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The 2010 Gulf of Mexico Oil Spill

Evaluating Shareholder Value and Reputation

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A couple of miles from the Deepwater Horizon oil spill site
Mississippi River Delta, US Gulf of Mexico – Monday, June 14, 2010

(AP Photo / The Times-Picayune, Ted Jackson)

Preface and acknowledgements

This thesis is the conclusion of the Master of Science in International Economics and Business Studies at the Erasmus School of Economics. As a case study of the economic impact of the oil spill that occurred in the Gulf of Mexico in 2010, this represents a very recent and compelling confluence of international economics, geopolitical energy developments and company issues. The main focus of this study is on the impact on shareholder value and reputational development of oil and gas company BP. Other stakeholders ranging from the environment to the local economy have been severely affected. Eleven men lost their lives in the Macondo blowout. Various investigations are still conducted by the industry, governments and independent researchers. My thesis is the result of eight months of gaining necessary research into the Deepwater Horizon oil spill and the geopolitics of the petroleum industry, and evaluating the economic developments of BP and the other major oil companies before, during and after these events.

I wish to acknowledge the several individuals and organizations that offered their insights and comments on this research. I like to express my gratitude to my thesis supervisor Mehtap Kilic for coming on board and checking the economic and academic substance of the materials, and also for being flexible and supportive during the process of this project. My special thanks go to the Clingendael International Energy Programme and in particular Coby van der Linde, Lucia van Geuns, Bas Percival and Jochem Meijknecht for their useful comments and advice on the context of the subject matter and my findings. During my internship at the Clingendael International Energy Programme I gained more insight in the energy industry in general and learned a great deal from the kind sharing of ideas, presentations and seminars for which I am grateful. In addition, the inside stories and views – both personal and through desk-based research – of the experts from several companies and research organizations have greatly aided me in grasping the relevant issues and rationale behind the energy industry and the Deepwater Horizon accident and subsequent oil spill. The report of the National Commission on the BP Deepwater Horizon Oil Spill and Deepwater Drilling to the President (of the USA) has been very helpful, as well as the several symposia including the presentation of Neil Chapman I was lucky enough to attend.

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Sebastian Korteweg

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Abstract

In this thesis we use the oil spill in the Gulf of Mexico in 2010 as a case study to evaluate how the short-term shareholder value and the reputation of BP have been impacted. By setting up a framework of the most significant events before, during and after the oil spill, we have identified the key determinants of these developments regarding BP in the light of our research. Especially during the two months after the inception of the oil spill in late April 2010 the share price of BP severely decreased, whilst negative attention by the media, public and politics has affected the reputational development of BP, what we have captured in biased though insightful rating indices. BP dropped in the company rankings and received increased attention in the social reputation ratings, but credit ratings were only temporary lowered. We find a close direct relation between short-term shareholder value and reputational development. This adds more insight in the economic research of this oil spill and specifically the relationship between shareholder value and stakeholder value development. Future research has to evaluate this relationship and the long-term impact of the oil spill. There is room for improvement in the field of social and financial company reputation ratings.

Key words

- Gulf of Mexico oil spill
- Externalities
- Shareholder value
- Reputation

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Abbreviations

BPD	Barrels of oil per day
ESG	Environment, government and society
GOM	Gulf of Mexico
IOC	International oil company
NOAA	National Oceanic and Atmospheric Administration
NOC	National oil company
OPEC	Organization of Petroleum Exporting Countries
OECD	Organisation for Economic Co-operation and Development
UK	United Kingdom
US	United States of America

1. Introduction

On April 20 2010, hydrocarbons escaped from the Macondo well onto the oil rig Deepwater Horizon, leading to explosions and fire on the BP oil rig in the Gulf of Mexico. This resulted in the loss of the lives of eleven people, 17 others were injured. The fire continued for 36 hours until the rig sank. Hydrocarbons continued to flow from the reservoir through the wellbore and the blowout preventer for 87 days, causing the largest accidental marine oil spill in the history of the petroleum industry of more than 4 million barrels, and the biggest environmental disaster in *US* history.¹

Much debate followed about the accountability of this disaster. The oil rig was owned by oil drilling contractor Transocean and leased to BP. Engineers from both companies were accused of misinterpreting data and not responding properly to warning signs. BP has been criticized for cutting corners on their project in the Gulf of Mexico (*GOM*) that was already over budget and behind schedule. Halliburton was accused for not properly cementing and testing the well head, and Transocean for not maintaining the blowout preventer properly. Federal agencies have been put under pressure for their responsibility in ensuring the overall safety of the rig.

Further investigation has to reveal to what extent these statements are valid and play a role in this disaster. In January 2011, the National Oil Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling presented their first full report on the causes of the oil spill, claiming that a failure in management by BP, Transocean and Halliburton had ultimately led to the oil spill. Regulatory structures, safety standards and crisis response practices had failed to keep pace with the push into deeper and increasingly challenging offshore areas. There was no evidence found of gross negligence but rather of systematic failing, and the commission found no justification for a ban on deepwater drilling. ² Criminal cases could still result in penalties up to billions of dollars. In the meantime, BP publicly stated to reserve 40 billion US dollars for a fund to compensate for all oil spill relating matters before announcing months later it may need half of that. The shareholder value and the reputation of BP and the oil industry have been – and remain to be – impacted.

In the past decades environmental awareness has increased, while global energy demand further increases. The debate on the risks and desirability of fossil fuels has entered an important phase. Still, the fossil fuels oil, gas and coal account for more than 80% of the worldwide primary energy use.³ Both the National Oil Companies (*NOC's*) and the International Oil companies (*IOC's*), remain among the largest enterprises in the world, having a huge influence on the triangle of economics, politics and society. In the wake of the largest accidental marine oil spill ever their role in our system is crucial. The oil spill in the *GOM* not only has a human and environmental impact, but also an economic impact on BP and broader on the oil industry and has also regulatory effects.

By looking at the developments of the shareholder value and the reputation of BP – and interrelations between – part of the substantial economic impact on BP of the GOM oil spill can be evaluated, and more light can be shed on this recent big event in the oil industry. The focus of this study is short term; as of now only 12 months have passed since the oil spill. Future research has to reveal the longer-term impact and the implications for the post-Macondo oil industry. Deepwater offshore drilling remains an important source of unconventional oil supply, but we face a tense playing field of both environmental and technological boundaries. Resources are scarce and overall demand increases yearly. Therefore, this oil spill is a significant event in the field of energy economics and has become an interesting intersection of economics, politics and society. In each area there is uncertainty about how common needs can be fulfilled through different means. We use the GOM oil spill as a case study to investigate the developments of shareholder value, short-term reputation impact and the relationship between those two variables. We evaluate this primarily for BP and in comparison with the other oil majors: ExxonMobil, Shell, Chevron, Total, and ConocoPhillips. These IOC's are among the biggest public companies in the energy industry. ⁴

We start with a review of the literature on external effects, oil spills, BP's brand role, and the role of shareholder value and reputational impact during the oil spill. This results in three hypotheses and research questions. In chapter 3 an economic framework of the GOM oil spill is set up, exploring the key events in the period before, during and after the Macondo blowout. Together with the literature review in chapter 2 this provides a solid background for evaluating the three research questions. In chapter 4 the impact of the oil spill on the shareholder value of BP and in relation with the other IOC's is evaluated. In chapter 5 short-term reputation valuation and the impact of the oil spill on the reputation of BP is evaluated, both theoretically as well as through external ratings. We incorporate these two impact assessments throughout our analysis. In chapter 6 the threats and opportunities for BP and the majors are explained. Afterwards we discuss the limitations of this study and further research. The main conclusions regarding the three research questions are drawn in chapter 8 and in chapter 9 we look at this study in respect to the literature. Finally, an overview of the literature is given in chapter 10 and the end notes are listed in chapter 11.

Most previous studies on the performance of the oil industry focus on traditional variables such as technological aspects, proven and probable reserves, and oil prices as main indicators for these companies. The added value of this thesis is the focus on the relation between shareholder value and reputational impact, in assessing the economic indicators in the (oil) industry after the oil spill disaster in the GOM. This approach is new as we combine the variables of shareholder value development and short-term reputation valuation: linking shareholder value to stakeholder value. As such, this study can contribute to the field of international economics, moreover it deals with the assessment of the economic impact on BP of the largest accidental marine oil spill in history.

2. Research design

2.1 Theoretic framework

To determine the economic impact of the oil spill in the GOM in 2010, a theoretic overview of relevant literature is necessary in order to construct an economic framework and our hypotheses. First, we cover the concept of externalities to assess the impact of the oil spill in a traditional economic way. Second, the concept of reputation is defined and put into the case context, providing a different and broader lens in the analysis. Furthermore, the costs of oil spills are covered and the way in which BP developed in recent years in terms of perception.

2.1.1 Externalities

For the assessment of the impact of an event like this oil spill through an economic perspective, the field of environmental economics offers a valid starting point. A central theme in this field is market failure: when the market fails to allocate scarce resources to generate the greatest social welfare. A common form of market failure is an externality: this arises when an action of one party – say a producer or a consumer – has an unintended external effect on another party, any stakeholder that may be. This effect can be positive when that action benefits others, for instance when a technical invention offers new knowledge that becomes general accessible and benefits society as a whole. In this case social benefit is higher than private benefit. A negative externality arises when the unintended effect of one action causes harmful effects on others; social cost is higher than private cost. The oil spill in the GOM is a stark example of a negative externality. In the assessment of the GOM oil spill we should distinguish between short-term impact – which is the nature of our study – and longer term impact which can only be evaluated later in time. Externalities always reflect a difference between social benefits (costs) and private benefits (costs), causing an inefficiency in resource allocation. Economist and sociologist Pareto explained that this inefficiency occurs when it is possible, through reallocation, to improve welfare of one individual without limiting the welfare of others.⁵ In the past decennia many different scholars have developed the concepts of externalities and Pareto efficiency, such as the likes of Greenwald & Stiglitz (1986). In a competitive market the private optimum is where marginal private costs equals price. In the case of a negative externality, the marginal social cost (the sum of marginal private cost and marginal external cost) is higher than the marginal private cost; so the private optimal output is higher than the social optimal output. Governmental action may be necessary to internalize these externalities in the decision-making of the involved parties, so the social optimal output can equal the private optimal output.

Negative externalities have been essential in the development of environmental economics and are of particular interest as part of the external context of the GOM oil spill. Pigou (1920) was one of the first economists to study the market failure of externalities, suggesting to tackle this negative externality by imposing a per unit tax on the output of the firm that causes this externality. This tax should equal the difference between social marginal costs and private marginal cost in a social optimum. By doing so the output price will increase, causing demand to decrease, limiting the external damage and securing a social optimum. Coase (1960) points out it ought to be determined whether the firm responsible for the damage can be liable for this or not, for otherwise there cannot be market transactions to transfer this. He argues that the point where the production value is maximized does not depend on the legal position, assuming the price system works without cost. This is what the Coase Theorem in general is about. For actions causing harmful effects it is not about restraining the responsible ones, but rather finding out if benefits of the prevention of these harmful effects exceed the loss elsewhere from not performing the damaging action. Coase opposes governmental intervention by standards and taxes to counterbalance the externality, but suggests to use governmental action in setting up and enforcing property rights to actors that gain the most utility from them in the case of environmental resources, while mitigating transaction costs.

However, in reality this is difficult to do as it is unclear to determine in advance the most valued use of a resource. Reallocation of resources by a government is costly. Institutions could be created to minimize transaction costs, correcting misallocations of resources as cheaply as possible. Sankar (2006) provides policy options for dealing with (internalizing) environmental externalities. These can be legal: standards and regulation, environmental: pollution charges and pollution permits, and financial: liability insurance, environmental bonds and bank guarantees, taxes on pollution outputs, fiscal incentives for pollution abatement, and other market signals. Thus governmental action can be used to correct those market failures. Given the development of the GOM oil spill and the aftermath, governmental actions at first will likely be reactive – in terms of legal proceedings – and it remains to be seen to what extent this will be predictive, such as substantial regulatory changes. One of the questions is who will be forced to pay for the oil spill and the governmental corrections.

2.1.2 The cost of oil spills

Economists have studied the penalty and the optimum value of that penalty for environmental events since the economic analysis of crime by Becker (1968). Potential violators respond to the probability of detection as well as the punishment when they are detected and convicted. Crime can be deterred through a number of ways: an increase in monitoring to raise the likelihood of caught, a raise of the penalty, and an increase of the probability of conviction. The model of Becker ultimately leads to an efficient level of crime where marginal cost of enforcement equals marginal social benefit of crime reduction.

Cohen (1986; 1987) argues in his study on optimal policies to prevent oil spills, that if there was no penalty on an oil spill, the responsible party – in general assumed to be the oil firm – would only take into account their own private costs resulting from the oil spill, such as the value of lost oil, damaged equipment and so on. Spending money on prevention would only occur as long as that would save at least a higher amount of money.

When the external effects are considered, one has to perform a public rather than a private cost-benefit analysis. Costs of cleanup, damage from unclean areas of oil, and direct and indirect costs and reductions of benefits of all involved external parties – the stakeholders – are to be considered. Cohen (2010) stresses that the incentives of the responsible parties have to be aligned with the social goal of minimizing the costs of those oil spills. Obviously, not all oil spills are detected; when penalties are only imposed on detected oil spills, firms will only consider the costs they impose minus the probability of detection and conviction (the amount of risk). Cohen's model implicates that there is an optimal level of cleanup and restoration: oil should be cleaned up as long as the marginal cost of cleanup is lower than the marginal damage caused by an additional amount of a unit, in this case the additional gallon of spilled oil.

As for oil pollution laws, we can determine strict liability and negligence. In the US the oil pollution laws are mainly strict liability offences: the responsible party is strictly liable for all costs and damages. This avoids the negligence standard's disadvantage of the cost of investigating and proving the cause of the oil spill and the responsible party. Furthermore, strict liability stimulates the incentive of firms to invest in prevention. Alexander (2010) stresses in her paper on the GOM oil spill it is more likely that any criminal prosecution would use a strict liability act, so the prosecution does not have to show that the defendant(s) intended to harm wildlife. ⁶ Gross negligence has been ruled out by the oil spill commission in January 2010. The coming years have to reveal for which cases the accused parties are going to be prosecuted. ⁷ The legal outcome and eventual actions resulting from this will usually take several years of not decennia to see the light of day.

The internal estimated costs of the oil spill in the GOM have had an impact on the financial situation of BP as share prices heavily dropped in May and June of 2010, dividend was not paid out for the rest of 2010 and 21 billion US dollars worth of assets were sold while an emergency fund of the same number was set up for claims during the aftermath of the oil spill. The financial impact and situation will be discussed in more detail in chapter 4. Another substantial part of the context of the oil spill and its impact is in the field of reputation, a more difficult to measure but nonetheless broadly discussed and increasingly important area in both the academic and the public arena. Reputation and the management of it has become an indispensable factor, bearing and shaping organizational performance for everyone involved, for better or for worse.

2.1.3 Reputation impact

Especially since the 1990s reputation has received an increasing attention in both academic as well as popular debate and views on organizations. As such it is a broad concept, making it hard to agree what reputation really is. Fombrun and Shanley (1990) associate it as stakeholder perception by defining reputation as a perceptual representation of a company's past actions and future prospects that describe the overall appeal of the firm to all its key parts in comparison with other competitors. They find that reputation is influenced by historical performance and other non-economic indications. Groenland (2002) uses a reputation quotient with six dimensions: emotional appeal, products and services, vision and leadership, workplace environment, social and environmental responsibility, and financial performance. Even though the different definitions are difficult to test statistically, a majority of scholars agree that reputation is an important part of the existence of a company (Bernstein, 1990 and Pruzan, 2002 provide examples).

Among the vital elements of the performance of an organization its reputation definitely plays a central role. Whether it is viewed as a direct outcome of the performance or as one of the key drivers, corporate reputation is important. Corporations can gain a competitive advantage thanks to its reputation, (which in turn can be caused by various aspects). In fact, reputation often serves as a signal about the quality of the products and services an organization offers. Reputation can influence the relationship between a corporation and its customers, as well as other stakeholders. A good reputation is not only vital for the image and performance, but can lower transaction costs in the sense that it can save costs related to the development of contracts and monitoring costs related to for instance the creditworthiness (Williamson, 1985). This is one of the aspects we look at in chapter 5. Thus, reputation has an impact on the behaviour and the performance of organizations, but the causation of this process may run in both ways. McGuire et al. (1990) show this in their article on the relation between firm performance and firm quality, as well as Roberts and Dowling (2002) in their article in which they find that firms with good reputations show more profits over time. Michalisin et al. (2000) test the resource based view of the firm in which there are gains (in profits and competitiveness) from controlling assets such as information, culture and reputation. They find a significant relation between return on equity and these intangible strategic assets. Greenley and Foxhall (1997) conclude that companies that do not take stakeholder interests into account show poor performance, adding that it depends on certain factors, indicating that each of these factors may receive a specific weight. In their paper on the impact of corporate reputation on performance authors Rose & Thomsen (2004) interestingly find that corporate reputation not so much impacts firm value, as financial performance of corporations can improve corporate reputation. They do argue that reputation is vital. Rather than directly impacting the stock market performance, reputation may influence stock market performance through profits and growth.

2.1.4 The scope of the impact

The image of a company consists of the perceptions of all stakeholders: businesswise internally in terms of employees and shareholders, and externally in terms of suppliers, customers and the community. The management of reputation is therefore highly important for the development of the organization. This is a long-term process. As mentioned in the introduction and section on externalities: because only 12 months have passed since the GOM disaster, the focus of reputational impact will be short term. This can provide the first part of a longer analysis.

In a new era of advanced forms of digital communication, a sudden event such as the GOM oil spill is exposed through the media and public in a highly rapid and extensive way. Information becomes generally accessible through several networks. This can severely impact the reputation of an organization. In those cases company reputation management becomes subject to external reputation shapers. A lot is at stake for the company and in the case of BP the impact has been substantially damaging. When shareholders receive credible signals of threats to the future and credibility of the company, their confidence in both reputational and financial performance is affected, resulting in depreciating reputational and financial indicators and share prices.

2.1.5 In the case of oil spills

What is the role of reputation in oil spills? If a firm gets sanctioned for the violation for certain environmental laws, this information is relevant for shareholders and capital lenders if the concerning monetary penalty actually reduces the expected value of the firm and thereby reducing the share price and its ratings. This provides a moment of reflection on the side of financial stakeholders, such as insurance companies and capital lenders, to consider whether more or less capital should be risked on that firm. It should be noted that reflection quickly turns into emotion-induced reactions and decision making. This holds in particular in context of today's dynamics of the financial markets. Numerous examples of the damaging effect of bad news on share prices and ratings exist, ranging from political tensions and scandals to legal actions and environmental damaging events. Cohen (2010) remarks that if under these circumstances the reduction in stock price exceeds the expected costs of the penalty, this could be attributed to what is called a reputation penalty or reputational damage (see Fombrun, 1996 as well). It is rather difficult to filter the effect of one event on the share price: this value depends on a wide range of variables and elements over time. Partly simultaneously occurring events can have a multiplying effect. Furthermore, there is the problem of choosing the right time frame for which the analysis is to be made. In the case of environmental disasters, there is the question of how to value the total external damage. Most studies actually fail to find this reputational penalty from environmental violations.

On March 24 1989 the oil tanker Exxon Valdez, struck Prince William Sound's Bligh Reef and spilled an estimated amount between 260,000 and 750,000 barrels, 11 and 32 million gallons of oil respectively. At the time, the Exxon Valdez oil spill was the largest ever in US waters until the 2010 Deepwater Horizon oil spill. Although the Exxon Valdez oil spill is not among the world's largest oil spills in terms of volume, the remote location on sea made response efforts difficult and the impact on the environment was serious and lasted longer than expected. At least 100,000 seabirds, 2,800 sea otters, many seals and other fish including billions of Salmon eggs were killed. In financial terms, the cost to ExxonMobil is currently estimated to be 3.8 billion US dollars consisting of cleanup and damage costs, 4.5 billion less than initially requested as a result of the legal development over the years. In 1994, the Alaskan court ordered ExxonMobil to pay 5 billion US dollars in punitive damages. After 14 years of lawsuits and appeals, the US Supreme Court ruled in 2008 that the firm owed 507.5 million US dollars. In addition, the company spent an estimated 2 billion US dollars for cleanup and an estimated 1 billion US dollars for related civil and criminal charges.⁸ However, an undisclosed significant part of those costs were recovered through insurance claims. The bigger harm to ExxonMobil from this oil spill is perhaps the impact of the accident on its reputation. Jones et al. (1994) measured the impact of this oil spill on the stock price of ExxonMobil and estimated the cost to shareholders to have been in the range of 4.7 and 11.3 billion US dollars.⁹ Fombrun (1996) mentions one way to estimate the reputational loss to this company from the oil spill: looking at the short-term drop in the company's market value – its loss in reputational capital. The market value of their shares, the market capitalization, in the 14 days trading days before the accident was 57.64 billion US dollars. In the 14-day period after the accident the market value dropped to 54.64 billion US dollars. Investors recognized a reputation capital loss of 3 billion, which was around 5% of ExxonMobil's value in that period. Ultimately, in the case of the Exxon Valdez oil spill, there has been a reputation penalty for a certain period of time. The value of this penalty depends on which dates are used for comparing the share prices. Calculating the loss in reputation capital by looking at short-term share price developments provides an effective way for our research on the short-term reputation impact.

In addition to having financial effects, reputation and thus company perception plays a pivotal role in other ways as well. The last years of BP's corporate brand positioning have been described as brand exuberance. The company's safety record, the doubtful communication and the much debated public statements during the oil spill, notably by former CEO Tony Hayward, reflects bad brand management. Balmer (2010) calls this brand indifference. A strong and favourable brand can result in a strategic leverage. If it is not handled correctly there can be difficulties leading to strategic weakness. Balmer argues that corporate brands are not about what is said but what is lived, and what stakeholder communities believe about a corporate brand: their certain emotional ownership of the corporate brand. A company should take this phenomenon into account.

The oil spill is a reminder that companies need to ensure that their corporate brands are effectively monitored and managed at each level. Their brand-positioning strategies shape the organization's identity, including operational philosophy and shareholder/stakeholder value. At BP there seems to be a gap between corporate reality – BP's actual identity – and the aspirations of its executives – BP's desired identity. The disaster in the GOM has revealed the inherent tensions between responsibility and profitability, stakeholder and shareholder concerns, and the dangers in institutional contexts of bad brand management. This becomes more evident when looking at the past decennium. After a merger with Amoco in 1998, British Petroleum became BP Amoco, and in 2000, BP Amoco acquired Arco and Burmah Castrol. In 2001, the company renamed itself as BP plc and chose the tagline Beyond Petroleum. While US Amoco stations changed to the BP brand, BP continued to sell Amoco branded petrol. Amoco had one of the highest US petrol brand loyalty rankings, only comparable to Shell and Chevron, and was named best petroleum brand by consumers for 16 consecutive years.¹⁰ In the mean time, several incidents occurred like the Texas refinery disaster and the Alaska oil spill. As a result, the company aimed strategically 'Beyond Petroleum', a more sustainable approach – but this reflects the mismatch between its supposedly desired identity and its actual identity: that of a large oil company where economic rents are simply too high to vertically integrate and change the portfolio into a new sustainable group. Furthermore there is a history of accidents. This illustrates how BP did not have a clear focus and managed their brand badly. Its corporate brand positioning further worsened in the course of 2010: the Macondo disaster, the resulting financial problems, and the pressure from politics and media.

2.2 Hypotheses

Based on the literature review in the previous section we can define our hypotheses in preparation of our research questions. Given the external effects of the oil spill in terms of economic and reputational impact, the first two hypotheses are defined as follows.

H1: The GOM oil spill in 2010 has had a significant negative impact on the short-term shareholder value of BP.

H2: The GOM oil spill in 2010 has had a significant negative impact on the short-term reputation of BP.

Short-term denotes the duration of the research period of our case study and runs from the end of April 2010 until the end of December 2010 (8 months). Based on our literature review covering the heavy interrelated theoretical connections between shareholder value and reputation, and the important roles both aspects play in the behaviour of a firm – in our case the public oil company BP in the midst of the oil spill in the GOM – the third hypothesis is defined as follows.

H3: The short-term reputation is positively related to the short-term shareholder value.

2.3 Research questions

The main research question of this thesis is defined as: *how are BP's short-term shareholder value, reputation and the relationship in between impacted by the oil spill in the Gulf of Mexico in 2010?* To start, a comprehensive overview is constructed of the key events before, during, and after the oil spill in the GOM. The resulting economic performance and actions of BP in the months after the Macondo blowout have been crucial to the company's development and received widespread attention in Western politics and media, and financial markets. This has also had an effect on reputation and the linkage with shareholder value development; this study is to assess these themes and links. Therefore, this thesis can add a new insight in the academic valuation of economic performance during the oil spill that has dominated the energy news so much.

The first research question is: *did the oil spill in the Gulf of Mexico in 2010 have a significant impact on the short-term shareholder value of BP?* Shareholder value concerns the share price, dividends and earnings that the company generates for their shareholders. In our analysis we mainly focus on share prices, and later cover dividends in chapter 4 as well. The share price is a key variable of a company's performance and its value to its shareholders. The main events between April 2010 and the end of 2010 will be discussed in chapter 3 in order to evaluate its impact on shareholder value in chapter 4.

The second research question is: *did the oil spill in the Gulf of Mexico in 2010 have a significant impact on the short-term reputation of BP?* Reputation is defined as the perceptual representation of a company's past actions and future prospects, and its overall appeal of its key parts. First, the reputation impact is evaluated through analysis in chapter 3 of the main events shaping reputational development. Moreover, different ways are used in chapter 5 to measure BP's reputation development in the context of the oil spill. We look at the internal costs to BP as we calculate the reputation loss first as a purely stock related value, and we look extensively at external ratings, including company rankings, credit ratings and social performance indicators of the oil majors. Additionally, we discuss the external economic damage of the GOM oil disaster in the region.

In chapter 3, 4 and 5 both theory and data analysis is used for the evaluation of the impact on shareholder value and reputation. BP is the main company in this study, and the other oil majors are compared: ExxonMobil, Royal Dutch Shell, Chevron, Total SA and ConocoPhillips. Finally, after evaluating shareholder value and reputation independently, these two components are brought together, and used to answer the third research question: *how are the variables shareholder value and reputation related?* We analyse the relation between shareholder value and reputation in chapter 6. Having answered the three research questions, we return to our main question in chapter 8 in which conclusions are drawn about the economic evaluation of the impact of the GOM oil spill on both shareholder value and reputation of BP, and the link between, and its industry development.

3. Context and framework of the Gulf of Mexico oil spill

After covering the general economic concepts underlying our study and the research design in chapter 2, we have to examine carefully what the actual context of the GOM oil spill is and what exactly happened during the outbreak of the oil spill. This is essential as it provides more depth for analysis and builds the framework for our specific evaluation in chapters 4, 5 and 6. The following overview covers essential information on BP, important economic and political characteristics of the case, and the key events in the period before, during and after the Macondo blowout.

3.1 Deeper

To put the 2010 events in more perspective there are at least a few issues of the last years to be mentioned.¹¹ In 2005 BP experienced an explosion of the Texas City refinery (and subsequent incidents in the period 2006-2008) and in 2006 the company had an oil spill in Alaska due to leaking pipes that were poorly maintained. In addition, the US Regulator of commodities fined the trading department of BP for attempted manipulation of the market in propane gas. These events illustrate that safety and regulation were not handled well throughout BP. When Tony Hayward was elected in 2007 as the new CEO, his challenge was to change the image and operations to greener and safer. Part of the organization was restructured and operational excellence became the new focus.¹²

In 2009 BP drilled their deepest well for commercial operation in history. A field underneath the Gulf of Mexico was discovered. Called the Tiber prospect, it could contain over 500 million barrels of oil. In reaction to this new projection the company's share price rose by 4% in one day and this project formed a substantial part of the company's growth strategy. The Deepwater Horizon rig was the access to this oil field. The owner of the rig, the largest offshore drilling contractor Transocean, collaborated with BP in discovering the Kaskida field in 2006. So far, their relationship proved to be fruitful. However, both the Tiber and the Kaskida fields were difficult to reach and to take in operation, as they lie in deeper and older rocks than others in the Gulf of Mexico.¹³

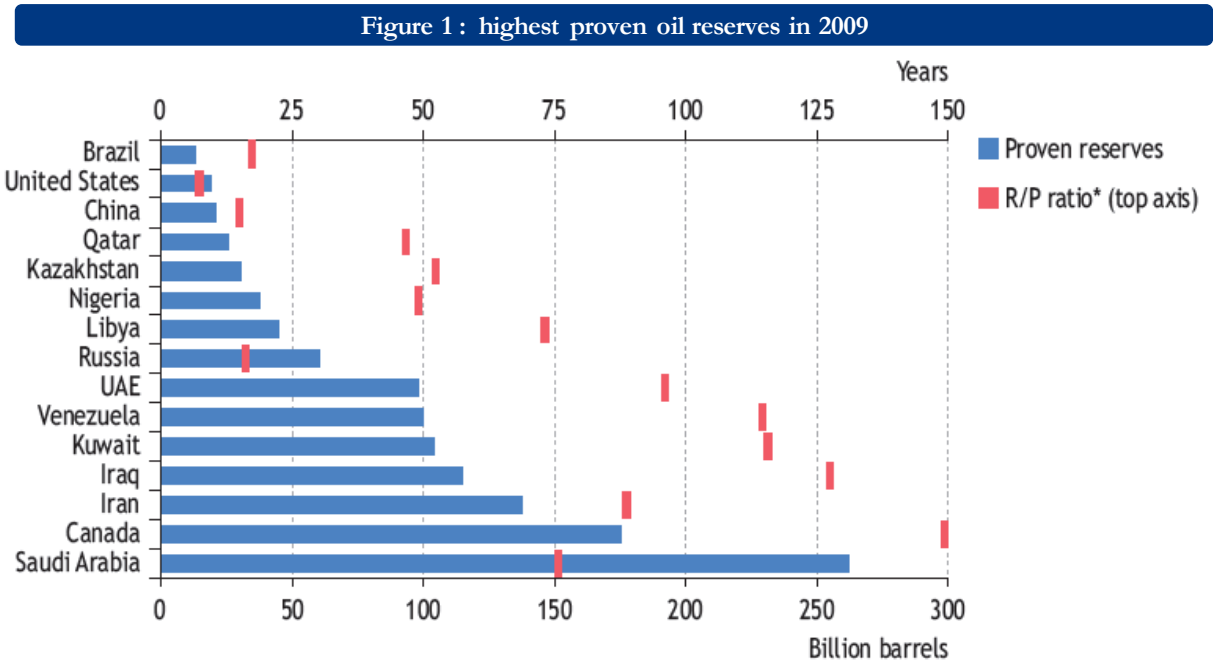
On 20 April 2010 at 9:45 pm local time high pressure from the well caused methane gas to shoot up and out of the drill column and onto the platform, ultimately igniting and exploding, resulting in a fire. Most workers escaped by lifeboat but eleven workers were never found after the Coast Guard had searched for three days. These eleven are presumed to have died in the explosion.¹⁴ Several ships could not stop the fire and were unable to avoid sinking of the Deepwater Horizon on 22 April 2010.

The Deepwater Horizon accident has been dominating the news in the Western World from the very beginning on 20 April. The accident has been a disaster of an unseen scale. Eleven people died and the environment of the whole region has been affected. Other directly affected stakeholders are the fishing and tourism industry in and around the GOM. The financial impact on BP itself: recovery costs, lost income, and billion dollars asset sales to create a fund to pay for whatever the bill of the oil spill in the coming years and decades will turn out to be. Furthermore, BP has been damaged by the way in which the people and politics of the US have turned furious towards BP. Its reputation has been damaged, and the industry – at least on short term – is impacted by this as well.

3.2 Drill baby, drill

“Drill, Baby, Drill!” was a campaign slogan used at the 2008 Republican National Convention by Michael Steele. The slogan expressed support for increased drilling for petroleum as a source of additional energy. But in the debate on the impact on the environment and the future of energy, often the question is raised: why are these IOC’s drilling so far down in the earth in such difficult to access areas that are risky and require huge financial and managerial investments? To address this, we need to see the current state of oil reserves, energy needs and the essential politics in between.

The *OPEC* countries control most of the world’s oil reserves, as can be seen in figure 1 from the International Energy Outlook 2010. The partly state-owned oil companies in those countries carry a political and economic responsibility to ensure reserves and supply in their own countries.¹⁵



The US is the world's biggest oil consumer taking roughly 25% of crude oil that is globally produced. Along with other OECD countries it depends heavily (and this will further intensify) on oil from only a small group of countries. These countries are not among the most political stable. It is evident that investing in capacity is priority, however the IOC's only have access to 20% of the oil resources. And some of the OPEC countries do not invest in new capacity due to their reluctance to allow technology and capital from other countries. Another complicating issue is whether there are enough accessible reserves, which depends on geological, technological and economic factors. The IEA has indicated that the demand of oil will increase at least until 2035. There is enough oil to meet the demand until approximately 2050, however most of that amount is difficult and therefore expensive to find and develop. There is substantial risk that production will not increase (enough) and combined with the latest political instability and civil unrest in the Middle-East and North-Africa, oil prices will likely further increase. ¹⁶

The US presidents acknowledge their oil addiction and dependence on supplies from far and political unstable countries that especially today have a tense and difficult bilateral relation with the US. That is why they publicly aim to shift their focus more towards oil closer to home. The GOM is a chance to boost the process of becoming less dependent on far foreign oil. The British and American oil companies have to explore in and produce from more technically difficult fields. BP has experience and skill in oil and gas production in these kinds of areas. At the other hand the Obama administration has also been stressing the importance of renewables, trying to go into new directions after two Bush administrations that were heading quite the opposite direction. By the end of March 2010 it was announced that restrictions on drilling in domestic waters were to be removed. It was an opportunity to gain Republican support to pass the climate and energy bill. Help of the Republicans was needed for curbing CO2 emissions and focusing on renewables. In this way, a deal could be made. BP was a key player in order to achieve this. ¹⁷

When asked about the accident CEO Tony Hayward said BP would be judged by their response. Although other parties were quickly named as responsible, it became also quickly clear that it was oil of CEO Tony Hayward's company, so his job to clean it. The oil spill was seen as a chance to show a model response to such an accident, demonstrating corporate social responsibility. Both the oil company and the US government knew that an accident in the GOM could have a substantial environmental, political and economic impact. When obtaining the necessary permits for drilling operations in that area, it was said that an oil spill of around 250,000 barrels of oil per day (*bpd*) could be handled, but this turned out to be not possible. Initially, after the blowout, there floated rather low quantities of oil into the water. The first reaction was not alarming at all. This was the first of many miscalculations and big underestimates of the size of the oil spill. The first number on the flow rate was 1000 bpd maximal, while the reality was close to 60,000 bpd. This marked the start of decreasing company credibility towards the politics, the media and the people of the US. ¹⁸

3.3 Drilling politics

On 28 April the US administration released a scientific estimate of the oil flow of around 5,000 bpd. This was the first of a series of pressure events of the government on BP. During May and June their relationship would become more tense and hostile. An illustrative example of this was the US Coast Guard admiral Sally Brice-O'Hara who called BP a partner while responding to questions, but got immediately interrupted by the homeland security secretary Lisa Jackson that BP "is not a partner". While BP's image was starting to get under attack, the seriousness of the oil spill began to unfold. People from the fishing and tourism industry in Louisiana began to respond how they were getting affected, and pictures of poisoned wildlife starting to reach a wide public through news broadcasters and for the first time for such an event, through social media. ¹⁹

One of the attempted interventions to stop the oil spill, called operation Top Kill, failed on May 29. Political reactions were fierce. President Obama assured that the blame and responsibility was at BP who had to fix the disaster for everyone involved. Estimates of how much the oil spill would cost in total rose to amounts between 10 up to tens of billions US dollars. BP's share price dropped with an enormous 17% on one day. The price of the credit default swaps started rising; the cost of insurance against not being able to pay the debts started rising. The first severe financial implications became utterly clear. Equally grim was the atmosphere among BP's personnel. They invested in shares through ownership plans, and most of them retained those out of loyalty. They were directly affected on top of the overall crisis due to the disaster and the media problems the firm was involved in. CEO Tony Hayward became the national target of public anger. The most obvious illustration of that was his remark, after apologizing for the damage, that "he liked to have his life back". The media response affected the company's already damaged image further. ²⁰

Not only Tony Hayward but also Barack Obama got under attack. The President was busy getting to clean up the spilled oil, but he was depending on technological progress in order to stop the well from flowing more oil. This alarmed the White House, putting pressure on BP's financial situation. BP's dividend payout – by an old saying, with death and taxes the things in life one can always be sure of – became a crucial discussion point. Cutting or suspending it was not officially a demand of the US government, however it was something being forced to consider given the enormous costs BP was already making, and the lack of result the government was facing.

On June 9 US Secretary of the Interior Ken Salazar stated that BP would compensate anyone who lost their jobs due to the government-forced moratorium on deepwater drilling activities for 6 months. Basically this meant there was no limit to the claims BP could face, as also the financial effects of independent government decisions not related to the oil spill but to the GOM, would be directed to BP to pay for. In reaction to this share price and credit ratings further decreased. ²¹

The White House and BP had to discuss the matter together and plan arrangements. BP Chairman Carl-Henric Svanberg was summoned to Washington along with CEO Tony Hayward and his soon to be announced successor Bob Dudley, by that time still managing director America and Asia and later appointed to chief of the Gulf of Mexico Coast Restoration Organization. Kenneth Feinberg was appointed on behalf of the US government as the administrator of the BP Deepwater Horizon Disaster Victim Compensation Fund. This provided BP some time to set up a fund aimed at paying the claims of the affected people. In June the estimated bill was around 20 billion US dollars and the first step to generate money for this was suspending the planned dividend. Although a dividend suspension or cut announcement in general works as a strong negative financial news message, the day after investors were triggered to believe that with this inevitable step a more stabilized situation could be achieved, resulting in a rise in the share price of 6%.²²

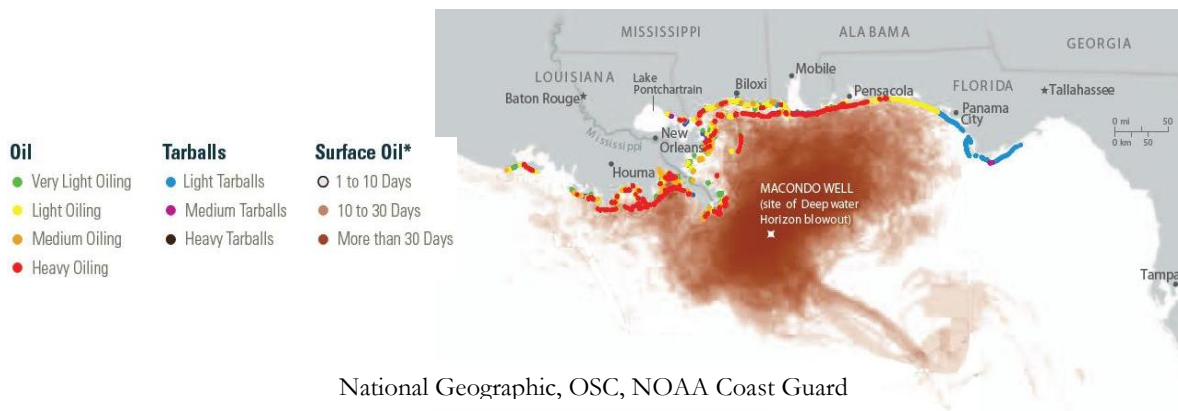
Meanwhile, Tony Hayward was testifying on Capitol Hill for commissions and media spokesmen, but his already cranked image got damaged even further. Though researchers were still in the midst of an ongoing investigation of the explosion and the oil spill, Hayward's apparent hiding behind this became painfully obvious. His sailing journey two days later in England sparked a second public fury. It was clear that his position was getting weaker, illustrating by this second PR disaster that created a shift in anger from BP towards Tony Hayward himself. A month later on July 27, BP announced that Robert 'Bob' Dudley would succeed Tony Hayward as Chief Executive Officer, officially starting at 1 October 2011. This was a positive signal for the company and the people; however the BP brand remained heavily damaged in the US. Sudden use in the media of 'British Petroleum' instead of BP exemplified the hostility of the US public against this company. But it was not mentioned that 39% of the shares in BP are actually owned by holdings in America, only 1% lower than the 40% owned by UK holdings.²³

3.4 The spill

After the Macondo blowout oil was flowing into the Gulf for nearly three months. This was the largest accidental marine oil spill ever. Figure 2 provides a map covering the maximum extent of the oil spill, showing how different coastlines of states are affected. The whole marine ecosystem was threatened by the oil. The US government worked with BP to respond to the unprecedented magnitude of the oil spill. There is still uncertainty about the specific ecological effects resulting from the oil near surface and deep below in the water. Specifics on the conditions of the Gulf shoreline and on the life in deepwater from before 2010 are only limited available, and data of the damage caused by the oil spill is only released in small parts.²⁴

Most of the spilled oil was kept offshore by currents and winds, and certain microbes broke down parts of the oil and warm temperatures stimulated further degradation. Government scientists as well as independent experts are conducting research in the area, and long-term monitoring of the marine eco-system should reveal the real impact. ²⁵ Figure 2, from the report of the National Commission, shows the extent of the spilled oil in the Gulf of Mexico near the coast of the Southern part of the US. At the highest point of containment, the NOAA closed an area to fishing over 229,271 km², more than one third of the US Gulf of Mexico, almost the size of the UK. ²⁶

Figure 2 : the maximum extent of the GOM oil spill



To put the number of oil spilled from the Macondo disaster into more perspective, we have compiled table 1 below to cover the current list of the ten largest oil spills in history. The Gulf War oil spill, Deepwater Horizon, Ixtoc I, SS Atlantic, Nowruz Field Platform and ABT Summer are marine oil spills, the others have occurred on land.²⁷

Table 1 : list of the ten largest oil spills

Spill	Volume in US Gallons	Date	Location
Kuwaiti oil fires	42,000,000,000-63,000,000,000	1991	Kuwait
Kuwaiti oil lakes	1,050,000,000-2,100,000,000	1991	Kuwait
Lakeview Gusher	378,000,000	1910	United States
Gulf War oil spill	252,000,000-336,000,000	1991	Iraq and Kuwait
Deepwater Horizon	172,000,000-180,000,000	2010	United States
Ixtoc I	139,818,000-147,840,000	1979	Mexico
Atlantic Empress	88,396,000	1979	Trinidad and Tobago
Fergana Valley	87,780,000	1992	Uzbekistan
Nowruz Field Platform	80,080,000	1983	Iran
ABT Summer	80,080,000	1991	Angola

The oil losses in Kuwait in 1991 are unprecedented, and were purposely caused by Iraqi military forces during the invasion of Kuwait in 1990 and 1991. Lakeview Gusher occurred on land and was in volume bigger than the oil spill in the GOM. Apart from those, the 2010 GOM oil spill is the largest oil spill. After the flow of an estimated 4.9 million barrels, around 180 million gallons of crude oil (the National Commission concluded at least 4.1 million barrels of oil were spilled), the wellhead was capped and on July 15 the leak was stopped. From the start of the oil spill on April 20 an estimated 62,000 oil barrels each day spilled in the GOM. This number decreased to an estimated amount of 53,000 bpd., as the amount of hydrocarbons that was feeding the gusher decreased.²⁸

Finally, almost 5 months after the oil spill started, the process of relieving the well was completed on September 19. The well was declared 'effectively dead' by the US government. But the impact will continue to be investigated. Marine and wildlife habitats have been affected by the oil spill, however it remains to be seen how big that impact is. The fishing and tourism industry in the region have suffered. During the end of November 2010 tar balls were found in shrimpers' nets and 4,200 square miles of the Gulf were re-closed to shrimping. Over 300 miles of Louisiana shoreline has been impacted by oil. The US government holds BP, as the responsible party, accountable for all cleanup costs and other damage. After its own internal investigation BP admitted that it made mistakes which partly led to the GOM oil spill.²⁹

3.5 The Macondo Months

To illustrate how news and share prices are heavily connected, we have plotted the share price development in US dollars in figure 2 and highlighted the main news items during April until September 2010 in the GOM oil spill that have affected the share price.³⁰ The letters in figure 3 refer to the following events, as shown in table 2.

Figure 3 : news and BP share price during the 2010 GOM oil spill

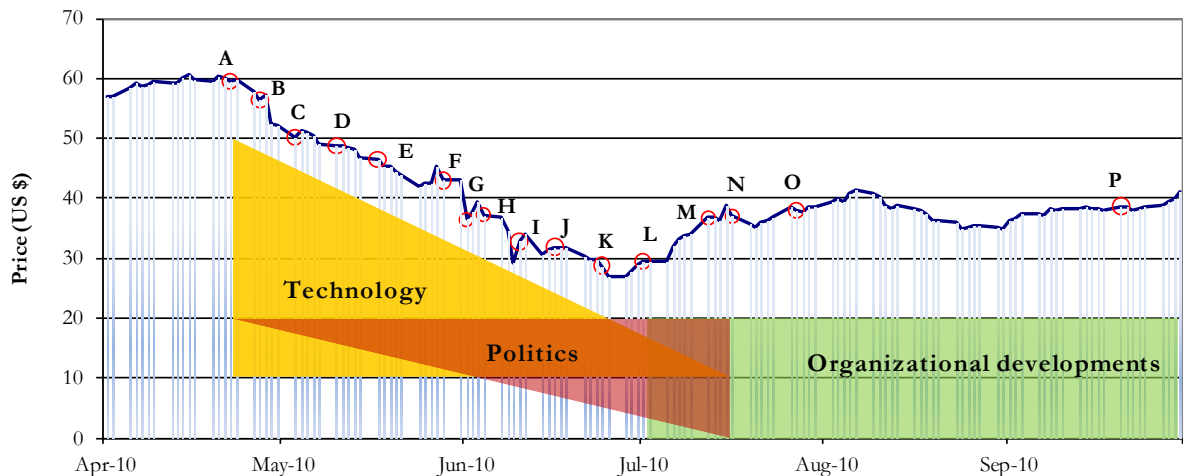


Table 2: time line of news and events directly after April 20, 2010

Figure 3	Date	Description
A	April 20	An explosion on the DH offshore oil rig in the GOM, killing 11 workers.
B	April 27	BP announces a profit of 5.6 billion US dollars for the first quarter of 2010. A increase from 2.4 billion in the same period in 2009, following a rise in oil prices.
C	May 2	Obama appears in Louisiana, meeting the Coast Guard and local fisherman.
	May 3	BP attempts digging in a relief well, while share prices have decreased 15 percent since April 20.
D	May 10	BP announces it has underestimated the cost of the leak, while the official cost rises to 350 million US dollars.
	May 11	Officials of BP, Halliburton and Transocean testify before Congress and are mainly putting the blame of the incident and spill at each other.
E	May 17	After BP announces 20 percent of escaping oil was captured, shares momentarily stop falling for that day, but in the next days continue to drop further, while Obama appoints the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.
F	May 27	Obama announces a six-month moratorium on new drilling permits in deepwater below 500 ft. May 28: operation Top kill starts, BP's first official operation to plug the leak. In the meantime, Obama visits Louisiana for the second time.
G	June 1	Operation Top Kill fails, share price drops 15 percent that day.
H	June 4	BP successfully attaches a containment cap to the wellhead. The day after, Obama visits Louisiana for a third time.
I	June 10	The US government indicates legal action will be taken to make BP decide to postpone or cut dividend payments.
J	June 16	BP ensures a fund – administered by Kenneth Feinberg - of 20 billion US \$ for payments caused by the spill, after a meeting between Obama, Tony Hayward, BP's chairman Svanberg and Chairman and President of BP America McKay.
K	June 24	BP share drop again following a forecast of a tropical storm.
L	July 1	Rumors start spreading the news of the possibility of a BP takeover.
M	July 12	BP uses a new cap and, while there is speculation of a takeover bid and talk about asset selling, BP share price rises 5%.
N	July 16	BP announces its latest attempt to be successful in stopping the biggest oil flows.
O	July 27	BP confirms that its CEO Tony Hayward will resign in October 1, 2010.
P	September 19	Completion of relieving the well, the well was declared 'effectively dead' by the US government.

Figure 2 and table 3 are essential to understand how the events in this period have shaped BP in the way it has done. Now we have filtered out the major developments in this hectic three-month period from April 2010 - July 2010, we can start to validly relate the different (kinds of) events with the share price of BP. There are (news) developments in three kinds of areas: political, technical and organizational. Each event has more or less implications in all three areas during the whole period and the figure shows how the areas overlap. Still, we can distil these events in order to focus on the impact in each area. This overview is important because it clearly shows how the development of stakeholder value (the three areas) and shareholder value (the share price) are strongly related.

In the first two weeks after the blowout BP had various options available in handling the disaster. In the mean time the tragic accident and start of the spilling of oil hit the news and rescue efforts were attempted. May marked the start of a crisis when the size of the oil spill turned out to be underestimated and the first technical operations carried out by hundreds of experts were expected to work, but did not solve the problem as BP unsuccessfully attempted to drill a relief well. Options and time were running out while the oil spill worsened. The area is marked by the yellow triangle, representing the technical developments and opportunities decreasing in scope/options.

At the same time, the increasing amount of spilled oil, the technical problems at BP and the company's appearance, raised political awareness and pressure on regional and federal level. Obama started to get more involved and the first congressional hearings began. A moratorium was imposed and BP was under increasing scrutiny of the international media. In June political events followed ranging from the start of legal procedures against the companies involved, to the initiation of the 20 billion fund. The area, marked red, shows the politics increasing in scope and intensity.

By the end of June two months had passed and the news was mostly on organizational level as BP started to more successfully fight the oil spill by using a new cap, and on financial level as takeover bids, asset-selling, company value, and the resigning of the CEO were major developments in the company, discussed thoroughly in the media and the industry. This area is marked green.

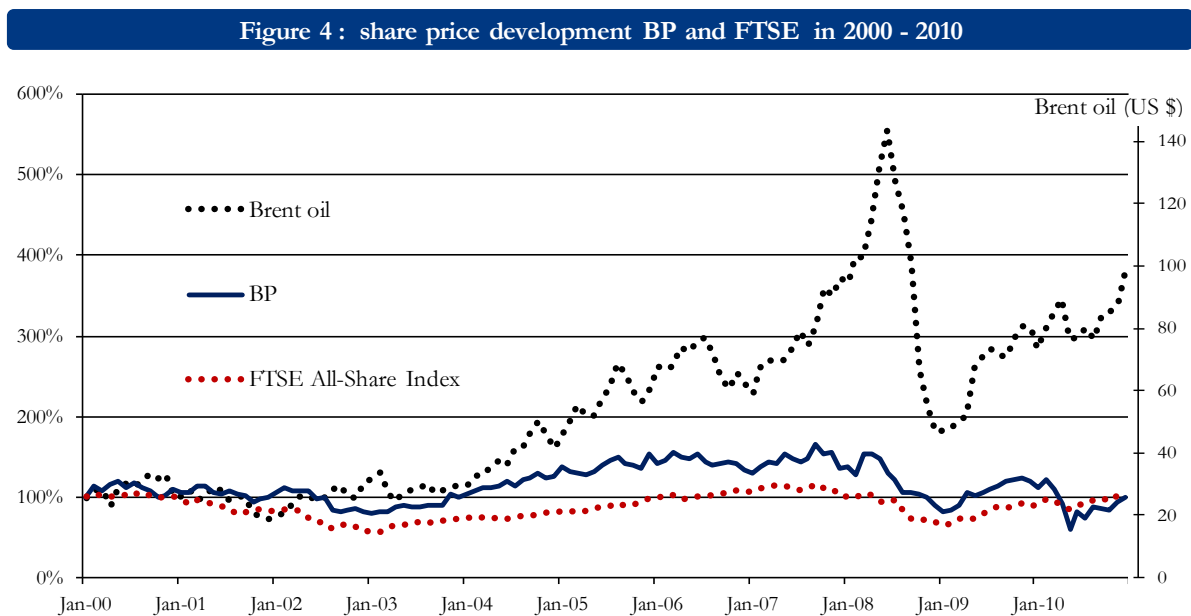
A combination of technical difficulties, increasing public anger and political pressure, and the unavoidable financial consequences of the crisis, has shaped the image and share price of BP. The company responded mainly to a technical crisis, and instead of shaping their corporate image, they were subject to external reputation shapers in a time when social media accelerate the effect of public opinions. This whole situation was about managing information, and for BP the problem became responding to instead of managing their perceived image. The public and political response to the blowout and the oil spill in the GOM drove the loss in BP company value further and faster. In chapter 4 the impact of these events on the shareholder value of BP and the other oil majors will be evaluated in more detail. The events have all been drivers of the loss of reputation, which we will further delve into in chapter 5.

4 The impact of the Gulf of Mexico oil spill on shareholder value

In the previous chapters we have looked at the economics of externalities, the cost and analysis of oil spills, and the area of reputation impact. In chapter 3 the most important events and the context of the 2010 GOM oil spill have been explained. We use this as a case study to determine the impact of the oil spill on BP's shareholder value in more detail in this chapter. Shareholder value concerns the combination of share price, dividends and other earnings that the company provides in the market. In this study we use mainly share prices as driver of shareholder value (in this context we use shareholder value throughout this thesis), and in section 4.3 we discuss the payout of dividend as well. We focus first on BP and second at the other oil majors as covered in chapter 2. By looking at the 2000-2010 period a more balanced picture is created, and after that we move on towards the 1-year time frame (explained in chapter 2) to focus specifically on the impact of the oil spill.

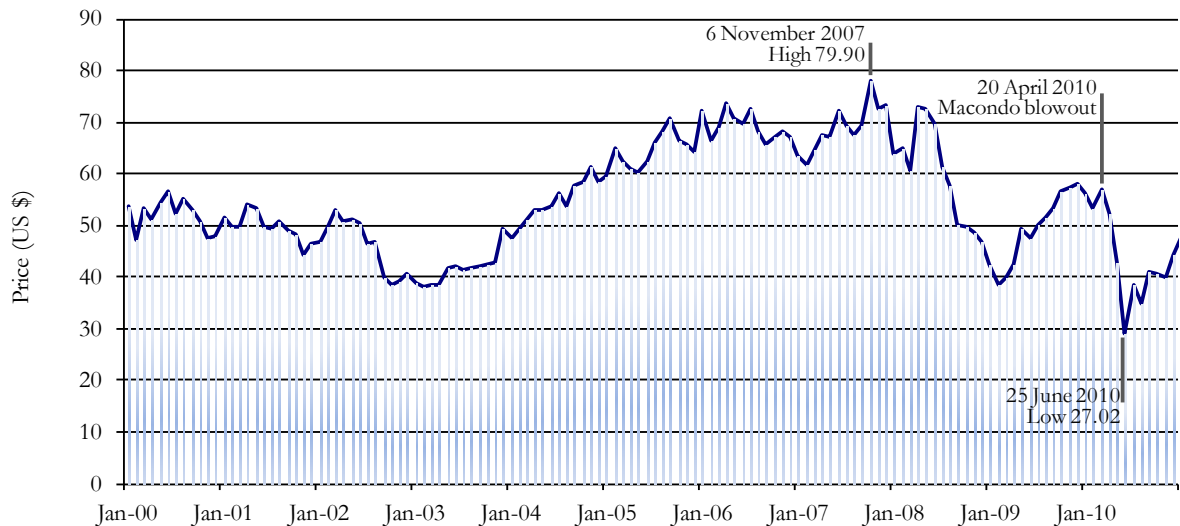
4.1 Shareholder value development BP during 2000 – 2010

Figure 3 from chapter 3 illustrates the share price movement of BP for the period April-October 2010. Let's zoom out and look at the past decennium of BP in relation with two relevant market variables, to put things in more perspective. Figure 4 below shows the BP share price and the FTSE All Share index as a comparison.³¹ In addition the Brent oil price is provided as this is an important determining variable for the performance of BP, the oil industry and the economy in general.³² We use rebased numbers in order to validly compare the movements of the different variables, starting at the 100% initial base level to which the other values are compared.



The increase in the BP share price from 2003 until the middle of 2008 reflects both the rather stable economic development and general market developments denoted by the FTSE index, as well as the increase in oil prices in the same period. Two substantial drops in the share price of BP can be seen: one during the second half of 2008 and one right in the second quarter of 2010. This is further illustrated in figure 5 which provides the BP share price in US dollars, and three relevant dates during 2007-2010 which are marked in the figure.

Figure 5: share price development BP in 2000 - 2010



The first drop can be directly related to the huge fall in the oil price from its all time peak in July 2008 of 147 US dollar per barrel (Brent, 146 close price on 6 July 2008) to below 50 in less than 6 months, displayed in figure 4. See note 33 for more information on this. The sudden rise in 2006-2008 was a result of a combination of various global developments. The increasing demand of emerging economies, the investing behaviour of OPEC, the IOC's and the financial markets all played a substantial role in this process. During the credit crunch demand for crude oil fell back, and OPEC could once again work on developing spare capacity that was decreased in early 2008.³³

However, the second giant loss in BP share price that occurred between the end of April 2010 and the end of June 2010 cannot be attributed to the oil price. We know this has been a direct effect of BP's technical, financial and public difficulties during the aftermath of the Macondo disaster and the subsequent oil spill. At the end of 2009 BP had a market capitalization of 181 billion US dollar, but at the end of 2010 this had dropped to 138 billion US dollar: a loss of 43 billion over 2010. Around June 2010 the loss even surpassed 100 billion.³⁴

4.2 Shareholder value development BP during 2010

As discussed in chapter 2, we can estimate the financial cost of the oil spill and the aftermath for BP by taking the loss in market value. As share prices can change every second – certainly during the volatile development between April 2010 and July 2010 – this approach depends on the used dates. In table 3 this market loss is listed for three periods in 2010: (1) the 87 days of continuous oil flowing from April 20 until July 16 into the GOM and (2) the 5 months between the start and the official announcement that the well was declared on September 19, in comparison to the whole year (3). Thomson only publishes annual values for market capitalization or current ones, but not on specific dates in the past. To find the market capitalization for a specific date in 2010 we can multiply the share price on a specific date with the current number of outstanding shares. For the second quarter the number of outstanding shares is 3,131,272 and for the third quarter 3,128,315. For April 20 2010 we use the first number and multiply that with the corresponding share price of 60.48 US dollar. For July and September 2010 we use the second number and multiply that with 37.17 and 38.68 respectively. The loss in market value is the difference between the market cap at the start and end date. June 25 marks the lowest share price (since July 1996) of 27.02 US dollar which reflects a loss in market value since April 20 of nearly 105 billion US dollar or 55%.³⁵

Table 3 : market value loss BP in 2010

Date	Duration (days)	Loss in market value (billion US \$)
April 20, 2010 – July 16, 2010	87	73
April 20, 2010 – September 19 2010	152	68
31 December 2009 – 31 December 2010	366	43

In addition to our analysis of impact on the shareholder value we can also take other ratios (multiples) into account, like the enterprise value and earnings before interest and taxes (EBIT). The enterprise value measures a company's value by calculating the market capitalization plus debt, minority interest and preferred shares, minus total cash and cash equivalents. The EBIT is calculated by taking the pre-tax income plus back-interest expense on debt and subtracting interest capitalized.³⁶ In table 4 we see that the 2010 levels of both market capitalization and enterprise value are among the levels of 2008, but 2010 has a negative EBIT value for 2010, which is unseen.

Table 4 : different multiples for BP in 2006 - 2010

Date	Market capitalization (billion US \$)	Enterprise value (billion US \$)	EBIT (billion US \$)
31 December 2010	138	160	(8,881)
31 December 2009	181	203	22,102
31 December 2008	146	163	31,619
31 December 2007	231	253	28,889
31 December 2006	218	230	31,365

4.3 Shareholder value development majors during 2000 - 2010

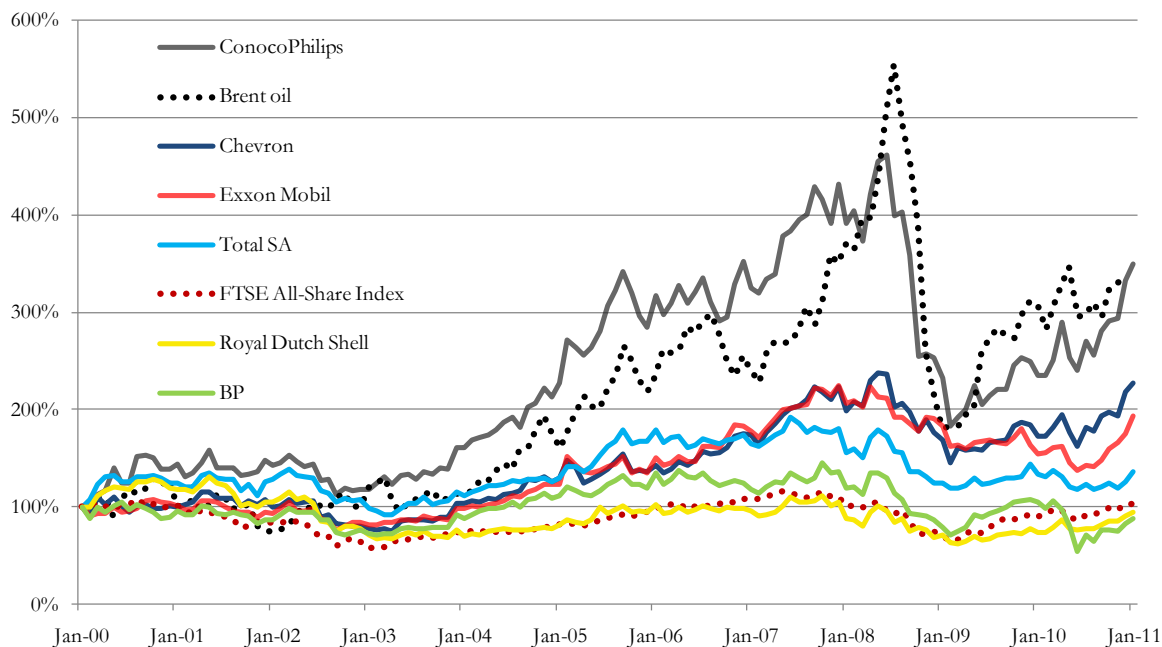
To analyse the effects on the oil industry, we look in this study at the six other majors in the petroleum industry. Table 5 lists these in order of (end of 2010) market capitalization, country of origin, and date of current foundation. These six companies represent the world's six biggest non-state owned energy companies and this comparison fits the purpose of this study adequately. In the industry, ENI and Statoil also belong to the majors (not being super majors) and other IOC's and NOC's represent the wider energy industry. The scope of this thesis is to provide a direct comparison with the majors in the petroleum industry, using the available data on share prices.³⁷

Table 5 : market value oil majors in 2010

Company	Market cap (billion US \$)	Country of origin	Current foundation
ExxonMobil	364	USA	Merger of Exxon and Mobil, 1999
Royal Dutch Shell	206	The Netherlands/UK	Merger of Royal Dutch Petroleum Company and Shell Transport and Trading Company Ltd, 1907
Chevron	183	USA	Merger of Chevron and Texaco, 2001
BP	138	United Kingdom	Merger of British Petroleum and Amoco, 1998
Total SA	119	France	Merger of Total with Petrofina in 1999, and with Elf Aquitaine, 2002
ConocoPhillips	100	USA	Merger of Conoco Inc. and Philips Petroleum Company, 2002

In figure 6 the share price development of the oil majors in 2001-2011 is plotted and in figure 7 below that covers only 2010. ³⁸

Figure 6 : share price development majors in 2000 - 2010



The graphs of the majors follow the same pattern as the oil price for this period 2001-2011, and most majors outperform the FTSE All Share index. In particular ConocoPhillips has a striking resemblance of the development in oil price, and has shown the biggest growth, and decline. During the past decade, the company grew considerably via acquisitions at that time, and thanks to a successful divestment program ConocoPhillips was able to raise cash for non-core assets, a ‘shrink to grow’ strategy. However, analysts have been questioning the added value to shareholders and stock advice has been either neutral or sell. Main concerns are about their low exploration performance, low cash and high debt levels.

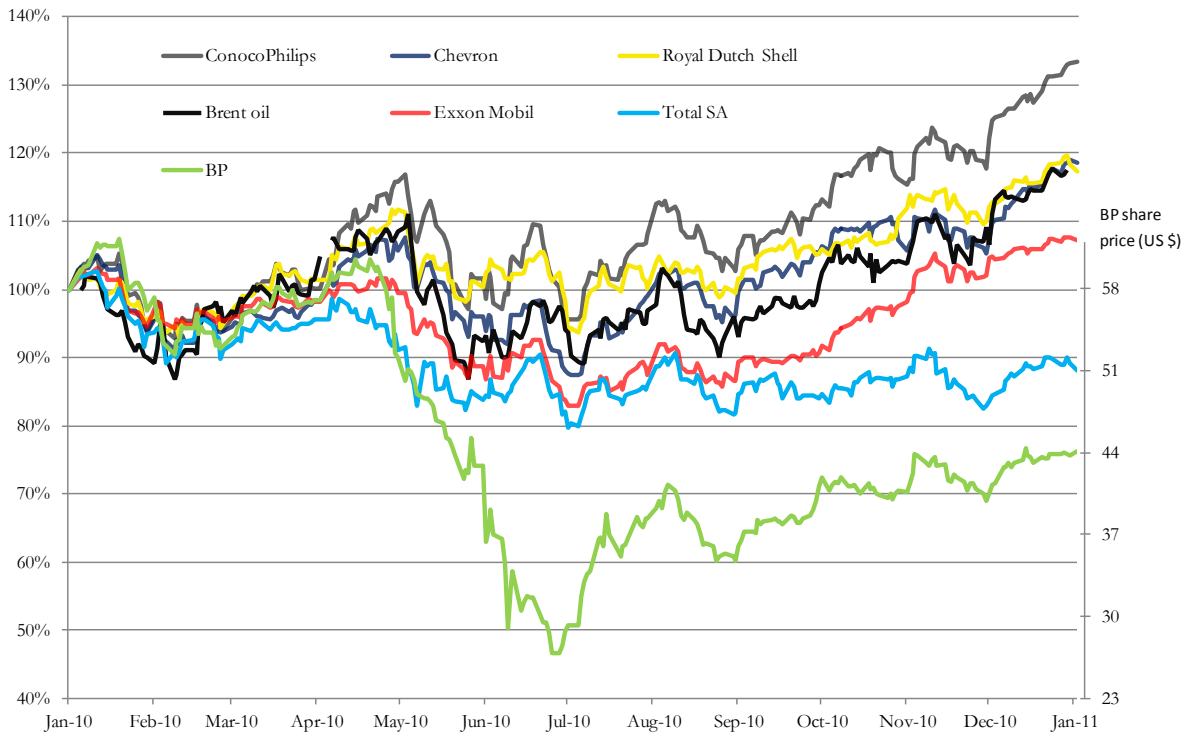
Furthermore, the different share price graphs reflect different strategies with respect to the dividends. The dividend yield reflects what percentage of the share price a company pays out in dividends each year. ConocoPhillips, Chevron and ExxonMobil have had rather low dividend yields (last 5-year average of 2.7%, 3.0% and 2.0%), whereas the dividend yield of Royal Dutch Shell and Total SA has been rather high (last 5-year average of 4.6% and 4.7% respectively). BP for that matter has been known for having a high dividend yield (2006-2008 average of 4.5%), but ultimately announced in 2010 - under political pressure - that in July no dividends for the rest of 2010 would be paid out (the 2010 average was only 1.5%). ³⁹

4.4 Shareholder value development majors during 2010

The research period for the GOM impact analysis in this study is short term, so our focus is on the developments of the majors in 2010 in particular. Figure 7, for that reason, provides the graphs showing the share prices of the involving companies throughout 2010.

Shortly after oil started spilling in the GOM after April 20, we can see the share prices of the other IOC's starting to drop. Interestingly, the duration of the price drop of the other shares is similar to BP's: around two months until July. The size of the drop, however, is not as severe as BP's. From April 20 to June 25, BP's share price dropped by 55%, whereas the average share price of the other majors dropped by 11-17%. We see a clear industry impact regarding share prices in this period. ⁴⁰

Figure 7: share price development majors in 2010 - 2011



4.5 Correlations

To study this industry impact more, we are interested how each company's share price is correlated with BP's development in four periods: 1 January 2000 – 1 January 2011 to measure the longer term correlations as comparison, the short-term period 1 January 2010 – 1 January 2011, 20 April 2010 – 20 July 2010 to measure the direct effect of the hectic times during the oil spill, and the remaining period of 2010. For the share price data we can assume a linear relationship between the variables on an interval scale, so we can use the Pearson correlation coefficient to test the correlation between two variables.⁴¹ Table 6 provides the main outcome of our test.

Table 6 : correlations between BP and the oil majors before, during and after the GOM spill

Period	Pearson correlation of BP with each oil major				
	Royal Dutch Shell	ExxonMobil	Chevron	Total SA	ConocoPhillips
1 Jan '00 - 1 Jan '10	0.365	0.580	0.483	0.907	0.714
1 Jan '10 - 1 Jan '11	0.223	0.576	0.056	0.873	-0.204
20 Apr '10 - 20 Jul '10	0.833	0.840	0.868	0.660	0.713
20 Jul '10 - 2 Jan '11	0.919	0.899	0.930	0.666	0.928

Except for BP-Chevron for 1 Jan 2010 – 1 Jan 2011 all values in all periods have a significance level of 1%, thus implying a significant relation. The closer the value is to 1 (or -1 when negative), the greater the correlation. In Appendix A the output can be found of the correlation tests between the share prices of the other majors: the share prices of the other companies are all significantly related with each other on the 1% level for the periods 20 April 2010 – 20 July 2010 and 20 July 2010 – 2 January 2011. For 2010 all correlations are significant on the 1% level, except for the correlation between Royal Dutch Shell and Total that is significant on the 10% level and the correlation between Chevron and Total SA is not significant on the 10% level. For 2000-2010 the correlations are all significant on the 1% level except for the correlations between Royal Dutch Shell and ExxonMobil, Chevron and ConocoPhillips that are not significant on the 10% level.

According to the correlation data we can conclude that the share prices of the majors are nearly all significantly correlated with BP for each period. Only Chevron during 2010 is not significantly correlated to BP, and ConocoPhillips has in fact a negative correlation with BP for this year. For the 10-year period, the correlations BP–Total SA and BP–ConocoPhillips are the highest. During the first three months after the blowout correlations between BP and Royal Dutch Shell, ExxonMobil and Chevron are very high, and less high for BP–Total SA and BP–ConocoPhillips. The remainder of 2010 shows the highest correlations between BP and the others of all periods. The highest levels of correlations are found for the second half of 2010, hinting that after the GOM oil spill correlation between share prices of BP and the other majors has increased.

5 The impact of the Gulf of Mexico oil spill on reputation

In the short term, the GOM oil spill has had a substantial impact on the share price of BP. In this chapter we elaborate on the impact of the oil spill in terms of other financial consequences and more extensively in terms of the reputational effects on the company and the other oil majors. In the last section we also look at how the various stakeholders in the region are affected.

5.1 Other financial costs

As described in chapter 1, BP estimated the initial costs of the oil spill to be around 40 billion US dollars and argued it may only need half of that number. In chapter 4 we have looked at the loss in BP's market value. In this section we provide an overview of how much oil spill-related costs have been paid by BP and how much it could face. Table 7 gives an overview of these costs.⁴²

Table 7 : other costs of the GOM oil spill for BP so far

Description	Already paid (US \$)	Potential cost (US \$)
Plugging the well, cleaning the spill, damage claims not covered by the emergency fund and additional costs.	10.7 billion	Not yet clear
'Gulf Coast Claims Facility' fund for individuals and private businesses that were affected by the spill.	2.7 billion	20.0 billion
Violation of Clean Water Act, fined by the US Justice Department.	5.4 billion	21.1 billion
Legal fees for additional lawyers and technical experts.	Not yet clear	2.0 billion
Lawsuits resulting from claims of fishing, tourism and real estate industry, and region and state departments.	Not yet clear	6.0 billion
Total	18.8 billion	49.1 billion

The biggest question mark is whether BP can reach a settlement with the federal government. The size of the fine of the Justice Department depends on the number of oil barrels spilled, currently counting at least 4.1 million according to the report of the Commission (note 2). Based on the general accepted number of 4.9 million barrels, BP could face a total of fines between 5.4 billion US dollars and 21.1 billion US dollars when BP is declared it did act with gross negligence, assuming the maximum penalty of 4,300 US dollars per barrel of spilled oil. The report of the Commission ruled out gross negligence. The US government could settle with the involved companies (which it has done in the past) for 50% of the total claim in order to avoid long court cases.⁴³

BP immediately challenged the possible federal claims, arguing that the maximum size of the oil spill is 4.1 million barrels (using the minimum size of the oil spill as concluded by the Commission report). In addition, they argue that in reality less than 60% of that number should be counted, as the flow rate on both April 22 and July 14 was actually lower than the estimates that were used in government reports due to different interpretations of the temperature and pressure data. If gross negligence is ruled out, which is likely given the Commission report, the Clean Water Act fine would be 1,100 dollar per barrel resulting in a bill of 4.5 billion US dollars.⁴⁴

The emergency fund, called the 'Gulf Cost Claims Facility', pays for claims related to injuries, external costs for cleaning, environmental damages and lost earnings. The fund has addressed around 168,000 out of 500,000 claims by individuals and private business. Once filed and settled, people lose the right of further legal procedures. It is more difficult to put a price tag on the cost of settling these lawsuits filed against BP. People in the fishing, tourism and real-estate industry sue for lost revenues. Crews involved during the days of the blowout on Deepwater Horizon as well as those involved in the cleanup after are filing injury lawsuits. In addition to this, on local and state government level, lawsuits are started to address the external damages and lost taxation income such as the state of Alabama that is seeking 148 million US dollars from BP. If class-action lawsuits in general are successful, the liability cost estimate could further rise.⁴⁵

5.2 Financial options

As we have seen above, since July 2010 BP has worked on a number of ways to protect itself to the financial costs relating to the GOM oil spill. Besides BP, Anadarko Petroleum Corp and Mitsui Oil Exploration Offshore (MOEX) own a minority stake in the Macondo prospect of respectively 25% and 10%. Reportedly, BP sent Anadarko a bill of 272 million US dollar as and MOEX a bill of 1.9 billion US dollars regarding its share in cleaning and response operation costs during the GOM oil spill. Unless BP is grossly negligent – which Anadarko claims – partners under a Joint Operating agreement should pay their ownership share of the costs.⁴⁶ Moody's rated Anadarko a BAA3, just above the junk rating.⁴⁷ It holds in general that the lower the credit rating of company is, the higher the cost of borrowing money. Therefore current agreements may be altered due to the higher risk. Anadarko is insured for the first 178 million US dollars of its share of BP claimed clean up costs. Another 1.6 billion US dollars is available from the Federal Oil Spill Liability Trust Fund.⁴⁸

Exactly one year after the Macondo blowout, on 20 April, 2011 BP announced it was suing the owner of the sunken Deepwater Horizon oil rig Transocean for at least 40 billion US dollars in damages and other costs, and it was suing the manufacturer of the blow out preventer (which was sold to Transocean in 2003) Cameron International Corp for negligence to avert the blowout.^{49 50}

BP took a pre-tax charge related to the costs of the GOM oil spill of 40.9 billion US dollar in 2010, and by the end of 2010 it had incurred 17.7 billion US dollars of costs. ⁵¹ As reported in chapter 3, BP started in July 2010 a series of asset-selling and other actions to secure money in their response to the GOM oil spill and the threatened financial situation of the company. Table 8 provides a list of those actions. By December 2010, BP had sold over 21 billion US dollars worth of assets, and the company aims to have divested 30 billion in total by the end of 2011. ⁵²

Table 8 : financial responses of BP to the spill

Description	Value (US \$)
Sale of stake in Pan American Energy	7 billion
Sale of assets in the US, Canada and Egypt	7 billion
Sale of (part of) Colombian exploration activities	1.9 billion
Sale of assets in Vietnam and Venezuela	1.8 billion
Sale of bonds in October 2010	3.5 billion
Total	21.2 billion

5.3 BP reputation development

The brand BP has been damaged and the company has had problems managing their reputation, especially during the hectic months after the Macondo blowout. As discussed in chapter 2, we define reputation as the perceptual representation of a company's past actions and future prospects, and its overall appeal of its key parts. In chapter 3 we covered the main events shaping BP's reputational development. In this section we provide two other ways to measure the impact.

5.3.1 Loss in reputational capital

The first is the valuation of reputational loss used by Fombrun (1996) who describes reputational capital "as the amount by which the excess market value of its shares exceeds the liquidation value of its assets". When a company is in the middle of a crisis their market value is affected; this can (partly) constitute the market's best guess about the damage to the company's future profitability (which is essentially what the market value is about). Fombrun uses the Exxon Valdez oil spill as an example. To measure the reputational capital that is lost since and during the GOM oil spill, we can use the loss in market value from table 5 in chapter 4. Taking this approach, we estimate for the first phase (directly after the blowout, April 20 - July 16, 2010) the reputational capital loss around 73 billion US dollars, for the second phase (April 20 - September 19, 2010) around 68 billion US dollars and for the year 2010 the reputational capital loss around 43 billion US dollars.

Clearly, the value of the loss is lower when the research period is longer, as BP's market value ultimately started recovering in July 2010. For the longer term, it remains to be seen how the market will value the company. For now, the worst for BP is over, but new shocks in the market value can result from fines and the ongoing lawsuits BP is involved in. Klewes and Wreschniok (2009) mention that both delivering on functional/social stakeholder expectations and building a unique identity creates trust, that provides return in cooperation and produces a kind of reputation capital. BP has lost reputational capital, and will have difficulties to secure long-term competitive advantages and will face more (regulatory) costs for exercising control based on their reputation. The GOM oil spill has seriously damaged BP's short-term reputation when the loss in reputational capital loss is taken into account. The change in the market value provides an estimate of the anticipated losses through the company's affected credibility and it shows how much of BP's reputation is put at risk through the different periods in 2010.

The second way to measure the impact of the GOM oil spill on the reputation of BP is by looking at external ratings. These can be categorized in (1) company rankings such as the Fortune World Most Admired Companies and the Dow-Jones Sustainability index, (2) credit ratings such as the reports by Moody's and Standard & Poor's and (3) specific reputational ratings.

5.3.2 Company rankings

Since 1983, Fortune each year releases industry reports for their World Most Admired Companies, which led to a series of corporate reputation indices. BP has been decreasing within the petroleum industry ratings as can be seen in table 9 below. ExxonMobil has held the top spot until 2011; Royal Dutch Shell and Chevron have been performing steadily; Total SA and ConocoPhillips have lower ratings and BP dropped to the bottom list since the GOM oil spill in 2010. Although the survey takes several criteria into account including investment value and sustainable development, the index is biased as the focus is on larger public companies in the US, and mainly financial executives from within the industry provide the input for the surveys, emphasizing financial indicators primarily.⁵³

Table 9 : admiration ratings oil majors in 2005 - 2010

Date	ExxonMobil	Royal Dutch Shell	Chevron	BP	Total SA	ConocoPhillips
2011	3 rd (7.53)	2 nd (7.64)	4 th (7.24)	16 th (5.63)	5 th (7.03)	9 th (6.67)
2010	1 st (7.36)	2 nd (7.05)	3 rd (7.02)	5 th (6.63)	4 th (6.72)	10 th (5.50)
2009	1 st (7.79)	3 rd (7.55)	2 nd (7.62)	4 th (6.84)	6 th (6.70)	5 th (6.80)
2008	1 st (7.90)	3 rd (7.28)	2 nd (7.80)	7 th (6.60)	5 th (6.77)	4 th (6.94)
2007	1 st (8.17)	4 th (7.17)	2 nd (7.72)	3 rd (7.72)	6 th (6.70)	5 th (6.74)
2006	1 st (8.24)	4 th (7.22)	3 rd (7.92)	2 nd (8.17)	5 th (6.89)	6 th (6.84)

The Dow Jones Sustainability Index is another example of widely published index, underlining sustainability as a factor in their ranking of companies in each industry. The analysed company itself provides the data through survey's, public reports and other documentation from the company. Although an external firm and auditor check the data, still the ranking is based on inside information making it biased. In June 2010, BP was removed from the index because of the extent of the GOM oil spill and its foreseeable long-term effects on the environment and the local population. An important difference with the Fortune lists is that ExxonMobil is not even listed and Royal Dutch Shell and BP are listed in every year except 2010. Since 2006 companies the companies in the oil & gas producing industry do not receive a ranking anymore in this index. ⁵⁴

Table 10 : sustainability ratings oil majors in 2002 - 2010

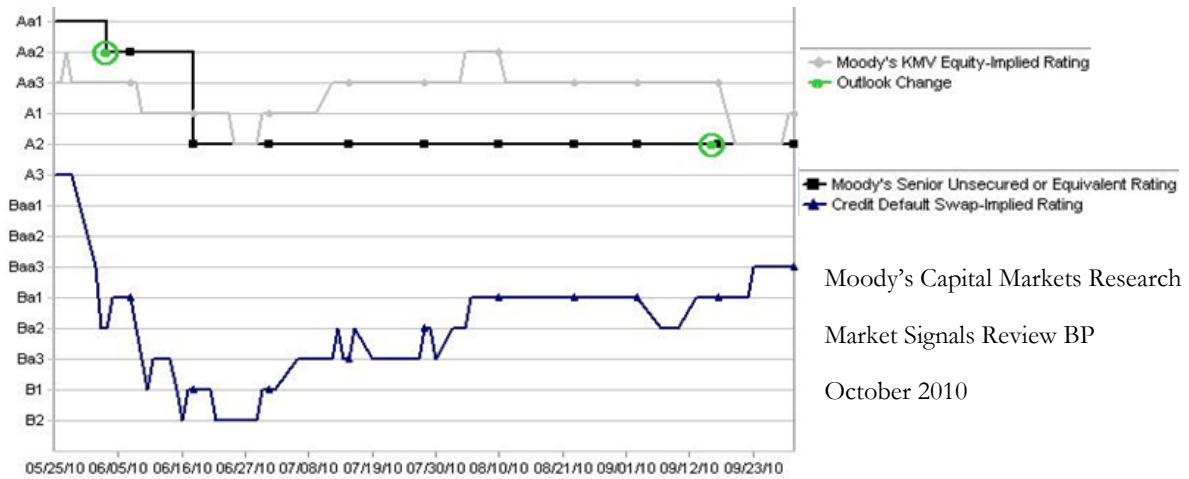
Date	ExxonMobil	Royal Dutch Shell	Chevron	BP	Total SA	ConocoPhillips
December 2010	Not listed	Not listed	Listed	Not listed	Listed	Listed
September 2009	Not listed	Listed	Listed	Listed	Listed	Listed
March 2009	Not listed	Listed	Listed	Listed	Listed	Listed
September 2007	Not listed	Listed	Listed	Listed	Listed	Listed
September 2006	Not listed	8 th	3 rd	2 nd	13 th	Not listed
September 2005	Not listed	4 th	3 rd	2 nd	10 th	Not listed
April 2005	Not listed	4 th	Not listed	2 nd	4 th	Not listed
December 2003	Not listed	2 nd	Not listed	1 st	Not listed	Not listed
September 2002	Not listed	Listed	Not listed	Listed	Not listed	Not listed

This first category of external ratings gives a popular overview and appeals to the current trend of sustainable awareness in companies. However, these are biased measurements, because of the criteria and information input. To be accurate and objective about sustainability is difficult due to the nature of the term sustainable, let alone the ambiguities involved in the measurement.

5.3.3 Credit ratings

Credit ratings give more insight in the financial health and risks of companies and their products. Moody's Credit Default Swap rating for BP dropped from A3 – described as upper-medium grade – in May 2010 to B2 – speculative and subject to high credit risk and generally poor credit quality – by the end of June. ⁵⁵ Over a period of three months the rating was adjusted upwards to Baa3 – which is medium grade with moderate credit risk. In October 2010, BP announced to issue 2 billion US dollar in 5-year notes and 1.5 billion in 10-year notes. Figure 8 shows Moody's CDS-implied rating: BP improved over July, August and September 2010. ⁵⁶

Figure 8 : Moody's ratings of BP in July, August and September 2010



Moody's argued in the report that the increase in BP's CDS-implied rating was sustainable, since the Macondo well had been permanently sealed and BP had taken steps to increase liquidity: issuing new bonds, and selling assets. The impact of clean-up and litigation costs was reflected in Moody's downgrade of BP from Aa1 to A2 after the start of the oil spill. In September Moody's confirmed an A2 rating for BP and changed the outlook to stable.⁵⁷

Expected Default Frequency is a credit risk measure of actual probabilities of default, trademarked by Moody's Analytics, based on the structural credit risk model of Kealhofer-McQuown-Vasicek. Figure 9 shows a one-year EDF for BP of 0.12% on June 29; a tenfold increase from the value in the previous months – reflecting the two crisis months – but still a low risk according to Moody's.

Figure 9 : Expected Default Frequency for BP in 2009 - 2010



As for the impact on shareholder value, Moody's concluded that despite the drop in BP's share price, the market leverage and asset volatility were not really impacted. BP has relatively little debt outstanding and the share price decrease in the period April-June 2010 did not substantially impact the share of equity in the capital structure. Table 11 below shows that the share of equity in the Enterprise Value decreased from 88% to 77%, a difference of 11 percentage points.⁵⁸

Table 11 : market leverage BP in April and June 2010

Date	Share price (US \$)	Equity / Enterprise Value (%)
25 June 2010	27.02	77
20 April 2010	60.48	88
Decrease	55 %	11
	Total debt / common equity (%)	Total debt / total assets (%)
31 December 2010	48	17
31 December 2009	34	15
31 December 2008	36	15
31 December 2007	33	13
31 December 2006	28	11

We included two leverage ratios for 2006 – 2010. The total debt / common equity ratio for 2010 has increased by 13% points but debt is still less than half of common equity. When compared to assets, the share of debt has increased from the 14% level to the 16% level, so no big change here. The drop in BP's share price in May and June 2010 increased the volatility a little, however EDFs for corporations like BP use a 5 year average volatility and BP's historical asset volatility is low.⁵⁹ Despite the large drop in BP's stock price, the assumed increase in its liabilities and asset sales, the oil spill has resulted in only a small increase in the probability that BP will default.

As a comparison we also look at Standard & Poor's credit ratings. For 2010 the corporate credit rating was A/Negative (A-1). The business risk profile was indicated as strong, given the underlying profitability of massive upstream and upgraded downstream assets. The indication for the financial risk profile was modest, given the sound underlying cash generation and the attempts to reduce net debt to meet GOM liabilities. Diversity from geographical spread, conservative debt and liquidity management, proven asset marketability and financial flexibility, were the main strengths. The weaknesses included material costs and cash outflows and investigation and litigation uncertainties related to the GOM oil spill especially after previous accidents in North America. Other weaknesses that were identified: the volatile and capital intensive oil industry, exposure to some concentrated country risks, and funding volatility. Table 10 covers S&P's historical ratings of BP.⁶⁰

Table 12 : credit ratings for BP in 2005 - 2010

Date	Rating	Date	Rating
31 December 2010	A/Negative/A-1	31 December 2007	AA+/Negative/A-1+
31 December 2009	AA/Stable/A-1+	31 December 2006	AA/Stable/A-1+
31 December 2008	AA/Stable/A-1+	31 December 2005	AA/Stable/A-1+

It should be noted that credit rating agencies Moody's, Standard & Poor's and Fitch have all been criticized in particular since the large losses in the asset backed security collateralized debt obligation (ABS CDO) market during the outbreak of the 2008-financial crisis. The rating agencies gave top Aaa ratings to certain CDO's issued by large banks, but these products reported enormous losses. The credibility of the credit rating agencies has come under attack and the next years will reveal whether and how procedures and measurement may or may not have improved. ⁶¹

5.3.4 Reputation ratings

In chapter 3 we have provided an insight on governmental, political and societal level what BP's role has been in the past years and especially during 2010. We also briefly discussed the impact of BP's past operations on the environment and the governmental issues. In section 5.4 of this chapter we elaborate more on the environmental impact of the GOM oil spill. In chapter 4 we explored how the shareholders have been impacted. In this chapter we have, so far, covered both industry company rankings and credit ratings of companies through which we evaluated the financial credibility of the oil majors. In this part of the thesis we want to further explore how the social part of the reputation of BP has been impacted by the GOM oil spill. There is another group of ratings that comes from social monitors. A wide range of people from industry but also from universities and media advise these monitors during the process of measuring valid corporate opinions (Fombrun, 1998). The focus is on the social performance of the companies and therefore we can use such an index that focusses fundamentally on the company's involvement and development in the areas of three other main stakeholders: the environment, the government and the society (*ESG*).

Reputation is represented in these three areas in a broad sense: it is about the perception of the organization's past actions and future prospects. To measure the performance in environmental, social and governmental areas, academics have used Kinder, Lydenberg, Domini (KLD) Research & Analytics ratings (Chatterji et al. (2007)). These indices are influential in the field. The indicators can be used to gain a thorough understanding and more balanced measurement of the reputation in the ESG areas of companies. Chatterji et al. (2007) find that KLD ratings summarise past environmental performance well. Companies with more identified 'concerns' have in later years significantly more regulatory compliance violations. The identified 'strengths' do not predict compliance violations accurately. The KLD indicators are for this research a valid instrument to gain more insight in the external performance of the majors in the oil industry. KLD has granted us special permission to use their 2011 data for this research. The ESG factors are divided in environment, community and society, customers, employees and supply chain, and governance and ethics. ⁶² In Appendix B the specifics of each category and scores can be found. Table 13 below shows the main results for our research group of companies as published in April 2011.

Table 13 : ESG rating summary for the oil majors in 2011

ESG level	ExxonMobil	Royal Dutch Shell	Chevron	BP	Total SA	Conoco Phillips	Industry
Environment	CC/28	CC/23	CC/26	CC/24	CC/29	CC/25	CCC/37
Community & Society	CC/27	CCC/37	CC/27	CCC/34	C/10	CCC/41	CCC/41
Customers	B/44	CCC/35	B/46	CCC/33	C/14	A/60	BB/51
Employees & Supply Chain	CC/30	CC/31	CCC/38	CC/33	CC/31	CCC/34	BB/48
Governance & ethics	B/47	A/66	AA/72	BBB/53	A/63	AA/73	A/62
Overall score	CC 26	CC 29	CC 26	CC 26	CC 26	CCC 37	CCC

In the KLD database the industry refers to 32 oil & gas companies covering most IOC's.⁶³ Currently, on environmental level the oil majors each perform poorly, within a narrow margin of each other, below the industry level. Total has the highest score, Royal Dutch Shell and BP have the lowest scores. For the variable community and society the companies do not outperform the industry. ConocoPhillips has the highest ranking, while Total SA this time is ranked lowest. For the variable customers there is a rather big spread of 36 points between the lowest and highest rating. ConocoPhillips outperforms the industry and Total SA again has the lowest ranking of the majors. Regarding employees and supply chain matters, the majors all perform close to each other and below industry level, with ExxonMobil ranked lowest. The majors and the industry perform the best in the category governance and ethics where ConocoPhillips has the highest rating and ExxonMobil the lowest. BP is among the lowest performers in the industry, however the other majors are close to the margin. This reflects the heavily correlated performance within the industry, what we have already concluded in chapter 3 regarding the share prices.

In appendix B the most important themes and key performance indicators as perceived by KLD are listed. For all companies the categories employee safety, climate change and non-carbon emissions, effluents (outflows of water) and waste are indicators of concern as the values for all majors are below the industry average. Several majors underperform in the indicators human rights and anti-competitive practices. A main theme in the company descriptions is the ongoing controversies on environmental level, marking the Deepwater Horizon disaster as a notorious reminder of risks and that BP's major efficacy has been put into question following this oil spill. KLD does mention that most companies including ExxonMobil, Shell and Chevron have sound programs to face the issues, but fail to adequately resolve these.

5.4 External effects

Besides BP and the oil industry the 2010 GOM oil spill has impacted obviously a wide range of stakeholders: the marine ecology, the environment in the region, and the local economy and its people. The establishment of the 20 billion US dollar fund was due to the concern of BP and the US government about the magnitude of the economic impact of the oil spill. By November 2010 the fund settled for over 2 billion US dollars with around 127,000 claimants.⁶⁴ Like we have described in chapter 4, the external economic effects are mainly in the tourism, real-estate and fishing sectors; all essential for the Gulf region. The Commission Report concluded that in the short term these sectors are directly sensitive to the negative effect on the ecosystem, and less direct to the changed perceptions of the toxic sea food. This latter category is highly relevant: a loss of confidence in commercial fishing, whether justified or not, can have adverse economic effects.⁶⁵

Both the moratorium that was temporary imposed by the government and the closures of commercial fisheries temporary killed the fishing industry. As a result of this speculation in the media and in public sparked further concern about the quality of seafood. Concerns over the living conditions in and around the Gulf coast caused a decline in economic activity of the tourism industry. These sectors equal an economic activity of over 40 billion US dollar each year in the five Gulf States.⁶⁶ The Louisiana fishing industry, 40% of US seafood, was hit badly. The Gulf accounts for 73% of US shrimp, and the state of Louisiana for 67% of the US oyster production and 26% of the US blue crab production.⁶⁷ BP is funding a project of 78 million US dollar to monitor the safety of Louisiana seafood, with an amount of 30 million US dollar reserved for tourism promotion.⁶⁸

The region also generates roughly 30% of national oil production, but due to the moratorium this has been substantially lower and workers in the industry have been out of work. In June 2010 a protocol was released by the NOAA and the Food and Drug Administration to reopen certain fisheries, attempting to keep the balance between preventing entry of contaminated seafood into the market and needless damaging the seafood industry.⁶⁹

5.4.1 External reputation impact

In this chapter we elaborated on the reputational impact of the oil majors as a result of the GOM oil spill. The big external impact is the reputational damage to the Gulf coast brand. Like the BP brand we discussed in chapter 2, the Gulf coast brand has been heavily affected. Whilst BP had the opportunity to manage its brand during the past years (though badly), the Gulf coast brand has been the victim of a Black Swan: it is subject to the enormous ad-hoc crisis situation that was not anticipated but all the more severe.⁷⁰

It is unclear yet how much of people's business, impacted by the loss of consumer confidence in the Gulf brand, will get compensated by either BP or the government. The procedures for evaluation of claims are clear nor fair and ought to be improved.

The extensive coverage of traditional/new forms of media and political attention on the oil spill have shaped the perceptions - of every stakeholder – of the risks to the public and the Gulf's health in general. Seafood from this region is not deemed to be safe at the moment. This reputational damage can be recovered only by regulated testing and improvements of the information circulation about this. BP agreed to give the states Louisiana and Florida around 50 million and 20 million US dollar respectively for testing and for marketing programs of seafood products.⁷¹

The state of Florida generates around 50% of the Gulf coast's 20 billion US dollars of yearly tourism activity. Just recovering from the 2008-financial crisis, the state has seen a drop in revenue from this sector. Another part of the problem is related to the false attributes to reputational damage: inaccurate and false claims about the amount of contamination of certain areas of beaches such as the ones in the Tampa Bay where hardly any oil has reached the beaches.⁷²

6 The future is (un)certain

6.1 BP

In chapter 4 we have seen that given the shareholder value development and other financial ratios in the past years, BP entered the 2010 crisis with its operations in rather good shape. The outlook for BP obviously became less good when the oil spill disaster occurred. By July 2010 the dire part of the crisis was over, but uncertainty remains for the coming years such as the scale of the financial liability for oil spill damages and the longer-term impact on BP's growth and operations. Exploration and production in the remainder of 2010 has been reduced, and will stay reduced for the near-term at least in the GOM. For the longer term there are different scenarios for the company's likely performance. When the scale of the liability for BP becomes more clear, there is the possibility of a rather quick recovery during which BP can rebuild their reputation and become active in exploration and production again. If the liabilities run beyond the expected amount of 20 billion US dollars, the company has less available cash to invest in exploration and production. The company will have divested an additional 10 billion in 2011 and not paying dividend can provide additional funds to pay for any liability cost that is in excess of what is expected.

The coming decennium BP will stay busy in dealing with the lawsuits of every claimant. After the Exxon Valdez disaster in 1989 ExxonMobil dealt with lawsuits for decades, being able to spread the costs – of what would not be insured – of the final penalty of 500 million US dollars, the estimated 2 billion US dollars for cleanup and the estimated 1 billion US dollars for related civil and criminal charges. Their reputation was under attack at that time, and its share price was impacted during several months in 1989. But the company remained among the industry leaders. A similar fate for BP is very possible. The fund and the continuing asset-selling program – reaching 30 billion US dollars by the end of 2011 – can be used to pay for financial costs. Still, BP will have to pay for the fines and litigation costs. Restrictions on offshore drilling in the Gulf due to the oil spill will at least make it more expensive to operate there. If things would even get worse for BP, they could exit the GOM completely and eliminate what is left of political pressure. This would mean a big shift in strategy that takes away one of its most important growth areas. A second extreme reaction would be exiting the downstream (refining, selling and distribution) sector, and instead solely focussing on its upstream (exploration and production) business. The company is the biggest player in the GOM, owning more acreage than any other company. Production from the Gulf has fallen sharply in 2010 and the challenge for the company is to regain a high level of drilling, as wells in general produce at high rates in the beginning period and after that will decline rapidly. Another important issue for BP is the possible implementation of regulation-forced standards that will result in increased costs.⁷³

Warren Buffet, the legendary investor, active for more than 60 years and the CEO of Berkshire, once said: “It takes 20 years to build a reputation and five minutes to ruin it. If you think about that you will do things differently.” While that may be theoretically true – in this case the two months have been crucial – it remains to be seen to what extent BP, the oil industry and the government will do things differently in the future. As we have seen in the previous chapters, there are several ways to price reputation and in the short term we could say the GOM oil spill and BP’s role in it has impacted BP badly. The other companies have not been affected like BP, but do face the bad publicity for their industry and potentially tougher regulations.

6.2 The other majors

The other companies face both threats and opportunities as a result of the 2010 GOM oil spill. ExxonMobil could use their available cash to further grow by acquiring assets and develop new acreage emerging after the fallout from the Deepwater Horizon incident. Currently the company is less exposed to the fallout from the oil spill, because it is less active in this area and its portfolio is geographically differentiated. Total SA has less deepwater acreage and could take advantage of the deepwater opportunities that could emerge. The GOM is a highly relevant exploration area for Chevron and besides Shell and Anadarko (the latter was severely impacted by the oil spill in its share price but has recovered since) it is one of the leaders in the GOM. In this regard Chevron faces the related technical risks of deepwater activity.⁷⁴ ConocoPhillips is less active in the GOM where the other majors have been more successful. This area can be a focus point of the company’s future exploration programme. In particular, and this applies to other companies as well, there is a window of opportunity in acquiring under-valued deepwater acreage as certain exploration companies downsize their positions as a result of the GOM oil spill and the risks.⁷⁵

It is too early to draw conclusions regarding the longer term impact, but there are several indications that it might stay business as usual for the oil industry. However, there will come more regulation – which takes time to develop, agree upon and to implement eventually. While the GOM oil spill poses several uncertainties for all the companies – whether directly involved in the area or indirectly affected by tougher regulations for the industry – it actually provides opportunities as well. Taking into account what possibly drives the future the most: the Gulf of Mexico location is just too important, both to the US government and to the companies in this area.

7 Limitations and future research

7.1 Relating shareholder value impact and reputation impact

Our study has been a short-term assessment of the impact of the 2010 GOM oil spill on shareholder value and reputation development. As mentioned earlier: future research has to reveal the longer-term impact of the oil spill on the company, its reputation, the industry and most important all stakeholders including the local industry, the environment and the public.

The size of the impact of the GOM oil spill on shareholder value and the size of reputation capital depends on the dates of measurement. The outcome of these measurements changes inevitably when different dates are used; the dates we used are thus only an estimation that approaches the most likely value – if there even is one – in one possible way. However, one can still conclude that the outcome of the measurement is indicative valid for those specific points in time.

In chapter 3 we explained the most important developments during the Macondo months of May and June 2010: huge falls in the share price of BP and increasing pressure from external stakeholders, especially the US government. In this period the closest relationship can be seen between the impact of the GOM oil spill on shareholder value and reputation and BP's role in this. After the well was capped and the most severe threats for BP looked like they had been mitigated, the link between reputation and shareholder value development became less apparent. Still, numerous issues, especially the legal issues BP faces and the concerns about deepwater drilling in general, play a role. But this has not greatly been affecting shareholder value of the majors so far.

7.2 Concerns over indices

We have covered several indices in this thesis and we have looked at the alterations over the years and months where possible. Taking measurements to the next level and running a statistical test on these variables is rather difficult and currently not valid for various reasons. First, there are obvious data validity issues: share prices are daily and index ratings are only available for a couple of years for. Therefore, the variance within that data set and normality in the residuals is not sufficient enough, making it not possible to run other (regression) tests. Second, share price values are entirely market driven, whereas reputational data are based on other inputs including biased inside opinions and valuations. Comparing the different indices is difficult, because there are many different criteria upon which each index is based.

In future research an evaluation can be made based on more data after the oil spill. In that way a more balanced measurement in terms of coverage can be made. Furthermore, given the increase and popularity in reputation index ratings, future indices may come closer and more valid in the process of actually measuring reputation, at least on an environmental, social and governmental level. Monthly data could be used to compare share price data and reputation data in better way.

There are some concerns over the validity of sustainability indices. For instance, by 2007 insurance company AIG was still listed in the Dow Jones Sustainability Index of North America, but one year later AIG had to be bailed out by the US government because of the company's major liquidity crisis resulting from the downgraded credit ratings (induced by their inability to meet their insurance commitments when many CDO products defaulted). Another example is mortgage corporation Freddie Mac, still listed in KLD's Global Sustainability Index 2008 and got only removed in September 2008 by the time of the Federal takeover. Moody's rated Freddie Mac A1 until late August 2008, only to change it immediately – although far too late – to the lowest rating Baa3.

The term sustainability is interpreted in several ways, resulting in different criteria that are used by different indices ranging from more financial to more environmental. Another point of concern is that companies may use sustainability coverage just as a marketing trick or as a new way of an ordinary financial analysis, caused by their concern on litigation rather than actually being interested in sustainability itself. It remains unclear whether social ratings are actually providing transparency that helps stakeholders to identify environmentally responsible companies.⁷⁶

Regarding the use of reputational ratings, Fombrun (1998) has some interesting remarks that hold for our study as well. He argues that comparing these different ratings imply a narrow set of criteria upon which observers judge companies. This suggests a universal set of criteria by which organization can be judged, and which they can use to build reputation. Evidently, there lacks a clear theoretical framework for this kind of analysis. Such a framework should reflect a representative group of stakeholders with different opinions based on the same relevant criteria. By doing so, substantial progression of theory and practice of reputation management can be achieved.

In section 5.3.2 we noted that the process of ratings is biased for the reason that they depend heavily on inside information provided by only a limited set of companies and respondents. Moreover, as Fombrun (1998) argues, the criteria that are used are not consistently articulated throughout the different reputation agencies and the various industries of companies it assesses. In consequence the ratings make generalization difficult, though almost every survey inevitably tends to do this. We have used different kinds of ratings to gain more insight in the pattern and general impact analysis of the GOM oil spill on the oil industry, but one should always be careful making general statements when using different ratings next to each other.

7.3 The nature of a case study

In this thesis we used the oil spill in the GOM as a case study to make a short-term evaluation of how shareholder value and reputational development have been impacted. This is interesting as this approach has enabled us to evaluate a significant recent event in the petroleum industry, that has been, and continues to be, important news in both the energy world as well as in the public debate. The relationship between shareholder value and stakeholder value (reputation) development is a challenging and rather new kind of study, in particular in the case of the 2010 GOM oil spill.

According to Hodkinson and Hodkinson (2001), there are several benefits of using a case study as a research method, and their following remarks are helpful to point out the context of our study. The inherent characteristic of a case study is its restricted focus; this facilitates the construction of detailed and ambiguous subject matter. During the GOM oil spill several different forces, ranging from purely technical to financial and political, were simultaneously shaping the situation. By putting the focus on this event, we have been able to filter out irrelevant information and reveal the basic interrelations, which has been manifested in the framework that we created in chapter 3. Our case study has covered many 'lived realities', especially in chapter 3, providing our research with a close and in-depth focus. Also, by conducting this kind of research, we have been able to unravel an exceptional event. Furthermore, one of the strongest attributes of our research method is that it has helped us to show the different processes at work in different causal relationships (see chapter 3).

On the other hand there are some unavoidable weaknesses inherent in the case study approach, as mentioned by Hodkinson and Hodkinson (2001), which are important to highlight. First of all, there is too much information for easy analysis. We have experienced this through all the (news) reports in various media and journals, resulting in an information overload at some points. This turned out to be a challenge, because it was necessary to filter these out from the very first start, which demanded a clear and specific approach that was exactly needed for this thesis. At some points in our research it was difficult but important to actually stop covering the latest developments in light of our short-term research. Regarding the data for reputational analysis we faced the converse problem: although there were plenty of news reports on reputational matters, there were actually few and above all biased data sets that made it hard to validly compare these with the share price data. Another problem of our study is that at certain points it has been difficult to represent the complexities of the GOM oil spill in a simply manner. Our graphs and tables are a stylized way to represent interrelations and are only a means to reveal a more complex picture of our subject matter. An additional disadvantage is that some parts of our research do not lend themselves to numerical representation. Relating share prices with reputation ratings has been a challenge. Future studies have to use larger and more similar data and information sets to compare the important links between shareholder value and stakeholder value developments.

8 Conclusion

The industry faces a big challenge in finding ways to meet the increasing demand for energy while building a sustainable image that may come under attack whenever a crisis occurs. Civil tensions in North-Africa and the Middle East in 2011 caused the oil price to break the 120 dollar per barrel level. The US (and thus a substantial part of the oil consuming world) currently needs its exploration in deep water. The 2010 GOM oil spill is a stark reminder that meeting our intense energy demands through offshore drilling can come at a high social cost.

For BP the costs have been damaging as well, and like in all crises, this has been the result of various determinants. Following the accident and the inception of the oil spill, the combination of difficulties in the three areas (as explained in figure 3) technology, politics and organization led to these crisis months May and June 2010 – amplified by BP’s handling of it. This was an oil spill of an unknown magnitude, it occurred in US waters near an economic and environmental sensitive area that already experienced a great catastrophe because of hurricane Katrina in 2005, and a British company was (partly) responsible for it. In a time of social media coverage every detail and shortcoming gets magnified. CEO Tony Hayward’s two public unfortunate incidents added even more fuel to the fire. During the second quarter of 2010 BP experienced a close link between its shareholder value development and reputational development. The first months after the Macondo blowout have shown the closest link between shareholder value and stakeholder value. The period July until the end of 2010 was less severe, but still serious for the development of BP’s future.

The first hypothesis, *H1: The GOM oil spill in 2010 has had a significant negative impact on the short-term shareholder value of BP*, is accepted based on our evaluation of the significant two month-decrease in share price by the end of June to less than half of its value right before the oil spill. Although BP recovered from this in the remainder of 2010, the size of the drop has affected its financial performance – as shown in tables 3 and 4 and figures 4 and 5 – more than the other majors.

The second hypothesis *H2: The GOM oil spill in 2010 has had a significant negative impact on the short-term reputation of BP*, is accepted based on our evaluation of the perceived representation of BP’s past actions and future prospects and its overall appeal of its key parts. Widespread negative attention by the media, public and politics has impacted the company significantly, resulting in lower ratings in company rankings and increased attention of the reputation raters. The credit ratings for BP echoed a less severe risk than the other indicators; although BP temporarily received a lower rating, its expected default frequency increased only a little and credit ratings were adjusted upwards two months after the blowout. The external costs of the oil spill for the environment and society reflect an affected image for the local fishing and tourism industry, and for BP’s presence in the area.

The third hypothesis *H3: The short-term reputation is positively related to short-term shareholder value*, is accepted based on our evaluation of especially the period during the continuing oil spill of 87 days. Figure 3 illustrates the very close link between BP's shareholder value development and its reputational shape, visible in the three areas of technology, politics and organization. BP's behaviour during the crisis has been most important in this process and BP was in the centre of the nexus shareholder value development and stakeholder value development.

The main research question of this thesis is defined as: *how are BP's short-term shareholder value, reputation and the relationship in between impacted by the oil spill in the Gulf of Mexico in 2010?* With our overview in chapter 3 of the key events before, during and after the oil spill in the GOM we created a framework to assess the components of shareholder value and stakeholder value development as we have done in chapter 4 and 5. We have seen that in the short term – and in particular the 87 days period from April 20, 2010 until July 16, 2010 – the oil spill in the Gulf of Mexico, in addition to a wide range of external effects, had a significant negative impact on the short-term shareholder value of BP. Taking into account other multiples including enterprise value and EBIT, BP's financial performance over that period has been severely affected. In the longer run the effect will be less severe and the potentially huge financial liability costs can be spread over many years. It remains to be seen how much BP will have to pay in the end. Substantial costs can be seen on reputational level. The oil spill in the Gulf of Mexico in 2010 has had a significant negative impact on the short-term reputation of BP. Whether in terms of reputational capital, company rankings, credit ratings or social reputation ratings, BP's image is affected, most evidently as a result of the months May 2010 and June 2010. Future evaluation of BP's performance for these different indicators can compare a longer period after the event with the period before, revealing the long-term impact in a more balanced way. It is safe to say that one can expect that in terms of both shareholder value and reputation performance, BP has the possibility to deal with the impact of the oil spill and rebuild their image. Obviously, if another incident would occur in or near the company, a second potential more severe downfall of the company could be the result.

There has been value erosion in BP as a result of the developments in the GOM. Furthermore there has been value erosion on organizational level. The strong regional focus – for instance BP Americas has been relatively independent and able to decide most things on its own – may shift towards more centralized decision making (like ExxonMobil). Another important issue is to what extent risk-seeking behaviour will remain a part of the management style in BP. The National Commission concluded that there were such systematic failures in risk management, that they place in doubt the safety culture of the whole industry. Each of the oil majors is involved in the process of taking and dealing with high risks. However, BP has been operating on the frontier and beyond, and the organization has not been able to effectively manage this process.

At an oil industry level we see a remarkable similar pattern in share price development after the Macondo blowout. Our test results in table 6 reveal close correlations for the share price development within the five other majors. Despite the fact that no company has faced the decrease in share price and the financial problems that BP has encountered, share prices do respond in a similar manner. Various ratings identify similar problems for each company, mainly on environmental and safety level. The Macondo incident and the subsequent oil spill have triggered the call for tougher standards for procedures and equipment.

That is about as severe as it gets, since the companies are financially large and self-sufficient, whilst being involved in many geographically diverse operations. These oil companies are resilient enough to cope with the effects of the oil spill. The magnitude of their operations and their role in the energy system have been strongly built. This is unlikely to diminish and the system needs them and off-shore drilling too much. Still, the coming years are not certain and another crisis might occur.

In the meantime, on 28 February 2011, the Bureau of Ocean Energy Management, Regulation and Enforcement announced that it issued a permit to BP (46.50% stake) and Noble Energy Inc. (23.25% stake) to continue work on its Santiago well.⁷⁷ During the temporary ban on deepwater drilling the US Regulators have been put under more pressure to allow drilling projects in the Gulf again. On 31 March 2011 the US Bureau of Ocean Energy Management, Regulation and Enforcement granted Shell a drilling permit to drill in the Cardamom Field in the Gulf of Mexico. In April 2011 it was announced that the US government will grant BP approval to continue its activities in the 20 existing oil fields under strict monitoring.

BP did not award bonuses over 2010 to executives who were responsible for operations in the Gulf. Transocean announced it would award bonuses to its executives citing 2010 as 'the best year in safety' in the company's history. Nine of the 11 people who died in the Macondo accident were Transocean employees. After much criticism the company announced the bonuses would be donated to the families of these victims.

9 Thesis and literature

The overview of relevant literature in chapter 2 has helped us to construct the economic framework. We have covered the concept of externalities, the costs of oil spills, reputation, and how BP has developed in terms of perception in recent years.

The 2010 GOM oil spill has been a notorious example of a negative externality: the unintended effect of one action (the oil spill) causes harmful effects on others (the stakeholders including the government, the environment, the local economy, and the general public). Governmental action can internalize these externalities in the decision-making of the involved parties so the social optimal output can equal the private optimal output. We see the first steps of this happening since the government is engaging in legal procedures as well as preparing stricter regulations to minimize the risks of deepwater drilling. The question remains to what extent the governmental involvement works reactive through penalties (Becker, 1968) and to what extent towards precautionary measures. A couple of the options, pointed out by Sankar (2006), have been apparent in the aftermath of the oil spill: standards and regulation, and especially financial repercussions like liability related issues and different kinds of penalties. Environmental taxing and specific permits received less attention so far. Governmental action is needed in several of these areas to correct the market failures. It remains to be seen to what extent these market failures in the future are being corrected in advance.

As Cohen (2010) argues, the incentives of the responsible parties have to be aligned with the social goal of minimizing the costs of those oil spills. The GOM oil spill was bound to have a large impact, so the costs far exceed only the costs of the oil spill to BP itself and the other responsible companies, and the resulting costs of the probability of detection and conviction (even for the latter the magnitude of the 2010 GOM oil spill had not been anticipated). In accordance with Cohen (2010) and Alexander (2010) regarding pollution laws, the government is indeed likely to skip filing for gross negligence to instead choose for strict liability, as the commission report excluded the former, and this will likely make legal proceedings more effective.

Cohen (2010) remarked that when the reduction in stock price exceeds the expected costs of the penalty, this could be attributed to a reputation penalty or reputational damage. We have used the method by Fombrun (1996) to determine the loss in reputation capital by calculating the direct decrease in share price. Either way, the 87 days of the actual oil spill have illustrated the reputational costs. Although the expected costs can still not be precisely calculated, the emergency fund BP created is below the amount of shareholder value that was lost over the first months after the oil spill. This remains a short-term effect, as shareholder value has been recovering since – in line with the discussion by Fombrun (1996) of the reputational loss to ExxonMobil from the Valdez oil spill.

Brand indifference, as mentioned by Balmer (2010), has indeed revealed that the mismatch between BP's behaviour and the beliefs of the different stakeholders have played a substantial role in damaging the brand.

Stakeholder perception has probably never been as evident and relevant as today. Reactions through every conceivable medium including the social media, have further broadened Fombrun and Shanely's (1990) definition of reputation. We have seen in our research that the different forms of reputations are difficult to measure, because of different definitions and criteria (Fombrun, 1998) and because of the limited and biased dataset. In fact, getting the access to the KLD database has been an exception and luckily provided us with insightful data –the most reliable we could find for this study. Given both the crisis months in 2010 and the results in the different ratings, we can conclude that reputation is indeed an important part of the existence of a company (Bernstein, 1990 and Pruzan, 2002). Going even further, our study suggests that there is a very close link between reputational and share price development – at least in the short term.

Chapter 3, and in particular the summary of our analysis highlighted in figure 3, supports the view that reputation has an impact on the behaviour and the performance of organizations (McGuire et al., 1990), and that the causation of this process runs in both directions. Roberts and Dowling (2002) find that firms with good reputations show more profits over time; our findings suggests that for BP this may hold for the short term, it is too early to conclude such a thing for the longer term (consider in this context the limited effect of the Exxon Valdez oil spill on ExxonMobil over time). Regarding the impact on the petroleum industry: the majors have shown very high correlations in 2010 for share price development – however the general view, as expressed through reputational ratings, that these companies have been involved in environmental and safety issues (though not as severe as the GOM oil spill) does not reflect particularly lower company profitability.

Our analysis finds a strong direct link between shareholder value and reputational development. Rose & Thomsen (2004) find that corporate reputation does not impact firm value directly but rather through profits and growth. We both support and counter this by concluding that, at least for the short term and in the case of the GOM oil spill and BP's development, reputation impacts shareholder value directly as well as indirectly. both daily shareholder values and longer term ratios have been negatively impacted by the oil spill. Reputation has played a central role in this process, being part of BP's behaviour shaping their financial performance in the short term. In line with previous research, we acknowledge, even defend, that reputation is vital. A more thorough study of the role and the impact of reputation could be conducted with longer term coverage.

10 Literature overview

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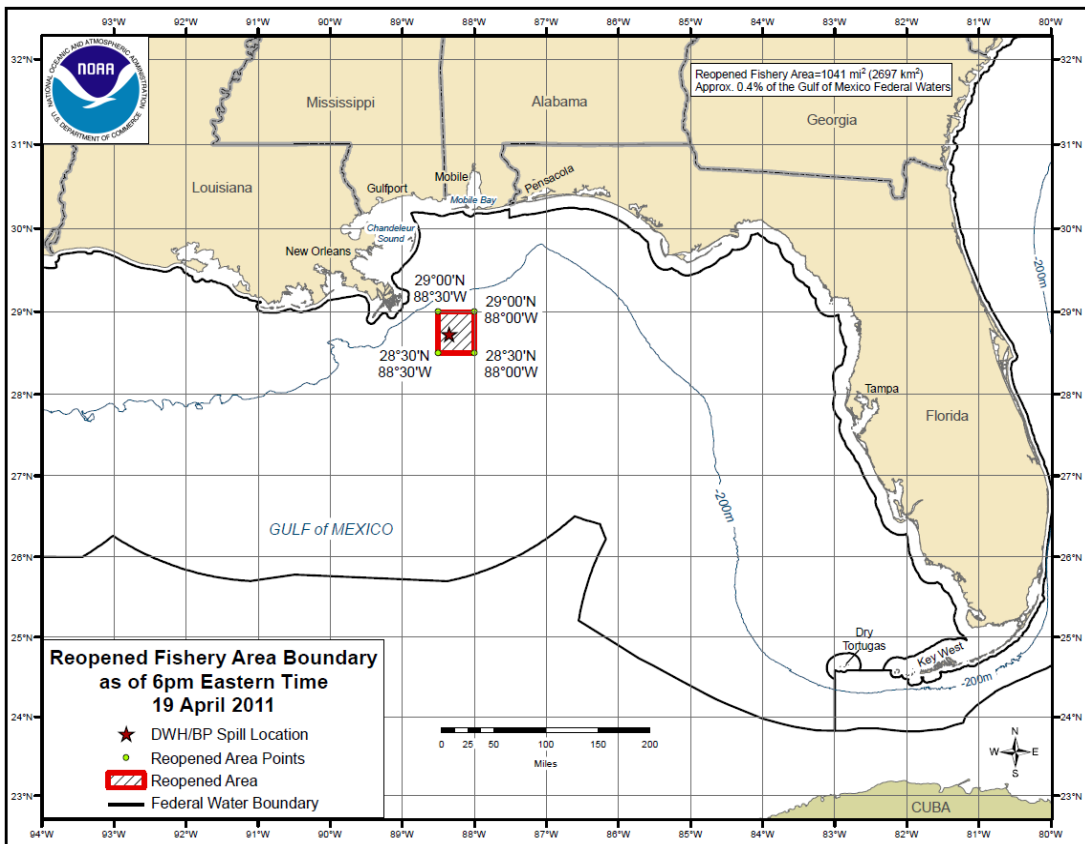
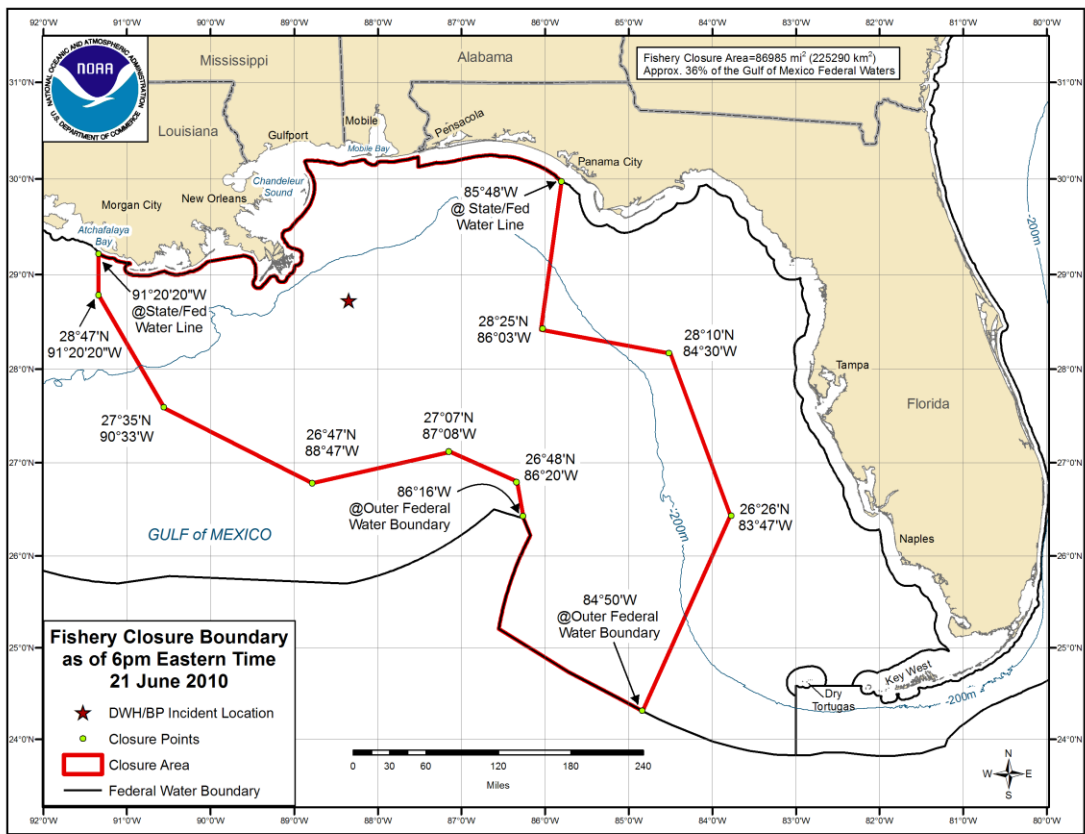
Databases and data reports

- Brent oil price history from: http://production.investis.com/bp2/download/brent_oil/.
- Energy data, the Energy Information Administration.
- Credit rating reports from Moody's and Standard & Poor's.
- General Reputation data from the Reputation Institute.
- Reputation data by permission from MSCI KLD / Global Socrates.
- Share price reports from Bloomberg Market Data and Thomson One Banker.
- Share price reports and analyst presentations from Credit Suisse Group, Deutsche Bank Group and Goldman Sachs Group.

11 Notes

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- ¹ Based on Deepwater Horizon Accident Investigation Report, September 8, 2010: www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/incident_response/stagin/local_assets/downloads_pdfs/Deepwater_Horizon_Accident_Investigation_Report.pdf and Deepwater Horizon MC252 Gulf Incident Oil Budget. National Oceanic and Atmospheric Administration (NOAA). August 2, 2010.: <http://www.noaa.gov/stories2010/PDFs/DeepwaterHorizonOilBudget20100801.pdf>.
- ² Deep Water, The Gulf Oil Disaster and the Future of Offshore Drilling (January 2011). Report to the President. National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.
- ³ World Energy Intensity: Total Primary Energy Consumption per Dollar of Gross Domestic Product using Purchasing Power Parities, 1980-2004 (August 23, 2006). Energy Information Administration, U.S. Department of Energy: <http://www.eia.doe.gov/pub/international/iealf/tablec1p.xls>.
- ⁴ See chapter 4 for an explanation of the choice and financial details of these companies.
- ⁵ Pareto, V. (1906). *Manuale di Economia Politica*, Edizione Critica, Milan.
- ⁶ Based on the information in Cohen (2010). *Deterring Oil Spills: Who Should Pay and How Much? Resources for the future*. And Alexander, the 2010 Oil Spill: Criminal Liability Under Wildlife Laws, prepared for Members and Committees of Congress. Further info on the Oil Pollution act: <https://ceprofs.civil.tamu.edu/rhann/links/laws/opa.asp>
- ⁷ See note 2.
- ⁸ See the article by Graham, S. (December 19, 2003). *Environmental Effects of Exxon Valdez Spill Still Being Felt*. The Scientific American. And Skinner, S. K. & Reilly, W. K. (May 1989). *The Exxon Valdez Oil Spill*. National Response Team. See section 3.4 for further info on other larger oil spills.
- ⁹ Based on articles, news and information centers:
<http://www.guardian.co.uk/environment/2010/apr/30/bp-cost-deepwater-horizon-spill>;
<http://iml.jou.ufl.edu/projects/spring01/hogue/exxon.html>;
http://useconomy.about.com/od/suppl1/p/Exxon_Valdez_Oil_Spill_Economic_Impact.htm;
Kvasnikoff, K. (2007). *Exxon Valdez 18 Years and Counting*;
Bandurka, A. & Sloane, S. (March 10, 2005). *Exxon Valdez – D. G. Syndicate 745 vs. Brandywine Reinsurance Company (UK) - Summary of the Court of Appeal Judgment*: <http://www.hfw.com/l3/new/new13a100305.html>;
Exxon Corporation 1993 Form 10-K. U.S. Securities and Exchange Commission. March 11, 1994;
<http://web.archive.org/web/20080304025742/>;
<http://yahoo.brand.edgar-online.com/fetchFilingFrameset.aspx?FilingID=512563&Type=HTML>.
- ¹⁰ Based on various reports from BBC: http://news.bbc.co.uk/1/hi/business/the_company_file/149139.stm and BP: <http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=2001578>.
- ¹¹ A further coverage of the history of BP and its development throughout, clarifies the company background more, however this is not the main focus of this thesis. For example, when Lord Browne was CEO of BP from 1995 to 2007 big deals were made in China in solar technology, and in Russia which is mentioned in chapter 4. For a more extensive analysis: ‘The history of the British petroleum company’ by Ferrier and Bamberg (1994).
- ¹² For more reading about the operational excellence and Hayward’s focus as CEO of BP, see The Times article: <http://business.timesonline.co.uk/tol/business/columnists/article6897998.ece>.

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- ¹³ Based on Bloomberg News and the report: 'Transocean's Ultra-Deepwater Semisubmersible Rig Deepwater Horizon Drills World's Deepest Oil and Gas Well. Press release: <http://www.deepwater.com/fw/main/IDeepwater-Horizon-i-Drills-Worlds-Deepest-Oil-and-Gas-Well-19C151.html>.
- ¹⁴ Based on news reports by Upstream Online: <http://www.upstreamonline.com/live/article212769.ece> and The New York Times: http://www.nytimes.com/2010/04/24/us/24spill.html?_r=1&hpw. The names of the eleven men who lost their lives are: *Jason Anderson, Aaron Dale Burkeen, Donald Clark, Stephen Curtis, Gordon Jones, Roy Wyatt Kemp, Karl Dale Kleppinger, Jr., Blair Manuel, Dewey Revette, Shane Roshto and Adam Weise*.
- ¹⁵ Established in Baghdad in 1960 by the Republic of Iran, Iraq, Kuwait, Saudi Arabia and Venezuela, the Organization of Petroleum Exporting Countries currently consists of twelve countries: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela: http://www.opec.org/opec_web/en/about_us/25.htm. Graph 1 is from the International Energy Outlook 2010 published by the International Energy Agency.
- ¹⁶ Numbers and conclusions based on International Energy Agency database and Oil & Gas Journal (2010) and the analysis by Lucia van Geuns (april 2011). *Oorzaak en gevolg hoge olieprijs*. Energie Internationaal, nr. 2.
- ¹⁷ This analysis is based on the article by Ed Crooks: BP – the inside story: <http://www.ft.com/cms/s/2/4e228e56-84ae-11df-9cbb-00144feabdc0.html#axzz1KTFstRrI>. For a further analysis see: <http://theclimatpost.wordpress.com/author/ericroston>.
- ¹⁸ This analysis is based on the article by Ed Crooks: BP – the inside story: <http://www.ft.com/cms/s/2/4e228e56-84ae-11df-9cbb-00144feabdc0.html#axzz1KTFstRrI>.
- ¹⁹ See note 18.
- ²⁰ Numbers based on Bloomberg market data, and The Times article: http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article7141137.ece.
- ²¹ See note 18.
- ²² Numbers based on Bloomberg market data.
- ²³ Ownership statistics of BP: www.bp.com/extendedsectiongenericarticle.do?categoryId=9010453&contentId=7019612.
- ²⁴ Based on Norse, E. A. and Amos, J. (2010). Impacts, Perception, and Policy Implications of the Deepwater Horizon Oil and Gas Disaster. *Environmental Law Reporter* 40, no. 11: 11071; Federal Interagency Solutions Group, Oil Budget Science and Engineering Team, Oil Budget Calculator Technical Documentation (November 2010), and Morgan, C. (September 8, 2010). Another sign of oil spill recovery in the Gulf. *Miami Herald*.
- ²⁵ Based on Richard Camilli et al. (2010). Tracking Hydrocarbon Plume Transport and Biodegradation at Deepwater Horizon. *Science* 330, no. 6001 (2010): 201–204; David Valentine et al (2010). Propane Respiration Jump-Starts Microbial Response to a Deep Oil Spill. *Science* 330, no. 6001: 204–208; Terry Hazen et al.(2010). Deep-Sea Oil Plume Enriches Indigenous Oil-Degrading Bacteria. *Science* 330, no. 6001: 208–211; and Alan Krupnick et al. (2010). A Framework for Understanding the Costs and Benefits of Deepwater Drilling Regulation. Working paper, Resources for the Future.
- ²⁶ Based on analysis in the National Commission report (see note 2). Figure 2 based on surface Oiling Surveys: May 17 - July 25, Shoreline Oiling: Most severe oiling observed through November Map courtesy of National Geographic (surface oil) and modified by Commission staff, NOAA/Coast Guard SCAT map shoreline oiling), published in the report of the National Commission on the BP Deepwater Horizon Oil Spill (2011). The size of the area that was being closed by the National Oceanic and Atmospheric Administration varied depending on the size of the spill, measurement and their decisions 2010. The following two maps, courtesy of NOAA (<http://sero.nmfs.noaa.gov/>) illustrate the size of the Fishery closure area on 21 June 2010 was 86985 mi² or 225290 km² (left map) and on 19 April 2011.



27 Estimating the quantity an oil spill can be done by measuring the thickness of the film of oil and the appearance on the water surface. If the surface area of the spill is also known, the total volume of the oil can be calculated (see Metcalf & Eddy (2003). Wastewater Engineering, Treatment and Reuse. 4th ed. New York: McGraw-Hill, 98.)

Approximately one ton crude oil equals 308 US gallons or 7.33 barrels, and one oil barrel equals 42 US gallons. Estimates for burned oil during the Kuwait oil fires range from 500,000,000 barrels to nearly 2,000,000,000 barrels. However, it is difficult to find reliable sources for the total amount of oil burned. The range of 1,000,000,000 barrels (160,000,000 m³) to 1,500,000,000 barrels (240,000,000 m³) given here represents frequently-cited figures.

Oil spilled from sabotaged fields in Kuwait during the 1991 Persian Gulf War pooled in approximately 300 oil lakes, estimated by the Kuwaiti Oil Minister to contain approximately 25,000,000 to 50,000,000 barrels (7,900,000 m³) of oil.

According to the U.S. Geological Survey, this figure does not include the amount of oil absorbed by the ground, forming a layer of "tarcrete" over approximately 5% of the surface of Kuwait, fifty times the area occupied by the oil lakes; <http://earthshots.usgs.gov/Iraq/Iraqtext>.

Estimates for the Gulf War oil spill range from 4,000,000 to 11,000,000 barrels (1,700,000 m³). The figure of 6,000,000 to 8,000,000 barrels (1,300,000 m³) is the range adopted by the U.S. Environmental Protection Agency and the United Nations in the immediate aftermath of the war, 1991-1993, and is still current, as cited by NOAA and The New York Times in 2010. However, according to the U.N. report, oil from other sources not included in the official estimates continued to pour into the Persian Gulf through June, 1991. The amount of this oil was estimated to be at least several hundred thousand barrels, and may have factored into the estimates above 8,000,000 barrels (1,300,000 m³).

The sources for the listed numbers, started by the first are as follows:

- CNN.com, Kuwait still recovering from Gulf War fires, 3 Jan. 2003.
- United Nations, Updated Scientific Report on the Environmental Effects of the Conflict between Iraq and Kuwait, 8 Mar. 1993.
- United States Geological Survey, Campbell, Robert Wellman, ed. 1999. Iraq and Kuwait: 1972, 1990, 1991, 1997. Earthshots: Satellite Images of Environmental Change. U.S. Geological Survey. <http://earthshots.usgs.gov>, revised 14 Feb. 1999.
- National Aeronautics and Space Administration, Goddard Space Flight Center News, 1991 Kuwait Oil Fires, 21 Mar. 2003.
- California's legendary oil spill. Los Angeles Times. 2010-06-13. <http://articles.latimes.com/2010/jun/13/local/la-me-then-20100613>.
- United States Environmental Protection Agency, Report To Congress United States Gulf Environmental Technical Assistance From January 27 - July 31 1991.
- United Nations, Updated Scientific Report on the Environmental Effects of the Conflict between Iraq and Kuwait, 8 Mar. 1993.
- National Oceanic and Atmospheric Administration, Office of Response and Restoration, Emergency Response Division, Incident News: Arabian Gulf Spills, updated 18 May 2010.
- Campbell Robertson / Clifford Krauss (2 August 2010). "Gulf Spill Is the Largest of Its Kind, Scientists Say". New York Times. http://www.nytimes.com/2010/08/03/us/03spill.html?_r=1&hp.
- CNN (1 July 2010). Oil disaster by the numbers. CNN. <http://www.cnn.com/SPECIALS/2010/gulf.coast.oil.spill/interactive/numbers.interactive/index.html>.
- Consumer Energy Report (20 June 2010). Internal Documents: BP Estimates Oil Spill Rate up to 100,000 Barrels Per Day. Consumer Energy Report. <http://www.consumerenergyreport.com/2010/06/20/internal-document-bp-estimates-spill-rate-up-to-100000-bpd/>.
- Big Oil Plans Rapid Response to Future Spills.
- IXTOC I. National Oceanic and Atmospheric Administration. <http://www.incidentnews.gov/incident/6250>.
- Ixtoc 1 oil spill: flaking of surface mousse in the Gulf of Mexico. Nature Publishing Group. <http://www.nature.com/nature/journal/v290/n5803/abs/290235a0.html>.
- John S. Patton, Mark W. Rigler, Paul D. Boehm & David L. Fiest (1981-03-19). Ixtoc 1 oil spill: flaking of surface mousse in the Gulf of Mexico. NPG (Nature Publishing Group). <http://www.nature.com/nature/journal/v290/n5803/abs/290235a0.html>.

- Major Oil Spills. International Tanker Owners Pollution Federation. <http://www.itopf.com/stats.html>.
- Atlantic Empress. Centre de Documentation de Recherche et d'Expérimentations. <http://www.cedre.fr/uk/spill/atlantic/atlantic.htm>.
- Tanker Incidents. <http://www.maritime-connector.com/ContentDetails/1479/gcgid/193/lang/English/Tanker-Incidents.wshtml>.
- Oil Spill History. The Mariner Group. <http://www.marinergroup.com/oil-spill-history.htm>.
- Oil Spills and Disasters. <http://www.infoplease.com/ipa/A0001451.html>.
- Amoco Cadiz. National Oceanic and Atmospheric Administration. <http://www.incidentnews.gov/incident/6241>.
- An Oil Spill Grows in Brooklyn. New York Times. 2010-05-14. <http://www.nytimes.com/2010/05/16/opinion/16Prudhomme.html>.

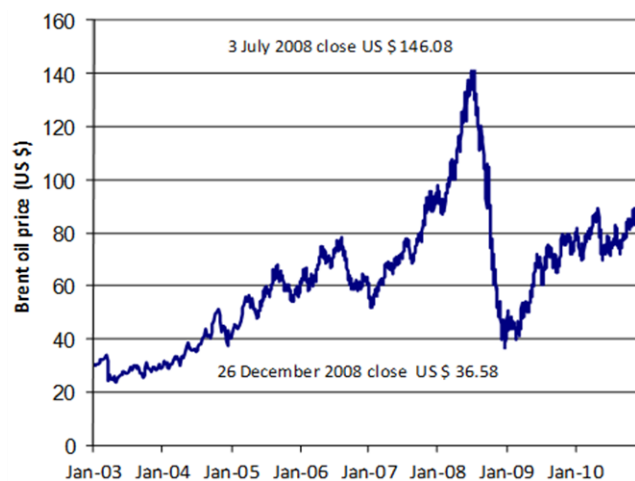
²⁸ See note 2.

²⁹ Based on Deepwater Horizon Accident Investigation Report, September 8, 2010.

³⁰ Share price data obtained by Thomson One Banker, based data from Datastream. News headlines obtained by several news providers including CNN, the Financial Times, The Guardian and other international news providers.

³¹ The FTSE All-Share is a market-capitalisation weighted index representing the performance of all eligible companies listed on the London Stock Exchange's main market, which pass screening for size and liquidity. The index is an aggregation of the FTSE 100, FTSE 250 and FTSE Small Cap Indices. As BP is headquartered in London, this index provides an appropriate comparison for the market in which BP is listed. Today the FTSE All-Share Index covers 630 constituents with a combined value of nearly £1.6 trillion – approximately 98% of the UK's market capitalisation: http://www.ftse.com/Indices/UK_Indices/Downloads/FTSE_All-Share_Index_Factsheet.pdf. Numbers are rebased with 100 equaling the first value of the series and each subsequent value as a comparison to this. Sources is based on monthly data – for optimal readability (therefore not daily) from Thomson One Banker.

³² Brent (crude) oil price data from Brent Oil price History: http://production.investis.com/bp2/download/brent_oil/. The nominal values of the Brand oil price is displayed in the graph below.



For a comparison with the other oil price indicator WTI Crude oil is: http://www.ioga.com/Special/crudeoil_Hist.htm.

West Texas Intermediate crude oil is of high quality and a very light oil, lighter than Brent. Containing about 0.24% sulfur, it is considered sweet crude. WTI is refined mostly in the Midwest and Gulf Coast regions in the U.S. . Brent contains approximately 0.37% of sulfur, still being classified as sweet crude The name Brent comes from the naming policy of Shell UK E&P, which named some of its fields after birds (here the Brent Goose).

Most petroleum production in Europe, the Middle East and Africa that flows West tends to be priced relative to Brent. It is typically refined in Northwest Europe. The symbol for Brent crude is LCO. Until September 2010, a price difference per barrel of Brent existed of USD/bbl higher or lower in comparison to WTI Crude. The different price spreads are historically based on physical short term supply and demand variations. Crude oil is considered more expensive and has been priced higher than Brent.

Additional note regarding the differences between Brent and Crude: contrary to the past, in May 2007, WTI was priced at \$63.58 per barrel against \$71.39 per barrel for Brent. A possible reason for this was a temporary shortage of refining capacity (see <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=apum7LTvljdc&refer=energy>). After a refinery with a large stockpile of oil was shut down at the Cushing Oklahoma storage and pricing facility, prices artificially depressed. This caused stockpiles to decrease and the WTI price exceeded the price of Brent once again (see http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a_T5lNxyQ14&refer=energy).

Since August 2010 there has been a big difference in price. In February 2011, WTI was trading around \$85/barrel while Brent was at \$103/barrel. Some have linked this to the fact that Cushing had reached capacity, causing the North American oil market which is centered on the WTI price to decrease. In reaction to civil Middle East unrest mainly in Egypt, Tunisia, Libya, Yemen, Oman and Bahrain, Brent oil price has been increasing during February. Cushing stockpiles cannot be swiftly transported to the Gulf Coast for further export, WTI crude cannot be arbitrated in bringing the Brent and WTI crude back into parity. The current price difference likely continues until the civil tensions in the Middle East decreases and when oil to be hauled from Cushing to Port Arthur, TX.

- 33 Data is based on what is mentioned at note 20. Further explanation provides a better understanding and hence a better insight in the mechanics of the oil price, and interestingly its role in the financial crisis that started in 2006. This is based on a public article written after an interview with Jan-Hein Jesse from the International Energy Agency and the Clingendael International Energy Programme.

The increase in demand for oil was due to both the US (consuming 21 million barrels a day, over 25% of the daily global oil production) and the explosive economic growth in Asia. Supply of oil could not respond adequately to this fast increase in demand. The oil price in 2007 damped the demand and stimulated IOC's to invest more in deepwater exploration, exploitation of oil sands and production of bio fuels. However the sudden increase in oil price destabilized the financial markets. During the 12 months before the official start of the financial crisis, over 1000 billion dollar was transferred to five mainly families in the Middle-East en rulers in Russia, Nigeria and Angola. These countries could not deal with this massive inflow of money, just like in the 80s. Most of this money flow was flowing to American government bonds and investment banks, which caused further decreases in the interest rate. This further increased the amount of credit consumers were borrowing, as it was in fact very cheap capital.

The oil price is based on a number of fixed drivers: the price of the last barrel of oil that will be consumed (the marginal cost of supply), the investing climate, geological developments and the economic circumstances. Furthermore, supply and demand mechanisms, such as seasonal demand fluctuations and temporary under or over capacity (measured as the number of oil barrels that is in stock in the OESO countries). In addition to this, geological changes, wars, terrorism, political instability, and natural disasters have an impact on the oil price, especially in a tense market. Finally speculation of day traders in the financial markets plays a role, accounting for at least 30 dollars during the all-time high of 147 dollars a barrel. As a result of the crisis, the trade in oil was forced to become more transparent. Future trading has been better regulated and the maximum trade capital has been limited. After the sudden drop to below 40 dollar per barrel, necessary to balance production to the lower demand, the price of oil has quite stable around 70-90 dollar, until political unrest in Northern Africa and the Middle-East caused the oil price to increase again, to levels above 120 dollar.

- 34 Based on Bloomberg market data.

- 35 Market capitalization is calculated as market price * Common Shares Outstanding. The number of outstanding shares for each quarter is taken from BP investor's share information for 2010: <http://www.bp.com/extendedsectiongenericarticle.do?categoryId=9000533&contentId=7001189>. For April 20 2010 the market capitalization is 3,131,272, 000 x 60.48 = 189.379.330.560. For 16 July 2010 that is 3,128,315,000 x 37.1 = 116.060.486.500. For 19 September 2010 that is 3,128,315,000 x 38.68 = 121.003.224.200. On 25 June 2010 the market capitalization was 3,131,272, 000 x 27.02 = 84.606.969.440. Share price data based on Thomson One Banker.

- 36 Based on data from Thomson One Banker where Enterprise Value is calculated as Market Capitalization at fiscal year end date + Preferred Stock + Minority Interest + Total Debt minus Cash. Cash represents Cash & Due from Banks for Banks, Cash for Insurance Companies and Cash & Short Term Investments for all other industries.

- 37 Company information based on Thomson One Banker. The market cap values for Royal Dutch Shell and Total SA (BP is listed in dollars in the Thomson database) multiplied by the exchange rate on 31 December 2010. For RDSA: 153.448.3 * 1.3401905475 = 205.64996. For Total SA: 88.703.1 * 1.3401905475 = 118.87905615394725. Company history is based on the information from the corresponding company websites.

Data is collected from Thomson One Banker and Datastream. Currently, the following companies qualify for the group of IOC's: Anadarko, Apache, BG, BHP Biliton, BP, Cenovus, Chesapeake, Chevron, ConocoPhillips, Devon, Encana, Eni, EOG, ExxonMobil, Gazprom (although some may argue this qualifies for an NOC), Hess, Husky, Inpex Corporation, Marathon, Murphy Oil, Nexen, Occidental, Pioneer, RepsolYPF, Santos, Shell, Statoil, Suncor Energy, Talisman, Total and Woodside.

The following state-owned companies qualify for the group of NOC's: CNOOC, CNPC, (Gazprom), ONGC, Petrobras, PetroChina, Petronas, PTTEP, Rosneft, Sinopec, Sinopec Corp. The six oil majors control around 6% of the global oil and gas reserves, while the state-owned oil companies control actually 88%. See the following report: http://tonto.eia.doe.gov/energy_in_brief/world_oil_market.cfm.

- 38 Date for the share price development in graph 5 and 6 are extracted from Thomson One Banker based on Datastream. Note: The unification of Royal Dutch and Shell Transport to one parent company, Royal Dutch Shell plc, was completed on 20 July 2005. Royal Dutch Shell plc has two classes of shares, "A" and "B" shares. "A" shares and "B" shares have identical rights except in relation to the source of dividend income where "A" shares have a Dutch source and "B" shares are intended to have a UK source. "A" and "B" shares trade on both the London Stock Exchange and Euronext Amsterdam and in the form of ADRs on the New York Stock Exchange (based on <http://www.unification.shell.com/>). For the graphs, RDSA is used.
- 39 Dividend yields based on Thomson One Banker data, and the averages are calculated based on the annual time series which are measured as: dividends per share / market price-year end * 100, based on data of Worldscope. Company analyses are based on the following investment reports. Oil and Gas Insight: <http://www.oilandgasinsight.com/file/100604/conocophillips-advances-shrink-to-grow-strategy-in-2011.html>; Petroleum economist: <http://www.petroleum-economist.com/IssueArticle/728089/Archive/Title.html>, Smart Trend: <http://www.mysmarttrend.com/news-briefs/news-watch/conocophillips-among-companies-integrated-oil-gas-industry-relatively-high-de>, Investor's Insight http://www.investorsinsight.com/blogs/steve_cook_strategic_stock_investments/archive/2011/01/11/review-of-conoco-phillips-dividend-growth-and-high-yield-portfolios.aspx.
- 40 Based on share price data of Thomson One Banker based on Datastream. Calculation for the other IOCs as follows: ExxonMobil: 68.97 - 59.10, 16.7%; Chevron: 82.05 - 70.06, 17.1%; Royal Dutch Shell A: 2010 - 1752.5, 14.7%; Total SA: 43.74 - 37.88, 15.5%; ConocoPhillips: 57.4 - 51.92, 10.6%; average: 14.92%.
- 41 Share price data from Thomson One Banker, Bivariate Pearson correlation test conducted in IBM SPSS Statistics v. 19.0.0. Total output of the correlation tests for all the other major with the others can be found in chapter 12.
- 42 Based on AP analysis on: <http://www.insurancejournal.com/news/national/2010/12/31/116027.htm>.
- 43 According to Eric Schaeffer, former head of the Environmental Protection Agency's enforcement division, mentioned in the article on <http://www.statesman.com/business/bps-oil-spill-costs-look-more-manageable-8-1152820.html>.
- 44 Based on note 2 and the comments on <http://blogs.ft.com/energy-source/2010/12/17/gulf-oil-spill-cost-bp/>.
- 45 Based on AP analysis on: <http://www.insurancejournal.com/news/national/2010/12/31/116027.htm>.
- 46 Based on: talkingpointsmemo.com/2010/06/exclusive_bp_bills_anadarko_272_million_for_gulf_s.php and: http://www.huffingtonpost.com/2010/11/02/mitsui-bp-bills-japanese-_n_777675.html.
- 47 Moody's judges its opinion on their rating system, based on <http://www.moody.com/sites/products/AboutMoodyRatingsAttachments/MoodyRatingsSymbolsand%20Definitions.pdf>:
Aaa: the highest quality, with the "smallest degree of risk. Aa (Aa1, Aa2, Aa3): Aa: high quality, with very low credit risk, but their susceptibility to long-term risks appears somewhat greater. (AA+, AA and AA- in S&P).
A (A1, A2, A3: upper-medium grade, subject to low credit risk, but that have elements present that suggest a susceptibility to impairment over the long term (A+, A and A- in S&P).
Baa1, Baa2, Baa3: moderate credit risk. They are considered medium-grade and as such protective elements may be lacking or may be characteristically unreliable. Speculative grade (also known as "High Yield" or "Junk"):
Ba1, Ba2, Ba3: questionable credit quality.

B1, B2, B3: speculative and subject to high credit risk and have generally poor credit quality.
Caa1, Caa2, Caa3: poor standing and are subject to very high credit risk and have extremely poor credit quality.
Such banks may be in default Ca: highly speculative and are usually in default on their deposit obligations.
C: the lowest rated class of bonds and are typically in default, and potential recovery values are low.

⁴⁸ Based on <http://www.ordons.com/americas/north-america/5214-anadarko-credit-rating-put-on-negative-watch.html>.

⁴⁹ Based on the CNN news report:
http://money.cnn.com/2010/04/30/news/economy/bp_gulf_oil_spill_cost/index.htm?hpt=T1.

⁵⁰ Based on a Reuters news report: <http://www.reuters.com/article/2011/04/21/bp-cameron-lawsuit-idUSN2020345320110421>

⁵¹ See note 48.

⁵² Based on various news reports including BP's own announcement:
<http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7066418> and Bloomberg news: <http://www.bloomberg.com/news/2010-12-07/bp-said-to-weigh-sale-of-some-north-sea-assets-to-fund-gulf-spill-clean-up.html>.

⁵³ Fortune partners with Hay Group starts with picking around 1,400 of the largest US companies, 500 non-U.S. companies and the five biggest foreign companies with US operations. For each industry the biggest 15 foreign and 10 US companies are grouped, based on ratings by company's executives and analysts for nine criteria. This is based on <http://money.cnn.com/magazines/fortune/mostadmired/2011/faq/>. The criteria are: innovation, people management, use of corporate assets, community/environment, quality of management, financial soundness, long-term investment, quality of products/services, global Competitiveness. http://a1851.g.akamaitech.net/f/1851/2996/24h/cacheA.xerox.com/downloads/usa/en/n/nr_FORTUNE_Most_Admired2009_Xerox.pdf

Fortune index can be found at <http://money.cnn.com/magazines/fortune/mostadmired/2011/index.html>. The announcement of BP's removal from the Dow Jones Sustainability Index: http://www.sustainability-index.com/djsi_pdf/news/PressReleases/20100531_Statement%20BP%20Exclusion_Final.pdf. The latest Dow Jones Sustainability Index report of the oil & gas industry: http://www.sustainability-index.com/djsi_protected/Review2010/SectorOverviews_10/DJSI_OIX_11_1.pdf.

⁵⁴ Dow Jones describe corporate sustainability "as a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments." Sustainability leaders for the index is based on the Corporate Sustainability Assessment of SAM Research. A defined set of criteria is used to assess the opportunities and risks deriving from economic, environmental and social developments for the eligible companies. This is based on: http://www.sustainability-index.com/07_html/assessment/overview.html (see further info).

⁵⁵ See note 45.

⁵⁶ Based on the Market Capital Research Report: moodys.com/researchdocumentcontentpage.aspx?docid=PBC_128007.

⁵⁷ See note 56.

⁵⁸ Based on data from Thomson One Banker and Moody's BP EDF Case Study in their Capital Market Research: <http://www.moodyanalytics.com/~media/Microsites/Credit-Risk-Measurement/GT-News/BP-Case-Study.ashx>. In this context by leverage we mean the amount of debt used to finance a firm's assets. A firm with significantly more equity than debt is considered to have a low leverage. Enterprise value is a measure of a company's value, enterprise value is calculated as market cap plus debt, minority interest and preferred shares, minus total cash and cash equivalents. Market leverage data from Worldscope Annual Financial Overview for BP of the last 5 years.

⁵⁹ See note 54.

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- ⁶⁰ Based on S&P's Global Credit Portal report of BP of 2010.
- ⁶¹ Based on a news report of Bloomberg http://www.bloomberg.com/apps/news?pid=newsarchive&sid=ajs7BqG4_X8I.
- ⁶² Bases on the KLD fact report: http://www.kld.com/indexes/data/fact_sheet/GSI_Fact_Sheet.pdf, and see also: <http://www.kld.com/indexes/gsindex/methodology.html>. A detailed coverage of the indicators and the scores of each major can be found in Appendix B.
- ⁶³ The companies in the industry as covered by KLD represent most IOC's. These are categorized as follows: CCC - RATING DOMICILE: ConocoPhillips (US), Gazprom (RU), Husky Energy (CA), Imperial Oil Limited (CA), Marathon Oil Corporation (US), Occidental Petroleum Corporation (US), PetroChina Company Limited (CN) and Statoil (NO). CC - RATING DOMICILE: BP Plc (GB), Chevron Corporation (US), China Petroleum & Chemical Corporation (CN), Exxon Mobil Corporation (US), Murphy Oil Corporation (US), Royal Dutch Shell Plc (GB) and Total S.A. (FR). BBB - RATING DOMICILE: Cenovus Energy Inc. (CA), OMV AG (AT) and Provident Energy Ltd. (CA). BB - RATING DOMICILE: Eni SpA (IT), Galp Energia (PT) and Rosneft (RU). B - RATING DOMICILE: Hess Corporation (US), Repsol (ES) and Suncor Energy Inc (CA). A - RATING DOMICILE: BG Group PLC (GB), Origin Energy Limited (AU).
- ⁶⁴ According to the Gulf Coast Claims Facility, GCCF Program Statistics - Overall Summary, November 23, 2010.
- ⁶⁵ Joseph Schuman (June 17, 2010). Dead Sperm Whale Found Near BP Oil Spill. AOL News.
- ⁶⁶ Based on the news report of the Huffington Post on: http://www.huffingtonpost.com/2011/03/01/us-approves-deepwater-drilling-permit-gulf-bp-spill_n_829505.html.
- ⁶⁶ Based on the U.S. Census Bureau: 2007 Economic Census, Statistics by Economic Sector. Compiled data from Gulf coast counties using industry codes.
- ⁶⁷ Based on the report by the NOAA, NOAA's Oil Spill Response: Fish Stocks in the Gulf of Mexico (May 12, 2010), http://www.response.restoration.noaa.gov/book_shelf/1886_Fish-Stocks-Gulf-fact-sheetv2.pdf.
- ⁶⁸ Based on an article of the International Institute for Strategic Studies: <http://www.iiss.org/publications/strategic-comments/past-issues/volume-17-2011/february/gulf-of-mexico-spill-the-longer-term-impact/>.
- ⁶⁹ NOAA, Protocol for Interpretation and Use of Sensory Testing and Analytical Chemistry Results for Re-Opening Oil-Impacted Areas Closed to Seafood Harvesting (June 18, 2010).
- ⁷⁰ Nassim Taleb introduced this in his 2007 book *The Black Swan* about the extreme impact of rare and unpredictable events and the tendency to find simplistic explanations for this afterwards (the black swan theory). More info on the author's webpage: <http://www.fooledbyrandomness.com>.
- ⁷¹ Press Release, BP, Seafood Safety, Tourism and Coastal Restoration Funding Announced, November 1, 2010, <http://www.louisianagulfresponse.com/go/doc/3047/940587/>; Press Release, Florida Department of Agriculture and Consumer Services, Bronson Announces That BP Will Pay \$20 Million To Fund Seafood Inspections, Marketing Efforts In Wake Of Oil Spill, October 25, 2010. http://www.doacs.state.fl.us/press/2010/10252010_2.html.
- ⁷² See note 63.
- ⁷³ Based on an article from the Wall Street Journal: <http://online.wsj.com/article/SB10001424052748704187604576288240241785236.html>.

⁷⁴ Based on a news report on:

<http://www.fool.com/investing/general/2011/02/02/anadarkos-remarkable-rebound.aspx>.

⁷⁵ Based on news article on <http://www.chron.com/dispatch/story.mpl/business/energy/7220927.html>.

⁷⁶ Based on Sustainability Indexes: Pros and Cons:

<http://www.fa-mag.com/component/content/article/14-features/4445.html?Itemid=131>.

⁷⁷ Based on: <http://news.firedoglake.com/2011/03/01/us-approves-first-gulf-deepwater-well-and-bp-is-the-majority-owner/>.

Appendix A Statistical Output

SPSS Bivariate Pearson correlation test within the industry

1 January 2000 – 1 January 2011

Correlations

		Royal Dutch Shell	ExxonMobil	Chevron	Total SA	Conoco Phillips
Royal	Pearson Correlation	1	-.070	-.071	.385**	.012
Dutch	Sig. (2-tailed)		.423	.414	.000	.889
Shell	N	133	133	133	133	133
ExxonMobil	Pearson Correlation	-.070	1	.963**	.729**	.917**
	Sig. (2-tailed)	.423		.000	.000	.000
	N	133	133	133	133	133
Chevron	Pearson Correlation	-.071	.963**	1	.654**	.898**
	Sig. (2-tailed)	.414	.000		.000	.000
	N	133	133	133	133	133
Total SA	Pearson Correlation	.385**	.729**	.654**	1	.843**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	133	133	133	133	133
Conoco Phillips	Pearson Correlation	.012	.917**	.898**	.843**	1
	Sig. (2-tailed)	.889	.000	.000	.000	
	N	133	133	133	133	133

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Royal Dutch Shell	ExxonMobil	Chevron	Total SA	Conoco Phillips
Royal	Pearson Correlation	1	.613**	.899**	-.116	.950**
Dutch	Sig. (2-tailed)		.000	.000	.062	.000
Shell	N	261	261	261	261	261
ExxonMobil	Pearson Correlation	.613**	1	.715**	.555**	.582**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	261	261	261	261	261
Chevron	Pearson Correlation	.899**	.715**	1	.055	.942**
	Sig. (2-tailed)	.000	.000		.378	.000
	N	261	261	261	261	261
Total SA	Pearson Correlation	-.116	.555**	.055	1	-.188**
	Sig. (2-tailed)	.062	.000	.378		.002
	N	261	261	261	261	261
Conoco Phillips	Pearson Correlation	.950**	.582**	.942**	-.188**	1
	Sig. (2-tailed)	.000	.000	.000	.002	
	N	261	261	261	261	261

** . Correlation is significant at the 0.01 level (2-tailed)

Correlations

		Royal Dutch Shell	ExxonMobil	Chevron	Total SA	Conoco Phillips
Royal	Pearson Correlation	1	.891**	.865**	.891**	.880**
Dutch	Sig. (2-tailed)		.000	.000	.000	.000
Shell	N	66	66	66	66	66
ExxonMobil	Pearson Correlation	.891**	1	.965**	.892**	.929**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	66	66	66	66	66
Chevron	Pearson Correlation	.865**	.965**	1	.853**	.943**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	66	66	66	66	66
Total SA	Pearson Correlation	.891**	.892**	.853**	1	.866**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	66	66	66	66	66
Conoco Phillips	Pearson Correlation	.880**	.929**	.943**	.866**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	66	66	66	66	66

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Royal Dutch Shell	ExxonMobil	Chevron	Total SA	Conoco Phillips
Royal	Pearson Correlation	1	.963**	.922**	.574**	.943**
Dutch	Sig. (2-tailed)		.000	.000	.000	.000
Shell	N	119	119	119	119	119
ExxonMobil	Pearson Correlation	.963**	1	.911**	.518**	.964**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	119	119	119	119	119
Chevron	Pearson Correlation	.922**	.911**	1	.591**	.970**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	119	119	119	119	119
Total SA	Pearson Correlation	.574**	.518**	.591**	1	.574**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	119	119	119	119	119
Conoco Phillips	Pearson Correlation	.943**	.964**	.970**	.574**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	119	119	119	119	119

** . Correlation is significant at the 0.01 level (2-tailed).

BP Plc (BP_GB)

Company Profile Summary | Full Profile Detail

Tear Sheet | Summary | Full Report | Industry Report

Rating Summary

BP's performance has been hindered by severe controversies, including the Deepwater Horizon accident and oil spill in the Gulf of Mexico and a Texas refinery explosion, both of which caused loss of life and environmental damage. BP improved its operational management system following the Texas incident, but its efficacy has been put into question following the recent offshore oil spill.

Key Performance Indicators

	BP_GB	Industry
Sustainability Reporting & Engagement	AAA / 100	AA / 79
Employee Safety	C / 19	B / 43
Climate Change	CC / 23	CCC / 37
Non-Carbon Emissions, Effluents & Waste	CC / 25	CCC / 34

Exxon Mobil Corporation (XOM)

Company Profile Summary | Full Profile Detail

Tear Sheet | Summary | Full Report | Industry Report

Rating Summary

ExxonMobil has had, and will likely continue to have, severe controversies in most of the ESG areas relevant to its operations. It has taken several steps to improve its transparency and implement proactive programs. However, ExxonMobil's attempts to manage its various ESG risks have not been sufficient to address the widespread impact of its extensive global operations.

Key Performance Indicators

	XOM	Industry
Human Rights: Civil and Political	CC / 30	BB / 49
Anti-Competitive Practices	BB / 50	A / 63
Business Ethics	B / 45	A / 62
Employee Safety	C / 18	B / 43
Climate Change	CC / 22	CCC / 37
Non-Carbon Emissions, Effluents & Waste	CC / 28	CCC / 34

Royal Dutch Shell Plc (RDSA_GB)

Company Profile Summary | Full Profile Detail

Tear Sheet | Summary | Full Report | Industry Report

Rating Summary

Shell faces serious environmental problems and ongoing community protests at many of its global operating sites. While the company has demonstrated an understanding of the serious issues it faces by implementing programs and addressing issues at a systemic level, its history of past controversies and failure to adequately resolve legal issues has undermined its current ESG record.

Key Performance Indicators

	RDSA_GB	Industry
Employee Safety	C / 16	B / 43
Climate Change	CC / 28	CCC / 37
Non-Carbon Emissions, Effluents & Waste	CC / 24	CCC / 34
Resource Management & Use	C / 13	CCC / 34

Chevron Corporation (CVX)

Company Profile Summary | Full Profile Detail

Tear Sheet | Summary | Full Report | Industry Report

Rating Summary

While Chevron has decent systems to manage the environmental and social impact of its operations, these have not been adequate to address the numerous issues that it has faced. It has faced allegations of human rights abuses in Burma and Nigeria, a severe pollution controversy at its operations in Ecuador, and serious employee health and safety issues throughout its operations.

Key Performance Indicators

	CVX	Industry
Human Rights: Civil and Political	CC / 22	BB / 49
Employee Safety	CC / 23	B / 43
Climate Change	CC / 30	CCC / 37
Non-Carbon Emissions, Effluents & Waste	C / 20	CCC / 34

Total S.A. (FP_FR)

Company Profile Summary | Full Profile Detail

Tear Sheet | Summary | Full Report | Industry Report

Rating Summary

Total has some programs and policies in place to address the risks inherent to global integrated energy operations, yet the company continues to be involved in numerous serious controversies. Total is transparent about the its challenges in its strong sustainability reporting, but only the implementation of more robust management systems will likely change the company's legacy of ESG issues.

Key Performance Indicators

	FP_FR	Industry
Human Rights: Civil and Political	C / 13	BB / 49
Anti-Competitive Practices	C / 0	A / 63
Employee Safety	CC / 23	B / 43
Climate Change	CC / 28	CCC / 37
Non-Carbon Emissions, Effluents & Waste	CCC / 35	CCC / 34

ConocoPhillips (COP)

Company Profile Summary | Full Profile Detail

Tear Sheet | Summary | Full Report | Industry Report

Rating Summary

ConocoPhillips's overall ESG performance is mixed. It stands out for its commitment to addressing climate change and improving its employee safety record. Its environmental and community impact records contain controversies, but in recent years it has not been implicated in large-scale environmental or community controversies, as have many of its peers.

Key Performance Indicators

	COP	Industry
Impact on Community	CC / 23	CCC / 37
Employee Safety	CC / 24	B / 43
Management of Environmental Issues	CC / 31	BB / 50
Climate Change	CC / 28	CCC / 37
Non-Carbon Emissions, Effluents & Waste	CC / 24	CCC / 34

Appendix C KLD Global Socrates output details

GLOBAL SOCRATES COMPANY COMPARISON REPORT AS OF 4/2011

Compare Capsule



BP Plc (BP_GB)	CC 26	Exxon Mobil Corporation (XOM)	CC 26	Royal Dutch Shell Plc (RDSA_GB)	CC 29	Chevron Corporation (CVX)	CC 26	Total S.A. (FP_FR)	CC 26	ConocoPhillips (COP)	CCC 37
ESG Summary		ESG Summary		ESG Summary		ESG Summary		ESG Summary		ESG Summary	
BP_GB	Industry	XOM	Industry	RDSA_GB	Industry	CVX	Industry	FP_FR	Industry	COP	Industry
Environment	CC CCC	Environment	CC CCC	Environment	CC CCC	Environment	CC CCC	Environment	CC CCC	Environment	CC CCC
Community & Society	CCC CCC	Community & Society	CC CCC	Community & Society	CCC CCC	Community & Society	CC CCC	Community & Society	C CCC	Community & Society	CCC CCC
Customers	CCC BB	Customers	B BB	Customers	CCC BB	Customers	B BB	Customers	C BB	Customers	A BB
Employees & Supply Chain	CC BB	Employees & Supply Chain	CC BB	Employees & Supply Chain	CC BB	Employees & Supply Chain	CCC BB	Employees & Supply Chain	CC BB	Employees & Supply Chain	CCC BB
Governance & Ethics	BBB A	Governance & Ethics	B A	Governance & Ethics	A A	Governance & Ethics	AA A	Governance & Ethics	A A	Governance & Ethics	AA A
Company Ratings: All Levels		Company Ratings: All Levels		Company Ratings: All Levels		Company Ratings: All Levels		Company Ratings: All Levels		Company Ratings: All Levels	
Company Overall Rating	CC	Company Overall Rating	CC	Company Overall Rating	CC	Company Overall Rating	CC	Company Overall Rating	CC	Company Overall Rating	CCC
Environment	CC	Environment	CC	Environment	CC	Environment	CC	Environment	CC	Environment	CC
Management of Environmental Issues	B	Management of Environmental Issues	CCC	Management of Environmental Issues	CC	Management of Environmental Issues	CC	Management of Environmental Issues	CCC	Management of Environmental Issues	CC
Environmental Management Policies	AAA	Environmental Management Policies	AAA	Environmental Management Policies	AA	Environmental Management Policies	C	Environmental Management Policies	AA	Environmental Management Policies	AAA
Environmental Management System	AAA	Environmental Management System	AAA	Environmental Management System	CCC	Environmental Management System	AAA	Environmental Management System	AAA	Environmental Management System	AA
EMS Certifications	AAA	EMS Certifications	C	EMS Certifications	CC	EMS Certifications	CC	EMS Certifications	CCC	EMS Certifications	CC
Regulatory Compliance	C	Regulatory Compliance	C	Regulatory Compliance	C	Regulatory Compliance	C	Regulatory Compliance	C	Regulatory Compliance	C
Climate Change	CC	Climate Change	CC	Climate Change	CC	Climate Change	CC	Climate Change	CC	Climate Change	CC
Climate Change Policy & Transparency	AAA	Climate Change Policy & Transparency	AA	Climate Change Policy & Transparency	AAA	Climate Change Policy & Transparency	AAA	Climate Change Policy & Transparency	AAA	Climate Change Policy & Transparency	AAA
Climate Change Initiatives	BB	Climate Change Initiatives	AAA	Climate Change Initiatives	AAA	Climate Change Initiatives	BB	Climate Change Initiatives	AAA	Climate Change Initiatives	AAA
Climate Change Performance	CC	Climate Change Performance	C	Climate Change Performance	CC	Climate Change Performance	CC	Climate Change Performance	CC	Climate Change Performance	CC
Climate Change Impact of Products & Services	C	Climate Change Impact of Products & Services	C	Climate Change Impact of Products & Services	C	Climate Change Impact of Products & Services	C	Climate Change Impact of Products & Services	C	Climate Change Impact of Products & Services	C
Climate Change Controversies	C	Climate Change Controversies	C	Climate Change Controversies	C	Climate Change Controversies	CC	Climate Change Controversies	C	Climate Change Controversies	C
Non-Carbon Emissions, Effluents & Waste	CC	Non-Carbon Emissions, Effluents & Waste	CC	Non-Carbon Emissions, Effluents & Waste	CC	Non-Carbon Emissions, Effluents & Waste	C	Non-Carbon Emissions, Effluents & Waste	CCC	Non-Carbon Emissions, Effluents & Waste	CC
Discharges to Water	BB	Discharges to Water	BB	Discharges to Water	CC	Discharges to Water	CC	Discharges to Water	AAA	Discharges to Water	CC
Emissions to Air	B	Emissions to Air	A	Emissions to Air	CCC	Emissions to Air	CC	Emissions to Air	A	Emissions to Air	A
Emissions to Land	CC	Emissions to Land	CCC	Emissions to Land	CCC	Emissions to Land	B	Emissions to Land	CC	Emissions to Land	CC
Toxic Release Inventory		Toxic Release Inventory	C	Toxic Release Inventory		Toxic Release Inventory	C	Toxic Release Inventory		Toxic Release Inventory	C
Emissions, Effluents & Waste Controversies	C	Emissions, Effluents & Waste Controversies	C	Emissions, Effluents & Waste Controversies	C	Emissions, Effluents & Waste Controversies	C	Emissions, Effluents & Waste Controversies	C	Emissions, Effluents & Waste Controversies	C
Impact of Products & Services	CCC	Impact of Products & Services	CCC	Impact of Products & Services	CCC	Impact of Products & Services	CCC	Impact of Products & Services	CCC	Impact of Products & Services	CCC
End-of-Life Product Management	C	End-of-Life Product Management	C	End-of-Life Product Management	CC	End-of-Life Product Management	C	End-of-Life Product Management	C	End-of-Life Product Management	C
Products & Services Impact Controversies	AAA	Products & Services Impact Controversies	AAA	Products & Services Impact Controversies	BB	Products & Services Impact Controversies	AAA	Products & Services Impact Controversies	AAA	Products & Services Impact Controversies	AAA
Resource Management & Use	C	Resource Management & Use	CC	Resource Management & Use	C	Resource Management & Use	CC	Resource Management & Use	C	Resource Management & Use	C
Water Management & Use	CC	Water Management & Use	AA	Water Management & Use	CC	Water Management & Use	CC	Water Management & Use	B	Water Management & Use	CC
Use of Recycled Materials	C	Use of Recycled Materials	C	Use of Recycled Materials	C	Use of Recycled Materials	C	Use of Recycled Materials	C	Use of Recycled Materials	C
Sustainable Resource Management	CCC	Sustainable Resource Management	CCC	Sustainable Resource Management	CCC	Sustainable Resource Management	CCC	Sustainable Resource Management	C	Sustainable Resource Management	CCC

Compare Capsule



ESG Research

Resource Management & Use Controversies	Resource Management & Use Controversies	Resource Management & Use Controversies	Resource Management & Use Controversies	Resource Management & Use Controversies	Resource Management & Use Controversies
Community & Society CCC	Community & Society CC	Community & Society CCC	Community & Society CC	Community & Society C	Community & Society CCC
Philanthropy CC	Philanthropy B	Philanthropy CC	Philanthropy B	Philanthropy CC	Philanthropy CC
Charitable Giving CC	Charitable Giving CC	Charitable Giving CC	Charitable Giving CC	Charitable Giving CC	Charitable Giving CC
Philanthropic Programs CCC	Philanthropic Programs A	Philanthropic Programs CCC	Philanthropic Programs A	Philanthropic Programs CCC	Philanthropic Programs CCC
Impact on Community CC	Impact on Community CC	Impact on Community CCC	Impact on Community CC	Impact on Community C	Impact on Community CC
Community Impact Policies, Systems & Initiatives B	Community Impact Policies, Systems & Initiatives BB	Community Impact Policies, Systems & Initiatives AA	Community Impact Policies, Systems & Initiatives A	Community Impact Policies, Systems & Initiatives C	Community Impact Policies, Systems & Initiatives B
Community Impact Controversies C	Community Impact Controversies C	Community Impact Controversies C	Community Impact Controversies C	Community Impact Controversies C	Community Impact Controversies C
Human Rights: Civil and Political BB	Human Rights: Civil and Political CC	Human Rights: Civil and Political CCC	Human Rights: Civil and Political CC	Human Rights: Civil and Political C	Human Rights: Civil and Political AA
Human Rights Policies & Systems AAA	Human Rights Policies & Systems BB	Human Rights Policies & Systems AAA	Human Rights Policies & Systems AA	Human Rights Policies & Systems BB	Human Rights Policies & Systems BB
Human Rights Initiatives CC	Human Rights Initiatives CC	Human Rights Initiatives CC	Human Rights Initiatives CC	Human Rights Initiatives C	Human Rights Initiatives CC
Human Rights Controversies BB	Human Rights Controversies CC	Human Rights Controversies CC	Human Rights Controversies C	Human Rights Controversies C	Human Rights Controversies AAA
Customers CCC	Customers B	Customers CCC	Customers B	Customers C	Customers A
Product Quality & Safety A	Product Quality & Safety AAA	Product Quality & Safety A	Product Quality & Safety A	Product Quality & Safety C	Product Quality & Safety A
Quality, Health & Safety Initiatives BB	Quality, Health & Safety Initiatives AA	Quality, Health & Safety Initiatives BB	Quality, Health & Safety Initiatives BB	Quality, Health & Safety Initiatives C	Quality, Health & Safety Initiatives BB
Quality & Safety Controversies AA	Quality & Safety Controversies AAA	Quality & Safety Controversies AAA	Quality & Safety Controversies AA	Quality & Safety Controversies BB	Quality & Safety Controversies AAA
Anti-Competitive Practices CC	Anti-Competitive Practices BB	Anti-Competitive Practices CC	Anti-Competitive Practices BB	Anti-Competitive Practices C	Anti-Competitive Practices AA
Anti-Competitive Practices Controversies CC	Anti-Competitive Practices Controversies BB	Anti-Competitive Practices Controversies CC	Anti-Competitive Practices Controversies BB	Anti-Competitive Practices Controversies C	Anti-Competitive Practices Controversies AA
Customer Relations CCC	Customer Relations C	Customer Relations CCC	Customer Relations CCC	Customer Relations CCC	Customer Relations CCC
Customer Relations Controversies AAA	Customer Relations Controversies BB	Customer Relations Controversies AAA	Customer Relations Controversies AAA	Customer Relations Controversies AAA	Customer Relations Controversies AAA
Customer Relations Initiatives C	Customer Relations Initiatives C	Customer Relations Initiatives C	Customer Relations Initiatives C	Customer Relations Initiatives C	Customer Relations Initiatives C
Employees & Supply Chain CC	Employees & Supply Chain CC	Employees & Supply Chain CC	Employees & Supply Chain CCC	Employees & Supply Chain CC	Employees & Supply Chain CCC
Labor-Management Relations B	Labor-Management Relations BB	Labor-Management Relations BBB	Labor-Management Relations BBB	Labor-Management Relations BB	Labor-Management Relations B
Labor-Management Policies, Programs & Benefits CC	Labor-Management Policies, Programs & Benefits CC	Labor-Management Policies, Programs & Benefits C	Labor-Management Policies, Programs & Benefits CC	Labor-Management Policies, Programs & Benefits C	Labor-Management Policies, Programs & Benefits CCC
Labor-Management Relations Controversies AA	Labor-Management Relations Controversies AAA	Labor-Management Relations Controversies AAA	Labor-Management Relations Controversies AAA	Labor-Management Relations Controversies AAA	Labor-Management Relations Controversies AA
Union Relations AA	Union Relations BB	Union Relations AAA	Union Relations AA	Union Relations AA	Union Relations BB
Employee Safety C	Employee Safety C	Employee Safety C	Employee Safety CC	Employee Safety CC	Employee Safety CC
Employee Safety Policies & Management Systems B	Employee Safety Policies & Management Systems B	Employee Safety Policies & Management Systems CCC	Employee Safety Policies & Management Systems BBB	Employee Safety Policies & Management Systems BBB	Employee Safety Policies & Management Systems A
Employee Safety Controversies C	Employee Safety Controversies C	Employee Safety Controversies C	Employee Safety Controversies C	Employee Safety Controversies C	Employee Safety Controversies C
Employee Safety Performance BB	Employee Safety Performance BB	Employee Safety Performance BB	Employee Safety Performance BB	Employee Safety Performance BB	Employee Safety Performance BB
Workforce Diversity AAA	Workforce Diversity A	Workforce Diversity A	Workforce Diversity AAA	Workforce Diversity A	Workforce Diversity A
Women & Minority Representation BB	Women & Minority Representation CC	Women & Minority Representation CC	Women & Minority Representation AA	Women & Minority Representation C	Women & Minority Representation C
Diversity Policies & Programs AAA	Diversity Policies & Programs BBB	Diversity Policies & Programs B	Diversity Policies & Programs AAA	Diversity Policies & Programs B	Diversity Policies & Programs A
Diversity Controversies AAA	Diversity Controversies AA	Diversity Controversies AAA	Diversity Controversies AAA	Diversity Controversies AAA	Diversity Controversies AA
Supply Chain BBB	Supply Chain BBB	Supply Chain BBB	Supply Chain BBB	Supply Chain CCC	Supply Chain BBB
Supply Chain Initiatives CCC	Supply Chain Initiatives CC	Supply Chain Initiatives CCC	Supply Chain Initiatives CC	Supply Chain Initiatives C	Supply Chain Initiatives CC
Supply Chain Controversies AAA	Supply Chain Controversies AAA	Supply Chain Controversies AAA	Supply Chain Controversies AAA	Supply Chain Controversies AAA	Supply Chain Controversies AAA
Suppliers NA	Suppliers NA	Suppliers NA	Suppliers NA	Suppliers NA	Suppliers NA
Governance & Ethics BBB	Governance & Ethics B	Governance & Ethics A	Governance & Ethics AA	Governance & Ethics A	Governance & Ethics AA
Sustainability Reporting & Engagement AAA	Sustainability Reporting & Engagement AAA	Sustainability Reporting & Engagement AAA	Sustainability Reporting & Engagement AAA	Sustainability Reporting & Engagement AAA	Sustainability Reporting & Engagement AAA
Sustainability Reporting Frequency AAA	Sustainability Reporting Frequency AAA	Sustainability Reporting Frequency AAA	Sustainability Reporting Frequency AAA	Sustainability Reporting Frequency AAA	Sustainability Reporting Frequency AAA
Sustainability Reporting Quality AAA	Sustainability Reporting Quality AAA	Sustainability Reporting Quality AAA	Sustainability Reporting Quality AAA	Sustainability Reporting Quality AAA	Sustainability Reporting Quality AAA
Governance Structures AA	Governance Structures BB	Governance Structures AAA	Governance Structures CCC	Governance Structures AA	Governance Structures A
Board Independence AAA	Board Independence C	Board Independence AAA	Board Independence BB	Board Independence AAA	Board Independence A
Management of CSR Issues AAA	Management of CSR Issues C	Management of CSR Issues AAA	Management of CSR Issues C	Management of CSR Issues AAA	Management of CSR Issues C
Board Diversity BB	Board Diversity BB	Board Diversity BB	Board Diversity BB	Board Diversity BB	Board Diversity BB
Compensation AAA	Compensation AAA	Compensation AAA	Compensation AAA	Compensation C	Compensation BB
Governance Controversies BB	Governance Controversies AAA	Governance Controversies AA	Governance Controversies BB	Governance Controversies AAA	Governance Controversies AAA
Business Ethics BB	Business Ethics B	Business Ethics A	Business Ethics AA	Business Ethics A	Business Ethics AA
Business Ethics Policies & Programs AA	Business Ethics Policies & Programs CCC	Business Ethics Policies & Programs AAA	Business Ethics Policies & Programs AA	Business Ethics Policies & Programs AAA	Business Ethics Policies & Programs AA
Business Ethics Controversies CC	Business Ethics Controversies BB	Business Ethics Controversies CC	Business Ethics Controversies AA	Business Ethics Controversies CC	Business Ethics Controversies AA
Political Accountability CC	Political Accountability C	Political Accountability AA	Political Accountability BB	Political Accountability BB	Political Accountability BB
Public Policy CC	Public Policy C	Public Policy AA	Public Policy BB	Public Policy BB	Public Policy BB