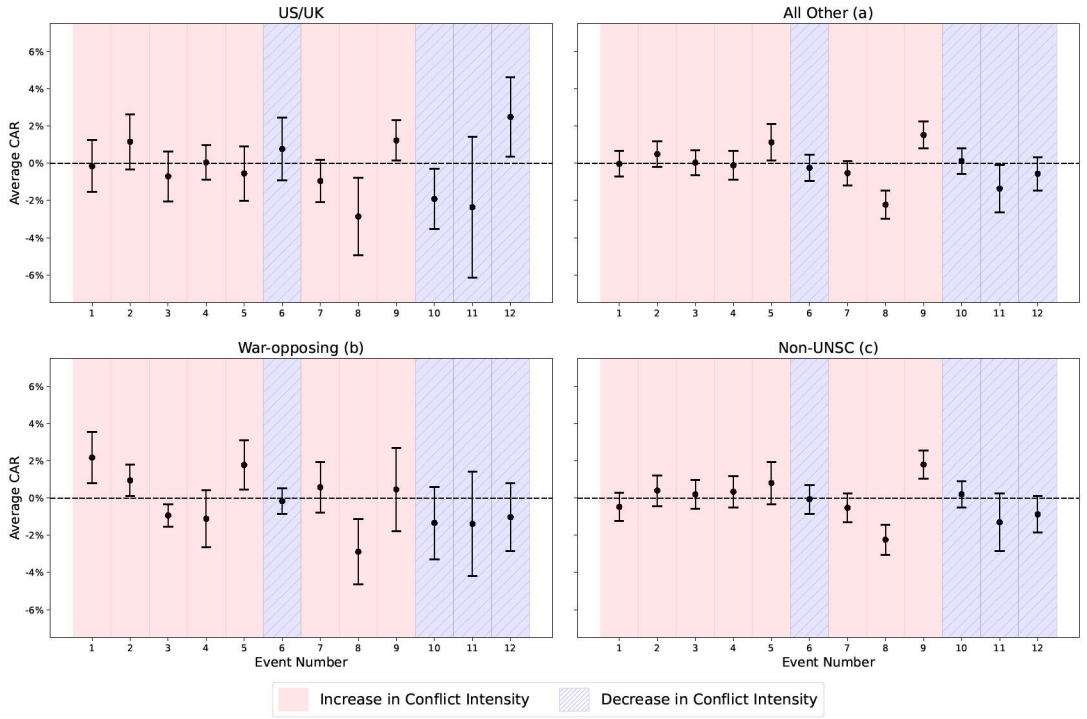
The first bidding rounds for oil and gas fields in Iraq took place in 2009, with major oil companies such as BP, ExxonMobil, and Gazprom securing licenses to operate on these fields (Ashwarya, 2017, p. 6). We expect that smaller companies in our sample mainly operated inside their national borders and were mostly affected indirectly by events during the Iraq war through changes in the oil price. Most companies in our sample have a market capitalization below $10 billion, as illustrated in Figure A3. Given our expectation that events have a greater impact on larger companies, this right-skewed distribution of market capitalization can distort the results. We address this issue by weighting the companies by average market capitalization as explained in Section 6.2.2.

Figure 8.1 illustrates the coefficients for each event when we remove the weights for market capitalization. We observe that fewer coefficients are significant and more coefficients are closer to zero than in the original model illustrated in Figure 7.2. The aggregated coefficients for the modified model, shown in Figure A5, indicate insignificant results for both conflict intensity categories. Both coefficients are also closer to zero than in the original model illustrated in Figure 7.1. These observations suggest that larger oil companies were more affected by the events than small oil companies, which supports our expectation that smaller companies were not directly affected by the Iraq War.

We apply the same modifications to the models presented in Figure 7.3 and Table 7.1, which test Hypotheses 2 and 3, respectively. The revised model for Hypothesis 2, illustrated in Figure A6, reveals non-parallel pre-trends in events that increase conflict intensity. Given our previous finding of non-parallel pre-trends in events that decrease conflict intensity in the original Hypothesis 2 model, we will not compare these models further. Similarly, we find no parallel pre-trends for the modified model testing Hypothesis 3, as illustrated in Figure A8. Nevertheless, the results for the modified regression are presented in A8.

Since the parallel trends assumption does not hold, these results do however not provide a causal difference estimate.

Figure 8.1: Average CAR for Each Event Without Weights

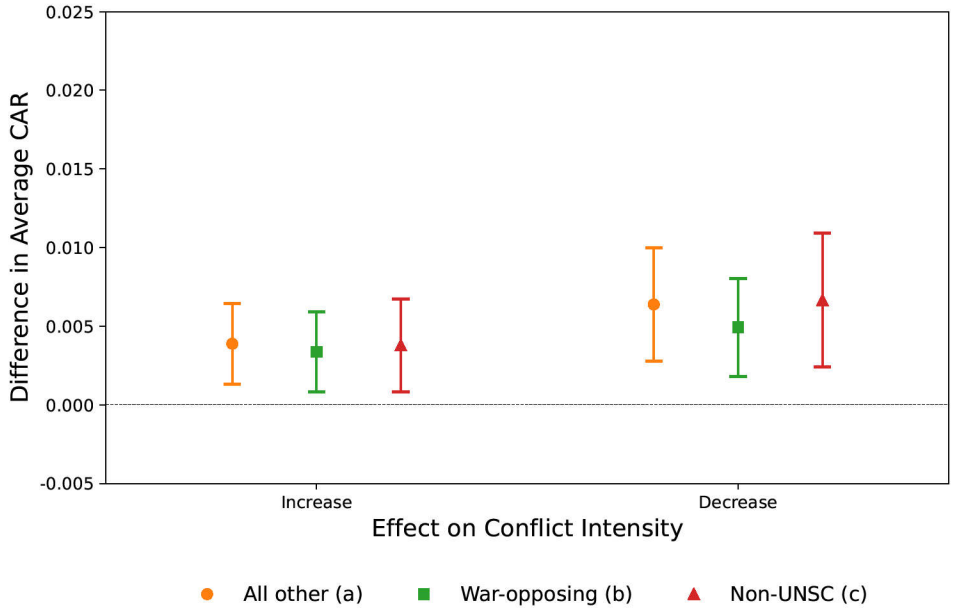


Notes: The plot illustrates the coefficients for a modified version of Equation 6.4, where each event has a coefficient instead of aggregating it based on the effect on conflict intensity. This model does not use average market capitalization as regression weights. The error bars show the 95% confidence intervals for each coefficient. The background color and pattern behind each error bar illustrate the effect each event had on conflict intensity. The event numbers correspond to Table A5. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

When the event date is partially anticipated, event studies may be less effective (MacKinlay, 1997, p. 37). We use the event surprise factors to select the most unanticipated events for assessing hypotheses 1 and 2. The factor for each event is shown in Table A5. However, the models do not distinguish between events based on this surprise factor. To evaluate the effect a one-unit increase in the event surprise factor has on CAR, we modify Equation 6.5, which tests Hypothesis 2. In this revised model, we replace the dummies for increasing and decreasing conflict intensity with the event surprise factor's value within the event window and zero otherwise. As illustrated in Figure 8.2, all coefficients are smaller than in the original model presented in Figure 7.3. This reduction in coefficient size is expected, as all event surprise factors are above 1, unlike the original binary dummies. Moreover, the pre-event trends illustrated in Figure A7 are not parallel for events decreasing conflict intensity similar to the original model. Thus, the results for these events do not provide

a causal difference estimate and will not be further discussed. However, we are able to interpret the effect of events increasing conflict intensity. A one-unit increase in the event surprise factor is associated with increasing differences in average CAR between US/UK companies and the control groups. These differences are 0.39, 0.34, and 0.38 percentage points for control groups (a), (b), and (c), respectively. Hence, US/UK companies benefit more from a higher event surprise for events increasing conflict intensity than the control groups. These results support our findings in Section 7.2.

Figure 8.2: DDD 3-day Average CAR Coefficients in Window [t,t+2] with Event Surprise Factors



Notes: The plot illustrates the DDD coefficient for Equation 6.5 in event window *[t, t+2]*, where the event surprise factors are used instead of the $Increase_t$ and $Decrease_t$ dummies. Average market capitalization in the sample period is used as weights. The regressions have year-fixed effects and control variables for industry, market cap, and 3-day oil price change. The regressions have 159,690, 49,996, and 137,280 observations for control groups (a), (b), and (c), respectively. The error bars show the 95% confidence intervals for each coefficient. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1. Event surprise factors for each event are shown in Table A5.

9 Conclusion

We investigate the allegations that the US and UK invaded Iraq to gain access to oil resources. Although we find no evidence that US/UK oil companies profited from events increasing conflict intensity, our findings do show that US/UK oil companies outperformed all control groups following these events. Moreover, our findings provide evidence that US/UK oil companies benefited from events decreasing conflict intensity. This effect was primarily driven by the signing of a strategic framework agreement between the US and Iraq, along with the announcement of the US' troop withdrawal. Nevertheless, due to non-parallel pre-trends for events decreasing conflict intensity, we were unable to determine if there was a causal difference in these profits compared to the control groups.

When narrowing the analysis to the event where US troops captured Saddam Hussein, we find that the US/UK oil companies performed significantly better than oil companies from all other countries two and three years following the capture. This finding indicates a sustained outperformance for US/UK oil companies compared to this control group. However, we find no difference in long-term financial performance when excluding oil companies from countries that are permanent members of the UN Security Council.

To address the question *"Who were the true winners of the Iraq War?"*, our findings indicate that US and UK oil companies generally benefited the most. However, the results related to the capture of Saddam Hussein are sensitive to changes in the control group composition and length of the post-event period. Hence, the variability in the results across the hypotheses and model specifications suggests an element of ambiguity to this question.

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Appendices

A1 Figures

Figure A1: Country Distribution for Oil Companies in Dataset

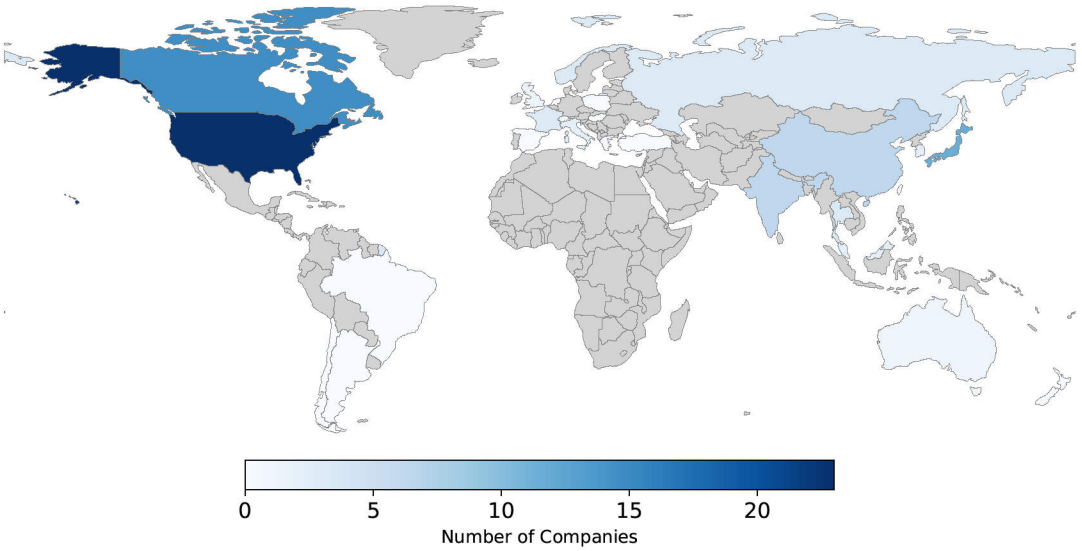
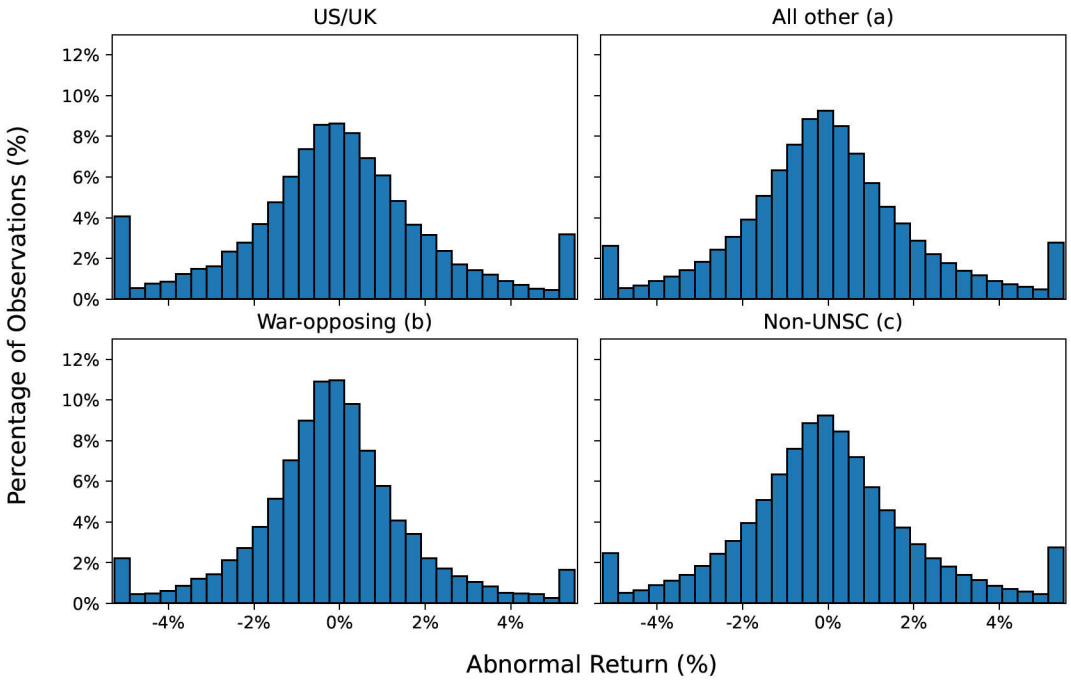
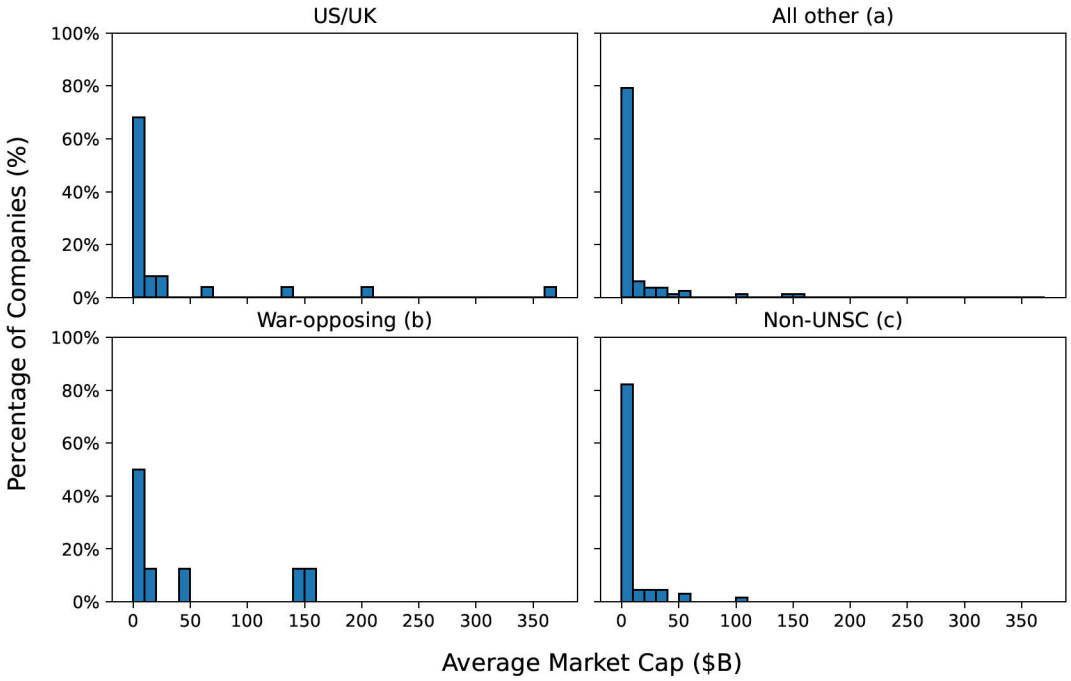


Figure A2: Histograms of Abnormal Returns for Each Group



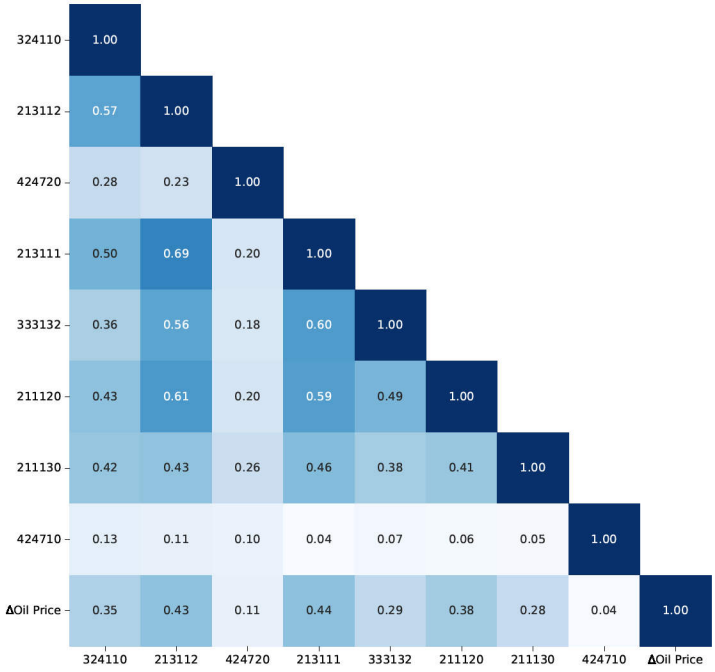
Notes: Abnormal returns are winzorised at the 2.5% level on the full sample. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

Figure A3: Histograms of Average Market Capitalization for Each Group



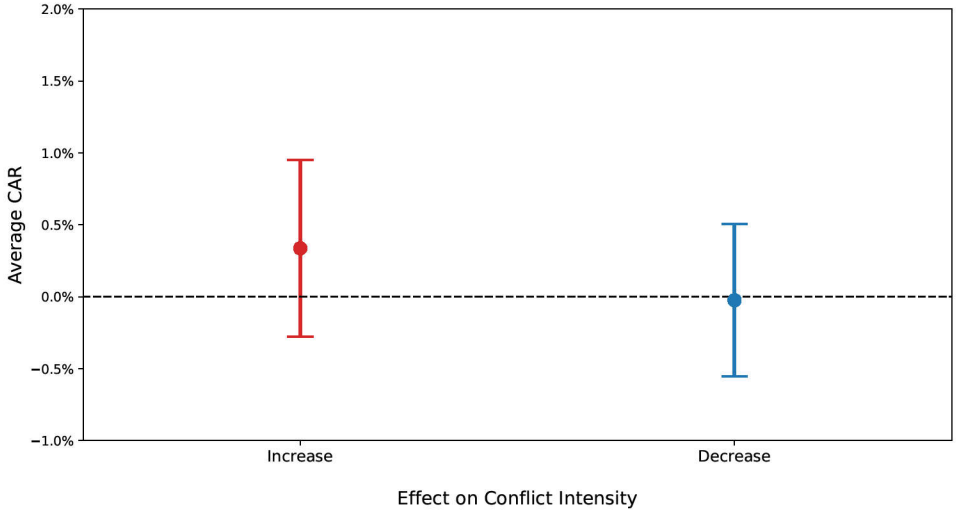
Notes: The x-axis displays the average market capitalization in the period 2003-2008, in billions USD. The y-axis displays the percentage of observations within each interval of 10 billion USD. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

Figure A4: Industry Abnormal Returns and Oil Price Change Correlation Matrix



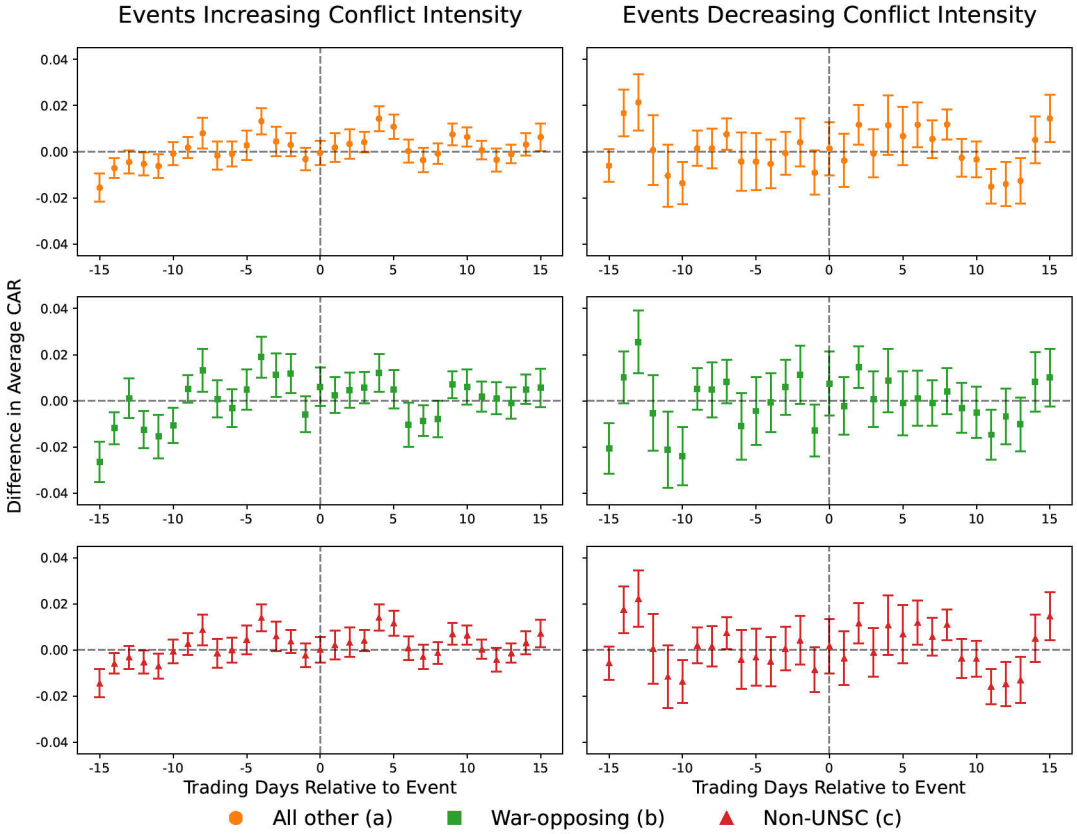
Notes: The figure displays the correlation coefficients for daily abnormal returns between the industries (NAICS) and the daily oil price change. A darker blue color indicates a more positive correlation coefficient. The industry names for each NAICS code are in Table A1.

Figure A5: Average CAR for US/UK Oil Companies Without Weights



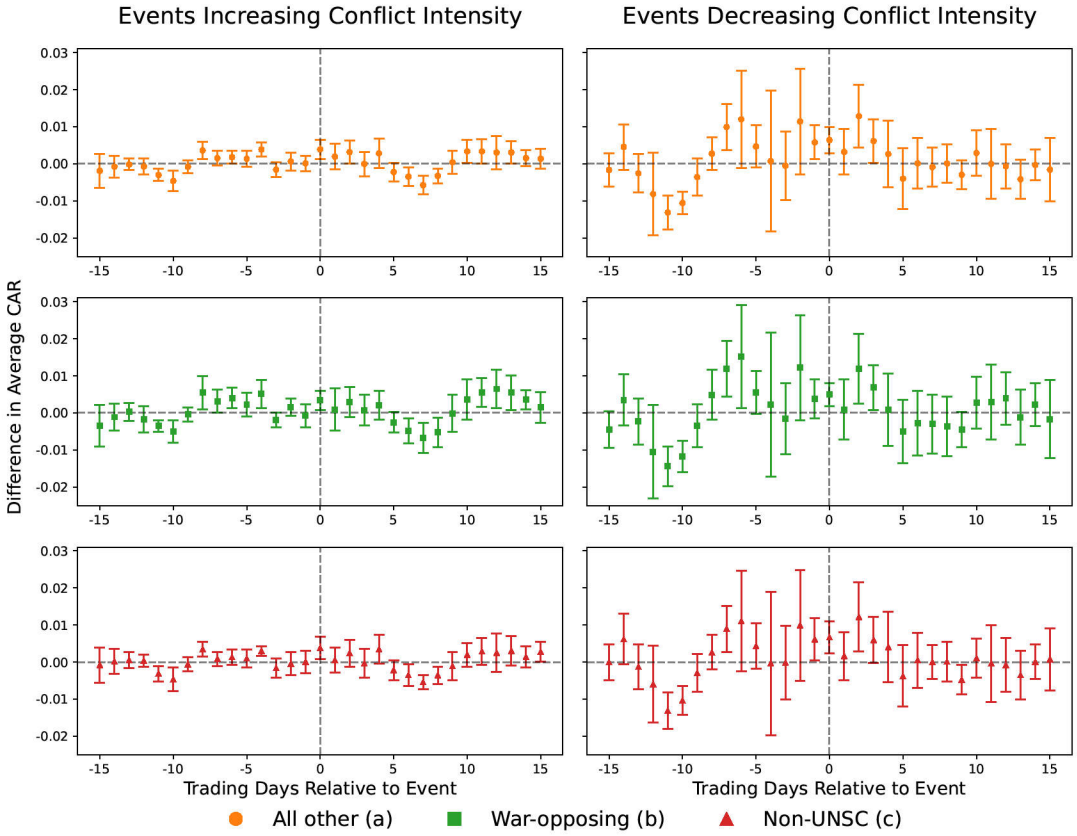
Notes: The figure displays the coefficients for $Increase_t$ and $Decrease_t$ in Equation 6.4 without market capitalization weights. The error bars show the 95% confidence intervals for each coefficient. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. The regression has 37,781 observations. The summary table for the regression is available in Table A6

Figure A6: DDD 3-day Average CAR Coefficients Without Weights



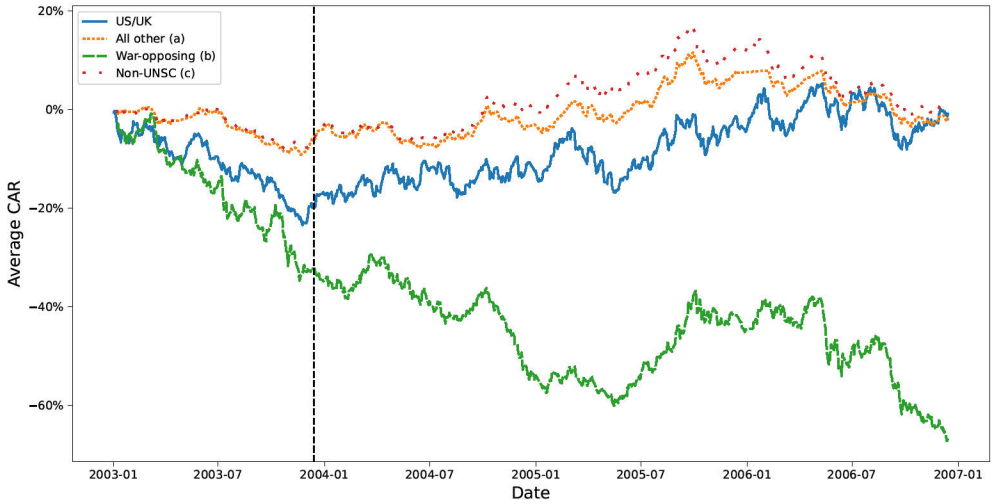
Notes: The figure plots the coefficients for Equation 6.5 from 15 days before an event through 15 days post-event, without market capitalization weights. The error bars show the 95% confidence intervals for each coefficient. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

Figure A7: DDD 3-day Average CAR Coefficients with Event Surprise Factor



Notes: The figure plots the coefficients for a modified version of Equation 6.5 from 15 days before an event through 15 days post-event. The binary dummies $Increase_t$ and $Decrease_t$ are replaced with the event surprise factors for each event, shown in Table A5. The error bars show the 95% confidence intervals for each coefficient. Average market capitalization in the sample period is used as regression weights. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

Figure A8: Average CAR Pre- and Post Saddam Hussein Capture



Notes: The figure illustrates the daily average Cumulative Abnormal Return (CAR) for the US/UK group and the three control groups (a)-(c). The time period spans from January 2nd, 2002 through December 14th, 2006. The dotted vertical line marks the date where Saddam Hussein was captured (Event 4 in Table A5).

A2 Tables

Table A1: NAICS Codes Overview Table For All Groups

NAICS	Companies	Description
324110	46	Petroleum Refineries
213112	13	Support Activities for Oil and Gas Operations
424720	13	Petroleum and Petroleum Products Merchant Wholesalers
213111	12	Drilling Oil and Gas Wells
333132	9	Oil and Gas Field Machinery and Equipment Manufacturing
211120	7	Crude Petroleum Extraction
211130	4	Natural Gas Extraction
424710	3	Petroleum Bulk Stations and Terminals
Total	**107**	

Table A2: NAICS Codes Overview Table per Group

NAICS	US/UK		All other (a)		War-opposing (b)		Non-UNSC (c)	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
324110	5	20.0%	41	50.0%	6	75.0%	30	44.8%
213112	5	20.0%	8	9.8%	0	0.0%	6	9.0%
424720	4	16.0%	9	11.0%	0	0.0%	9	13.4%
213111	2	8.0%	10	12.2%	0	0.0%	10	14.9%
333132	4	16.0%	5	6.1%	1	12.5%	4	6.0%
424710	0	0.0%	3	3.7%	1	12.5%	2	3.0%
211120	4	16.0%	3	3.7%	0	0.0%	3	4.5%
211130	1	4.0%	3	3.7%	0	0.0%	3	4.5%
Total	**25**	**100%**	**82**	**100%**	**8**	**100%**	**67**	**100%**

Notes: The *Count* column displays the number of companies in each sector, categorized by their registered NAICS code in Compustat. The *Percent* column shows the proportion of companies in each sector relative to the total number of companies in each group. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

Table A3: Descriptive Statistics

	US/UK	All other (a)	War-opposing (b)	Non-UNSC (c)
Abnormal Return	-0.0007	-0.0005	-0.0015	-0.0004
	(0.0226)	(0.0214)	(0.0188)	(0.0213)
Market Cap ($B)	34.51	11.70	46.88	8.24
	(82.35)	(27.35)	(60.31)	(17.17)
Observations	37,831	122,073	12,231	99,633
Companies	25	82	8	67

Notes: The *Abnormal Return* and *Market Cap* rows shows the average values for each group. Standard deviation for the variables are in paranthesis. Market Capitalization is given in billion USD. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.

Table A4: Overview of Data Cleaning Steps

	Cleaning Step	Observations	Companies	ΔObs.	ΔComp.
0	Initial State	935,136	674		
1	Remove observations for inactive companies (costat = 'I')	598,139	370	-336,997	-304
2	Remove non-exchange listed companies	496,057	317	-102,082	-53
3	Remove Preferred Shares and Warrants	429,315	316	-66,742	-1
4	Remove missing price observations	429,151	316	-164	0
5	Remove missing shares outstanding observations	418,239	316	-10,912	0
6	Keep only the stock exchange with the most unique dates	370,857	316	-47,382	0
7	Keep only companies with >200 observations each year	216,698	123	-154,159	-193
8	Remove companies with 21 or more consecutive days no price change	199,329	113	-17,369	-10
9	Remove observations with missing currency values	198,559	113	-770	0
10	Remove observations with zero values for adjustment factor	198,054	113	-505	0
11	Remove the duplicate observations with the lowest trading volume	196,298	113	-1,756	0
12	Remove missing excess returns	187,376	108	-8,922	-5
13	Remove missing abnormal returns	159,904	107	-27,472	-1

Notes: The table shows the data cleaning step by step and how many observations/unique companies are removed in each step. It only shows the cleaning steps that reduced the number of observations and/or companies.

Table A5: Timeline of Significant Events Related to Iraq War

	Date	Description	Conflict Intensity	Event Surprise
1	2003-01-27	Hans Blix sharply criticize Iraq before the Security Council, saying the Iraqis failed to cooperate adequately with inspectors.	Increase	1.65
2	2003-03-20	President George W. Bush announces that US forces have begun a military operation into Iraq.	Increase	1.90
3	2003-08-19	A suicide bomber destroys the UN headquarters in Iraq, killing UN special representative Sérgio Vieira de Mello and 22 staff. UN immediately withdraws all nonessential personnel.	Increase	2.20
4	2003-12-14	US troops captures Saddam Hussein in Tikrit.	Increase	2.13
5	2004-03-31	Four US contractors are killed, burned, and hung from a bridge by Iraqi insurgents in Fallujah, leading to the First Battle of Fallujah.	Increase	1.27
6	2004-06-08	United Nations Security Council Resolution 1546 endorses the transfer of sovereignty to Iraq's interim government.	Decrease	1.35
7	2006-02-22	Sunni Muslim extremists destroy the gilded Shiite shrine in Samarra.	Increase	2.00
8	2006-06-08	Al-Qaeda in Iraq leader Zarqawi is killed in a US-led air strike near Baquba.	Increase	3.06
9	2007-01-10	Bush announces a "new way forward" in Iraq, vowing to commit an additional twenty thousand troops.	Increase	2.23
10	2007-11-26	US President George W. Bush and Iraqi Prime Minister Nouri Kamel Al-Maliki sign a Declaration of Principles for a Long-Term Relationship of Cooperation and Friendship between Iraq and US	Decrease	1.37
11	2008-09-01	In Anbar, US military hands over security responsibilities to the Iraqis.	Decrease	1.18
12	2008-11-17	US Ambassador to Iraq Ryan Crocker and Iraq Foreign Minister Hoshyar Zebari sign two documents regarding their relationship and US' withdrawal of troops from Iraq.	Decrease	1.44

Notes: The events are collected based on several news timelines of the Iraq War and The University of Edinburgh (2023). The event surprise is computed as the ratio of news articles mentioning Iraq on days t and t+1 to those on days t-4 to t-1.

Table A6: Hypothesis 1 Regression Model Output

	Dependent Variable: CAR[t,t+2]		
	Coefficient	Std. Error	P-value
const	0.0014	0.0020	0.4857
Decrease	0.0067***	0.0019	0.0006
Increase	0.0056*	0.0031	0.0728
Observations		37,781	

Notes: This table shows the coefficients for Equation 6.4. Average market capitalization in the sample period is used as regression weights. The regression have time fixed effects and control variables for industry, market cap and 3-day oil price change. Standard errors are clustered at company level.
*** p<0.01, ** p<0.05, * p<0.1

Table A7: Hypothesis 2 Regression Model Output

	Dependent Variable: CAR[t,t+2]		
	All other (a)	War-opposing (b)	Non-UNSC (c)
const	-0.0023**	-0.0044***	-0.0012
	(0.0010)	(0.0014)	(0.0013)
USUK	0.0035***	0.0046***	0.0021
	(0.0013)	(0.0014)	(0.0019)
Decrease	-0.0009	-0.0006	-0.0008
	(0.0014)	(0.0017)	(0.0018)
Increase	-0.0060***	-0.0061***	-0.0053***
	(0.0010)	(0.0013)	(0.0014)
Window[-15,-13]	0.0064***	0.0104***	0.0037*
	(0.0017)	(0.0019)	(0.0020)
Window[-14,-12]	0.0111***	0.0124***	0.0086***
	(0.0020)	(0.0030)	(0.0024)
Window[-13,-11]	0.0055***	0.0043	0.0032
	(0.0015)	(0.0029)	(0.0024)
Window[-12,-10]	0.0099***	0.0135***	0.0074***
	(0.0025)	(0.0049)	(0.0018)
Window[-11,-9]	0.0104***	0.0124***	0.0107***
	(0.0019)	(0.0027)	(0.0026)
Window[-10,-8]	0.0112***	0.0127***	0.0112***
	(0.0018)	(0.0025)	(0.0024)
Window[-9,-7]	0.0043***	0.0038**	0.0037
	(0.0015)	(0.0018)	(0.0023)
Window[-8,-6]	0.0030	-0.0001	0.0035*
	(0.0022)	(0.0039)	(0.0021)

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Table A7 – continued from previous page

	All other (a)	War-opposing (b)	Non-UNSC (c)
Window[-7,-5]	-0.0001	-0.0028	0.0016
	(0.0016)	(0.0029)	(0.0014)
Window[-6,-4]	0.0057***	0.0022	0.0075***
	(0.0015)	(0.0023)	(0.0012)
Window[-5,-3]	0.0043**	0.0018	0.0046**
	(0.0017)	(0.0025)	(0.0021)
Window[-4,-2]	0.0046**	0.0004	0.0059***
	(0.0022)	(0.0038)	(0.0021)
Window[-3,-1]	0.0021	0.0005	0.0007
	(0.0021)	(0.0022)	(0.0035)
Window[-2,0]	-0.0021	-0.0051***	-0.0004
	(0.0024)	(0.0018)	(0.0034)
Window[-1,1]	0.0035	0.0042	0.0025
	(0.0022)	(0.0026)	(0.0033)
Window[0,2]	0.0007	0.0009	-0.0002
	(0.0017)	(0.0014)	(0.0026)
Window[1,3]	0.0024	0.0029	0.0041*
	(0.0024)	(0.0043)	(0.0023)
Window[2,4]	0.0003	0.0001	0.0013
	(0.0015)	(0.0022)	(0.0019)
Window[3,5]	0.0056***	0.0042**	0.0060***
	(0.0012)	(0.0019)	(0.0018)
Window[4,6]	0.0140***	0.0163***	0.0121***
	(0.0023)	(0.0033)	(0.0024)
Window[5,7]	0.0121***	0.0123***	0.0108***
	(0.0022)	(0.0037)	(0.0023)
Window[6,8]	0.0114***	0.0140***	0.0103***
	(0.0025)	(0.0042)	(0.0025)
Window[7,9]	0.0083***	0.0097*	0.0064***
	(0.0028)	(0.0054)	(0.0018)
Window[8,10]	0.0106***	0.0149**	0.0106***
	(0.0028)	(0.0059)	(0.0032)
Window[9,11]	0.0052*	0.0064	0.0080**
	(0.0027)	(0.0051)	(0.0032)
Window[10,12]	0.0014	0.0010	0.0044
	(0.0033)	(0.0062)	(0.0034)

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Table A7 – continued from previous page

	All other (a)	War-opposing (b)	Non-UNSC (c)
Window[11,13]	0.0015	-0.0024	0.0026
	(0.0021)	(0.0024)	(0.0024)
Window[12,14]	-0.0001	-0.0066**	0.0012
	(0.0023)	(0.0027)	(0.0028)
Window[13,15]	0.0057***	0.0019	0.0057**
	(0.0015)	(0.0025)	(0.0024)
Window[14,16]	0.0093***	0.0056**	0.0094***
	(0.0019)	(0.0023)	(0.0029)
Window[15,17]	0.0072**	0.0075	0.0035
	(0.0029)	(0.0053)	(0.0028)
Increase:USUK:Window[-15,-13]	-0.0044	-0.0084*	-0.0020
	(0.0042)	(0.0050)	(0.0043)
Decrease:USUK:Window[-15,-13]	-0.0021	-0.0063*	-0.0001
	(0.0032)	(0.0033)	(0.0035)
Increase:USUK:Window[-14,-12]	-0.0022	-0.0034	-0.0002
	(0.0032)	(0.0040)	(0.0038)
Decrease:USUK:Window[-14,-12]	0.0060	0.0044	0.0080
	(0.0043)	(0.0048)	(0.0049)
Increase:USUK:Window[-13,-11]	0.0005	0.0018	0.0023
	(0.0016)	(0.0029)	(0.0024)
Decrease:USUK:Window[-13,-11]	-0.0036	-0.0027	-0.0017
	(0.0037)	(0.0047)	(0.0043)
Increase:USUK:Window[-12,-10]	-0.0037	-0.0072*	-0.0018
	(0.0025)	(0.0042)	(0.0021)
Decrease:USUK:Window[-12,-10]	-0.0119	-0.0161*	-0.0096
	(0.0077)	(0.0088)	(0.0073)
Increase:USUK:Window[-11,-9]	-0.0082***	-0.0103***	-0.0089***
	(0.0016)	(0.0020)	(0.0023)
Decrease:USUK:Window[-11,-9]	-0.0182***	-0.0207***	-0.0189***
	(0.0029)	(0.0035)	(0.0031)
Increase:USUK:Window[-10,-8]	-0.0106***	-0.0120***	-0.0110***
	(0.0025)	(0.0027)	(0.0030)
Decrease:USUK:Window[-10,-8]	-0.0142***	-0.0161***	-0.0144***
	(0.0021)	(0.0029)	(0.0027)
Increase:USUK:Window[-9,-7]	-0.0026	-0.0020	-0.0024
	(0.0016)	(0.0017)	(0.0019)

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Table A7 – continued from previous page

	All other (a)	War-opposing (b)	Non-UNSC (c)
Decrease:USUK:Window[-9,-7]	-0.0047	-0.0047	-0.0042
	(0.0036)	(0.0039)	(0.0037)
Increase:USUK:Window[-8,-6]	0.0055**	0.0087*	0.0048**
	(0.0026)	(0.0048)	(0.0020)
Decrease:USUK:Window[-8,-6]	0.0030	0.0056	0.0022
	(0.0033)	(0.0048)	(0.0032)
Increase:USUK:Window[-7,-5]	0.0013	0.0040	-0.0008
	(0.0021)	(0.0034)	(0.0019)
Decrease:USUK:Window[-7,-5]	0.0128***	0.0151***	0.0107**
	(0.0044)	(0.0054)	(0.0045)
Increase:USUK:Window[-6,-4]	0.0005	0.0039	-0.0014
	(0.0018)	(0.0024)	(0.0018)
Decrease:USUK:Window[-6,-4]	0.0148	0.0180*	0.0124
	(0.0094)	(0.0098)	(0.0096)
Increase:USUK:Window[-5,-3]	0.0035*	0.0059*	0.0030
	(0.0021)	(0.0032)	(0.0024)
Decrease:USUK:Window[-5,-3]	0.0072	0.0092*	0.0067
	(0.0044)	(0.0049)	(0.0049)
Increase:USUK:Window[-4,-2]	0.0103***	0.0145***	0.0089***
	(0.0021)	(0.0045)	(0.0015)
Decrease:USUK:Window[-4,-2]	0.0016	0.0052	0.0003
	(0.0134)	(0.0139)	(0.0137)
Increase:USUK:Window[-3,-1]	0.0014	0.0030	0.0025
	(0.0024)	(0.0026)	(0.0032)
Decrease:USUK:Window[-3,-1]	0.0008	0.0017	0.0021
	(0.0064)	(0.0069)	(0.0070)
Increase:USUK:Window[-2,0]	0.0040	0.0070***	0.0020
	(0.0026)	(0.0021)	(0.0034)
Decrease:USUK:Window[-2,0]	0.0149	0.0173*	0.0130
	(0.0100)	(0.0096)	(0.0103)
Increase:USUK:Window[-1,1]	0.0032	0.0025	0.0040
	(0.0023)	(0.0027)	(0.0035)
Decrease:USUK:Window[-1,1]	0.0079**	0.0066**	0.0088**
	(0.0031)	(0.0030)	(0.0040)
Increase:USUK:Window[0,2]	0.0110***	0.0108***	0.0115***
	(0.0035)	(0.0035)	(0.0041)

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Table A7 – continued from previous page

	All other (a)	War-opposing (b)	Non-UNSC (c)
Decrease:USUK:Window[0,2]	0.0084***	0.0077***	0.0092***
	(0.0030)	(0.0028)	(0.0035)
Increase:USUK:Window[1,3]	0.0096***	0.0092*	0.0074**
	(0.0035)	(0.0053)	(0.0032)
Decrease:USUK:Window[1,3]	0.0062	0.0051	0.0046
	(0.0045)	(0.0053)	(0.0045)
Increase:USUK:Window[2,4]	0.0090***	0.0095**	0.0075**
	(0.0031)	(0.0038)	(0.0034)
Decrease:USUK:Window[2,4]	0.0183***	0.0180***	0.0173***
	(0.0059)	(0.0063)	(0.0063)
Increase:USUK:Window[3,5]	-0.0011	0.0004	-0.0022
	(0.0035)	(0.0046)	(0.0042)
Decrease:USUK:Window[3,5]	0.0090**	0.0100**	0.0082*
	(0.0044)	(0.0045)	(0.0046)
Increase:USUK:Window[4,6]	0.0048	0.0027	0.0059
	(0.0047)	(0.0048)	(0.0048)
Decrease:USUK:Window[4,6]	0.0035	0.0008	0.0050
	(0.0058)	(0.0062)	(0.0062)
Increase:USUK:Window[5,7]	-0.0022	-0.0022	-0.0018
	(0.0030)	(0.0035)	(0.0033)
Decrease:USUK:Window[5,7]	-0.0038	-0.0042	-0.0032
	(0.0054)	(0.0056)	(0.0053)
Increase:USUK:Window[6,8]	-0.0050*	-0.0074**	-0.0047
	(0.0026)	(0.0034)	(0.0030)
Decrease:USUK:Window[6,8]	0.0017	-0.0013	0.0024
	(0.0044)	(0.0056)	(0.0047)
Increase:USUK:Window[7,9]	-0.0093***	-0.0106**	-0.0079***
	(0.0030)	(0.0048)	(0.0024)
Decrease:USUK:Window[7,9]	0.0009	-0.0010	0.0024
	(0.0037)	(0.0058)	(0.0033)
Increase:USUK:Window[8,10]	-0.0060***	-0.0103**	-0.0064**
	(0.0023)	(0.0047)	(0.0028)
Decrease:USUK:Window[8,10]	0.0015	-0.0033	0.0015
	(0.0036)	(0.0058)	(0.0038)
Increase:USUK:Window[9,11]	0.0010	-0.0002	-0.0023
	(0.0033)	(0.0056)	(0.0042)

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Table A7 – continued from previous page

	All other (a)	War-opposing (b)	Non-UNSC (c)
Decrease:USUK:Window[9,11]	-0.0029	-0.0048	-0.0058**
	(0.0024)	(0.0033)	(0.0027)
Increase:USUK:Window[10,12]	0.0060	0.0065	0.0027
	(0.0039)	(0.0070)	(0.0042)
Decrease:USUK:Window[10,12]	0.0049	0.0049	0.0018
	(0.0038)	(0.0050)	(0.0031)
Increase:USUK:Window[11,13]	0.0040	0.0079*	0.0024
	(0.0034)	(0.0041)	(0.0037)
Decrease:USUK:Window[11,13]	-0.0007	0.0028	-0.0021
	(0.0063)	(0.0064)	(0.0067)
Increase:USUK:Window[12,14]	0.0030	0.0097*	0.0010
	(0.0045)	(0.0051)	(0.0049)
Decrease:USUK:Window[12,14]	-0.0016	0.0042	-0.0029
	(0.0039)	(0.0043)	(0.0046)
Increase:USUK:Window[13,15]	0.0031	0.0070*	0.0023
	(0.0027)	(0.0039)	(0.0035)
Decrease:USUK:Window[13,15]	-0.0069**	-0.0038	-0.0070
	(0.0035)	(0.0043)	(0.0043)
Increase:USUK:Window[14,16]	0.0011	0.0050**	0.0004
	(0.0021)	(0.0021)	(0.0029)
Decrease:USUK:Window[14,16]	-0.0007	0.0025	-0.0009
	(0.0029)	(0.0036)	(0.0032)
Increase:USUK:Window[15,17]	0.0016	0.0014	0.0046
	(0.0031)	(0.0046)	(0.0030)
Decrease:USUK:Window[15,17]	-0.0022	-0.0027	0.0006
	(0.0056)	(0.0069)	(0.0055)
Observations	159,690	49,996	137,280

Notes: The table displays the coefficient values estimated in Equation 6.5 from 15 days before an event through 15 days post-event. Average market capitalization in the sample period is used as regression weights. The regression has year-fixed effects and control variables for industry, market cap, and 3-day oil price change. Standard errors, clustered at company level, are reported in parentheses. *US/UK* includes US and UK companies; the three control groups are defined in Section 6.2.1.
*** p<0.01, ** p<0.05, * p<0.1

Table A8: Hypothesis 3 Regression Model Output Without Weights

	Dependent Variable: CAR								
	All other (a)			War-opposing (b)			Non-UNSC (c)		
	1yr	2yr	3yr	1yr	2yr	3yr	1yr	2yr	3yr
post	-0.02	-0.02	-0.03	-0.23***	-0.31***	-0.35***	-0.02	-0.01	-0.02
	(0.04)	(0.04)	(0.05)	(0.07)	(0.08)	(0.10)	(0.04)	(0.05)	(0.06)
USUK	-0.09	-0.09	-0.08	0.07	0.07	0.07	-0.10	-0.10	-0.10
	(0.06)	(0.06)	(0.06)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)
post:USUK	-0.02	-0.02	-0.00	0.19*	0.28**	0.33**	-0.03	-0.05	-0.03
	(0.08)	(0.11)	(0.14)	(0.09)	(0.11)	(0.13)	(0.09)	(0.12)	(0.15)
Observations	52,078	78,982	105,752	16,266	24,664	33,024	44,692	67,814	90,924

Notes: The dependent variable is CAR starting from January 2nd, 2002. The length of the post periods are 1, 2, and 3 years, starting from December 14th, 2003. The treatment group is companies headquartered in US and UK. Control groups (a)-(c) are defined in Section 6.2.1. Standard errors, clustered at company level, are reported in parentheses.
*** p<0.01, ** p<0.05, * p<0.1