Corporate Social Responsibility and Stock Market Performance: An Event Study Approach

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Abstract: ***This paper examines the relationship between Corporate Social Responsibility and stock market performance. To examine this relationship the "event-study" methodology is utilised to examine five events, two from the oil industry (BP and Exxon oil spills) and three from the banking industry (HSBC – money laundering; Barclays and Royal Bank of Scotland – Libor scandal). Results suggest that, apart from the HSBC money laundering event, all other events appear to have a significant effect on stock market performance as the shares of the firms involved tend to exhibit significant negative average abnormal returns during the period which followed the event. We also find some differences regarding the time-frame of the effect, since for some events it took more time to get into "full swing" and lasted longer.***

Index Terms: Event-study; Corporate Social Responsibility; Stock market performance.

I. INTRODUCTION

Corporate Social Responsibility (CSR) can be defined as "the social responsibility of businesses encompassing the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time" (Carroll, 2004). Freeman (1984) proposed the "stakeholder theory", which suggests that companies should not only consider the interests of their shareholders but a broader group of stakeholders; everyone who can substantially affect, or be affected by, the welfare of the company. Several extensions of Freeman's theory have been proposed since then (a review of these can be found in Agle, Donaldson, Freeman, Jensen, Mitchell, & Wood, 2008). Jones (1995) put forward the "instrumental stakeholder theory", which suggests that CSR efforts can be very important towards obtaining the necessary resources or broader stakeholder support. Porter (1991) focused on CSR from a purely environmental perspective and argued that profitability and pollution reduction may not be mutually exclusive goals. In his view, pollution is a waste of resources (e.g. energy) and as such, efforts to reduce pollution (e.g., through improved processes) may not only increase the firm's CSR but would also strengthen its competitive position.

Given the above, the case for CSR, from a business perspective, seems to focus on a wide range of potential benefits. Kotler & Lee (2005) presented an extensive list of such benefits, which contains: enhanced reputation; improved risk management; higher probability to attract investments; support of marketing objectives and reduction of regulatory oversight, among others.

On the other hand, there are those who are critical of companies integrating CSR into their core business and believe that running a "good" business contradicts with shareholders' interest. Such arguments follow Friedman (1962) who argued that the one and only social responsibility of business is to use its resources and engage in activities designed to increase its profits, if it stays within the rules of the game. Per this line of thinking, a manager who uses a firm's resources for social purposes that are not profitable is thought to be diverting economic efficiency and imposing an "illegal tax" on the organisation. Jensen (2001) further developed this point by arguing that trying to maximize the interests of a heterogeneous set of stakeholders (and not only the shareholders) makes the job of the managers much more difficult and themselves less easily accountable. An interesting contribution to the above discussion was made by Tirole (2001), who argued that firms that focus on CSR might be "shifting" wealth from shareholders to stakeholders. This might result in a lower return on their equity and as such they might become an acquisition target.

Motivated by the above arguments, in this paper we employ the "event-study" methodology to investigate whether the share price of firms that have exhibited lack of CSR has been penalised by investors, i.e. whether the share price after such an event exhibited negative abnormal returns. More specifically, we focus on five events; two from the oil industry and three from the banking industry. The choice of these two industries rests upon the fact that in recent time they have been at the forefront of broad criticism regarding their CSR. Indicatively, we note large oil spills (e.g. BP incident in 2010) and financial scandals such as money laundering (e.g. HSBC incident in 2012) and Libor fixing (e.g. Barclays in 2012). All three events mentioned above will be analysed in this paper, along with the Exxon Valdez oil spill in 1989 and the involvement of Royal Bank of Scotland in the Libor fixing scandal.

The remainder of this paper unfolds as follows. Section II presents an overview of existing literature regarding the relationship between CSR and stock market performance. Section III presents the data that will be used, along with the methodology employed. Section IV contains results and their analysis. Section V offers some concluding remarks.

II. LITERATURE REVIEW

In this section, we focus on the existing literature regarding the relationship between CSR and stock market performance. Before embarking on that however, it is worth noting that there is a substantial amount of work that has dealt with the

Revised Version Manuscript Received on November 05, 2016.

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relationship between CSR and broader indicators of financial performance (e.g. accounting ratios). Examples of such studies are Griffin and Mahon (1997) and Orlitzky et al, (2003). Nonetheless, since our concern in this paper lies specifically with the impact of CSR on the stock price, we concentrate exclusively upon the studies that have focused on stock market performance.

There are several papers that have focused on the relationship between CSR and the stock market performance of companies. Early examples include Moskowitz (1972), Vance (1975), Abbot et al, (1979) and Alexander & Buchholz (1979), who found no significant effect of social responsibility on the performance of stock prices. Anderson and Frankle (1980) examined Fortune 500 companies' stock market returns monthly, comparing firms that voluntarily disclosed social responsibility information and those that did not and found that firms voluntarily disclosing CSR information exhibited higher returns. All these studies, however, did not perform an actual "event analysis", hence they were not able to ascertain whether new information released to the market concerning a firm's CSR led to an immediate market reaction.

Hamilton et al (1993) looked at the performance of socially responsible mutual funds and found that such funds do not over - or under - perform a benchmark group of conventional mutual funds. The authors went on to argue that the market does not "price" social responsibility characteristics. On the other hand, Feldman et al (1997) focused solely on the environmental aspect of CSR and argued that firms who can improve their environmental performance can reduce their betas (that is to say their systematic risk), as calculated by the CAPM, hence raise their stock prices and market values by up to 5%.

Guerard (1997a) employed a small set of data and found that there is little significant difference between the performances of "socially screened" (i.e. ethical investment funds) versus "unscreened" investments. However, in a follow-up study later in the same year (Guerard, 1997b), he argued that investment "screens" to exclude stocks in industries such as alcohol, tobacco, gambling does yield higher average returns than "unscreened" investments.

Statman (2000) compared the performance of the Domini Social Index (DSI)[1] to that of the S&P 500 index by looking at returns, Jensen's alpha (a measure of excess returns) and a modified version of the Sharpe ratio (a measure of stock returns over the risk-free rate, per unit of total risk). His findings were that the DSI slightly outperformed the S&P 500 index, but when risk was taken into consideration there was a slight under-performance. Geczy et al (2003) also found that socially responsible investment funds underperform with respect to non-socially responsible ones.

Derwall et al (2004) use the "Innovest" rating database of "eco-efficiency" scores (covers environmental issues) for the period 1995-2003 and rank their sample of companies per their "eco-efficiency" scores. They then form two portfolios consisting of the highest and the lowest scoring companies. They find that the high-scoring portfolio of firms significantly outperforms the low-ranking one. Cox et al (2004) used data from the UK and the US and found that firms with poor CSR experience a reduction in the number of institutional investors holding their shares, that is to say their shares are "screened" out of such portfolios.

Brammer et al (2006) examined the relation between CSR and long-term stock returns in the UK and concluded that companies scoring high on CSR were poor investments indeed. More specifically, they studied CSR using three criteria: employment, environment, and community. Their analysis showed that companies with high scores on all three criteria exhibited considerably lower average stock returns. Boulatoff and Boyer (2009) studied the performance of "environmental stocks" and found that, on aggregate, the NASDAQ index performed better than them.

Cheung et al (2010) focused on the relationship between CSR and firm market valuation for firms in the Asian emerging markets and documented a significant positive relation. Interestingly, their results contrasted with those of Shen and Chang (2009) who found a negative relationship between CSR and the market valuation of companies listed on the Taiwan Stock Exchange.

An interesting paper is that by Flammer (2012) who used the event study methodology to examine the relationship between the stock price and "news announcements" that were related to the environment, for U.S. publicly traded companies over the period 1980 to 2009. Companies reported to have behaved responsibly towards the environment experienced a significant stock price increase, whereas those that behaved irresponsibly faced a significant stock price decrease. Another quite interesting finding of this paper is that stock abnormal returns have changed through time with the results showing that the focus on environmental behaviour increased in the more recent decades.

All in all, it appears that the empirical evidence – like the theoretical background – regarding the issue is inconclusive. Moreover, it seems that although many papers have focused on the relationship between CSR and stock prices, not many of them have utilised the event-study methodology to address the issue. Our paper aims to contribute to the existing literature by using the event-study methodology for five, specific events, to shed some more light regarding the issue.

III. DATA AND METHODOLOGY

The data utilised in this paper are summarized in table 1 and refer to the share price history of the companies involved in the events under consideration along with the corresponding stock market index on a daily basis, for the total period of interest. All data were collected from DataStream.

Table 1: Firms and Related Stock Market Indices

Firm	Event	Date of Event	Period of Interest
BP Plc	Oil spill	20/4/2010	2/11/2009 – 13/7/2010
FTSE 100 Index			
Exxon	Oil spill	24/3/1989	6/10/1988 – 12/7/1989
NYSE Index			

[1] A capitalization-weighted index that consists of stocks of socially responsible companies (initiated in 1990 by Kinder, Lydenberg, Domini & Co).

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HSBC	Money laundering scandal	11/12/2012	25/6/2012 – 5/3/2013
FTSE 100 Index			
Barclays	Libor scandal	27/6/2012	10/1/2012 – 19/9/2012
FTSE 100 Index			
Royal Bank of Scotland	Libor scandal	6/2/2013	21/8/2012 - 2/5/2013
FTSE 100 Index			

Note: Period of interest refers both to the "estimation" and "event" windows (detailed discussion follows)

Both the share price data and the stock market indices were transformed into daily returns per the following formula:

$$R_{it} = \ln\left(\frac{P_{it}}{P_{it-1}}\right)$$

Where: *Rit* are the daily stock (or index) returns of firm (index) *i* and *Pit* and *Pit-1* are the daily prices of the stock of firm (or index) *i* at time *t* and *t-1*, respectively.

As already mentioned, the methodology employed in this paper is the "event study" methodology. Event studies examine the effect of an event - or a set of events - on the value of assets, such as stock prices (as in this paper), bond prices and exchange rates. In the context of economics and finance an event is some change, development or announcement that may produce a relatively large change in the price of an asset, over a specific period. Typical events that have been the subject of such studies are stock splits (Fama et al, 1969), earning announcements (e.g. Ball and Brown, 1968), merger announcements (e.g. Brown and Warner, 1980) and regulatory changes (e.g. William, 1981).

Even though there is not a unique structure for carrying out an "event study", there is a general framework of the flow of analysis that needs to be followed (see for example MacKinlay, 2007 and Kothari & Warner, 2007). Firstly, the "event-window" needs to be defined; this is the period over which the event occurs. Usually, the "event-window" is defined to be larger than the specific period of interest (which can be a single day), to enable examination of time-periods around the exact date of the event. In this paper, we use four different "event-windows" to assess the effect of the event over different time-periods. More specifically, we use "event-windows" of 15, 30, 45 and 60 trading days after the occurrence of the event.

The assessment of the event's impact needs a measure of the abnormal returns generated. These are the actual ex-post returns of the asset under consideration, in this case the stock price, over the event window less the "normal" returns of the stock price over the same window of time. An important issue arising here concerns the calculation of the "normal returns" where, usually in such studies - and in this paper - the market-model approach is utilised (e.g. MacKinlay, 1997). The market model is represented by the following set of equations:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$
$$E(\varepsilon_{it}) = 0$$
$$Var(\varepsilon_{it}) = \sigma^2$$

Where: *Rit* and *Rmt* are the period-t returns on stock *i* and the market, respectively, and αi, βi, and σ^2 are the parameters of the market model. In practice, a broad-based stock market index is used as a proxy for the market portfolio e.g. the FTSE 100 index in the case of the UK.

As such, an "estimation window" needs to be defined so that the parameters of the market model can be estimated and then utilised to calculate "normal" returns over the "event window". The period prior to the "event window" is used as the estimation window and is typically larger in comparison to the "event window". In this paper, we use an estimation window of 120 trading days (e.g. MacKinlay, 1997).

Thereafter, abnormal returns over the "event window" can be calculated as follows ("hats" over the parameter indicate estimated values):

$$\hat{\varepsilon}_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt}$$

Once the time-series of abnormal returns has been established, the final step of the "event study" is the development of the testing framework for the abnormal returns. Here the null and alternative hypotheses need to be defined; the null is usually that the average abnormal returns (*AAR*) are equal to zero over the "event window", whereas the alternative is that they are different from zero.

For the purposes of our paper, the null and alternative hypotheses are:

H0: AAR = 0 vs. H1: AAR < 0

and since we will be focusing on each of the five events separately, we will need to carry out individual t-tests for each one.

$$t - statistic = \frac{AAR}{SE(AAR)}$$

Where: *SE (AAR)* the standard error of *AAR*, given by the formula:

$$SE(AAR) = \frac{S_{AAR}}{\sqrt{n}}$$

Effectively the question we are asking here is whether the average abnormal returns of each of the five firms in our study, given the CSR event, are significantly less than zero during the "event windows".

IV. RESULTS

In this section, we present our results. Regarding each event, we present t-tests for each of the four "event-windows" and a graphical representation of cumulative abnormal returns (CAR). Regression results regarding the estimation of the market model parameters for each firm are available upon request.

The first event concerns British Petroleum (BP), one of the world's leading integrated oil and gas companies. BP provides its customers with fuel for transportation, energy for heat and light, lubricants to keep engines moving, and the petrochemicals products used to make everyday items as

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diverse as paints, clothes and packaging. BP was founded in 1909 and today operates in more than 70 countries, has 79,800 employees and produces more than 3 million barrels of oil equivalent every day[2]. The firm generated total revenues of $225,982 million and had total assets of $261,832 million in 2015[3]. BP has a primary listing on the London Stock Exchange, where it is a constituent of the FTSE 100 Index, and also has secondary listings on the Frankfurt Stock Exchange and the New York Stock Exchange.

The event we will be focusing on refers to the oil spill that occurred after the explosion and sinking of the Deepwater Horizon oil rig in the Gulf of Mexico on the BP-operated Macondo Prospect, on 20 April 2010. This is the largest accidental marine oil spill in the history of the petroleum industry and lasted almost three months, causing eleven people to go missing and never been found, and a massive environmental disaster.

As already mentioned, this particularly unfortunate event occurred on 20/4/2010 and as such our "estimation window" will be from 2/11/2009 to 19/04/2010 and our "event windows" of 15, 30, 45 and 60 trading days will span from 21/4/2010 to 13/7/2010.

Figure 1 depicts cumulative abnormal returns and table 2 presents our statistical tests.

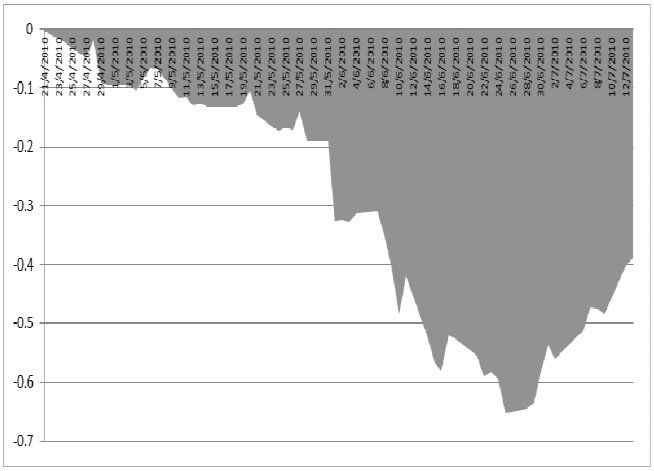

Figure 1: Cumulative Abnormal Returns of British Petroleum over the "Event-Windows"

Table 2: t-test for the British Petroleum Event

Days in event window	***15***	***30***		***45***		***60***	
Average Abnormal Returns	-0,0077	-0,0109		-0,0131		-0,0065	
Standard Error	0,0066	0,0061		0,0056		0,0049	
t-statistic	-1,1623	-1,7909	**	-2,3505	**	-1,3141	*

Note 1: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels, respectively.
Note 2: Table presents t-tests for "event windows" of 15, 30, 45 and 60 days. (H0: AAR=0; H1: AAR<0)

The above chart indicates that in the first few days after the event cumulative abnormal returns were kept at a relatively low level. However, as the "event-window" opens, cumulative abnormal returns rise substantially.

The observations are fully supported by the t-tests in the above table where we can see that average abnormal returns are negative in the 15-day "event-window" but they are not statistically significant. However, for the next two "event-windows" (30 and 45 days), they remain negative, have a larger magnitude and are statistically significant at the 5% level. For the final "event-window" (60 days), average abnormal returns remain negative and statistically significant at the 10% level.

The behavior of BP's share price may be associated with the fact that as time from the actual event passed, BP's CEO admitted that the company was not adequately prepared to fight the oil leak and moreover that the company might have to forego the payment of its annual dividend to shareholders. Eventually, in June 2010, the company announced that it would indeed suspend the dividend payment for the rest of the year[4].

Our second event also refers to the oil industry and concerns ExxonMobil, a firm which over the last 125 years has evolved from a regional marketer of kerosene in the U.S. to the largest publicly traded petroleum and petrochemical enterprise in the world. The firm operates in most of the world's countries and is widely known for brand names such as Exxon, Esso and Mobil, which drive modern transportation, power cities, lubricate industry and provide petrochemical building blocks that lead to thousands of consumer goods[5]. ExxonMobil generated total revenues of $268,882 million and had total assets of $336,758 million in 2015[6]. The firm's shares are listed on the New York Stock Exchange.

The specific event refers to the oil spill that followed the accident of the Exxon Valdez supertanker in Alaska's Prince William Sound, on 24/03/1989. The accident has been one of the worst and most challenging situations the firm faced in its long history. However, it should be noted that following the accident it took immediate responsibility for the spill, spending large amounts of money on compensatory payments, clean-up payments, settlements and fines, as well as on operational reforms to prevent future incidents.

The event date is 24/3/1989, therefore the "estimation window" spans from 06/10/1988 to 23/03/1989. As in the previous event, we use four "event windows"; 15, 30, 45 and 60 trading days, i.e. they span from 24/03/1989 to 16/06/1989.

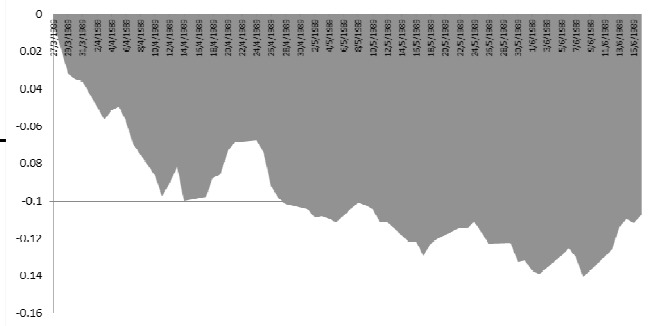

Figure 2: Cumulative Abnormal Returns of Exxon over the "Event-Windows"

[2] http://www.bp.com
[3] BP annual report for 2015.
[4] The Telegraph; Oil spill: BP suspends dividend to pay for $20bn clean-up fund, 17 June, 2010
[5] http://corporate.exxonmobil.com
[6] ExxonMobil annual report for 2015.

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Figure 2 presents the cumulative abnormal returns of the stock of the firm for the 60 trading days that followed the event and table 3 presents the results of the t-test, regarding whether the average abnormal returns during the various "event windows" are statistically different from zero.

Both the chart and the t-test suggest that the firm's share price did indeed experience negative abnormal returns following the incident. However, as can be clearly seen, these abnormal returns were more evident in the shortest "event window" (15 days) and then exhibited a decreasing trend over time. Moreover, as can be seen from the above table, in the final "event window", that of 60 days, average abnormal returns become statistically insignificant.

We can clearly see that both the BP event and the Exxon event had a substantial effect on the stock prices of the two companies. However, it seems that the effect of the BP event on the stock price took more time to gain "full swing" and lasted longer. As such, it is not surprising that the stock price of BP suffered much more losses in comparison to that of Exxon over the "event-windows" analysed.

The third event is from the banking sector and concerns HSBC, one of the world's oldest and largest banks. The bank was formed in Hong-Kong in March 1865 and today operates in 71 countries and territories serving more than 47 million customers. During its 150-year history, the bank weathered change in several forms, such as revolutions, economic crises and new technologies and managed to adapt and survive. Its current culture focuses on aspects such as capital strength, strict cost control and in building long-term relationships with its customers[7]. The firm generated revenues of $57,765 million and had total assets of $2,409,656 million for 2015[8]. HSBC has a dual primary listing on the London Stock Exchange and the Hong Kong Stock Exchange and is a constituent of the FTSE 100 Index and the Hang-Seng Index.

Table 3: t-test for the Exxon Valdez Event

Days in "event window"	***15***		***30***		***45***		***60***
Average Abnormal Returns	-0,0067		-0,0037		-0,0027		-0,0018
Standard Error	0,0024		0,0016		0,0012		0,0010
t-statistic	-2,7469	**	-2,3093	**	-2,2822	**	-1,7508

Note 1: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels, respectively.
Note 2: Table presents t-tests for "event windows" of 15, 30, 45 and 60 days. (H0: AAR=0; H1: AAR<0)

The event we will be looking at focuses on the involvement of HSBC in a money-laundering case in the US, for which the bank did not eventually face criminal charges, but was led to agree to a $1.92 billion settlement with the authorities. The settlement was announced on December 11, 2012, and rose big questions on the integrity of both the financial and justice system with HSBC admitting that for years it had ignored warning signals that drug cartels in Mexico were laundering millions of dollars through its branches, and that its international staff had stripped identifying information on transactions made through the USD from countries facing economic sanctions such as Iran and Sudan[9].

The CSR event date is the 11th of December, 2012 hence the estimation window is from 25/06/2012 to 10/12/2012. Like before, four "event windows" are used (15, 30, 45, 60 days) spanning between 12/12/2012 and 5/03/2013.

Figure 3 depicts cumulative abnormal returns for the 60 trading days that followed the event and table 4 presents the relevant t-tests.

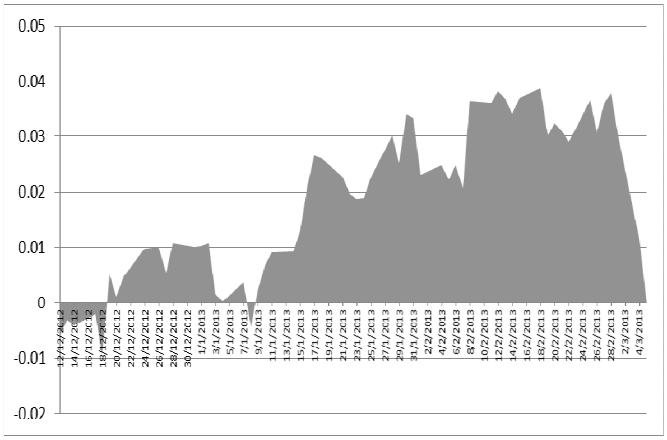

Figure 3: Cumulative Abnormal Returns of HSBC over the "Event-Windows"

Table 4: t-test for the HSBC Event

Days in event window	***15***	***30***	***45***	***60***
Average Abnormal Returns	0,0007	0,0007	0,0008	0,0000
Standard Error	0,0014	0,0009	0,0008	0,0008
t-statistic	0,4931	0,7028	10,463	0,0000

Note 1: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels, respectively.
Note 2: Table presents t-tests for "event windows" of 15, 30, 45 and 60 days. (H0: AAR=0; H1: AAR<0)

It is evident both from the chart and the t-test that HSBC's share price did not experience any significant abnormal returns following the acknowledgement and settlement of the money-laundering incident. Moreover, given the fact that average abnormal returns tend to "hover" around zero for all "event-windows" one might argue that the market even managed to "correctly" discount the level of the settlement between HSBC and the authorities.

The next two events also come from the banking sector and focus on Barclays and Royal Bank of Scotland. Barclays is a British universal bank headquartered in London. The bank traces its origins at the City of London as back as 1690 and today has operations in more than 50 countries and territories, employs 129,000 people and services around 48 million customers. Over the years, Barclays has grown organically but also made several acquisitions including the London, Provincial and South Western Bank in 1918, British Linen Bank in 1919, Mercantile Credit in 1975, the Woolwich in 2000 and the North American operations of Lehman Brothers in 2008[10]. Barclays generated revenues of £24,528 million and had total assets of £37,096 million in 2015[11]. The bank has a primary listing on the London Stock Exchange and is a constituent of the FTSE 100 Index. It has a secondary listing on the New York Stock Exchange.

[7] http://www.hsbc.com
[8] Annual results 2015: Presentation to Investors and Analysts
[9] HSBC: Too big to jail? CNNMoney, James O'Toole, 12 December 2012.
[10] https://www.archive.barclays.com
[11] Annual results 2015: Presentation to Investors and Analysts

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Royal Bank of Scotland (RBS) is another British bank that is headquartered in Scotland and operates in the UK, Europe, North America and Asia. The bank has its origins in the 18th century and before the 2008 global financial crisis, was one of the largest banks in the world. The bank suffered greatly during the crisis and subsequently, with a falling share price and major loss of confidence, it had to be bailed-out by the UK government, which, thus, is currently the bank's largest shareholder[12]. Since then, the bank's strategy has been to focus more on the domestic market, build its capital base and reduce risk[13]. RBS generated revenues of £12,923 million and had total assets of £815,408 million in 2015[14].It has a primary listing on the London Stock Exchange and is also listed on the New York Stock Exchange.

The two banks mentioned above, among several other large banks, were involved in the London Interbank Offered Rate (Libor) scandal. The Libor rate is an average interest rate calculated through submissions of interest rates by major banks across the world and the Libor scandal was a series of fraudulent actions connected to this rate. Effectively, investigations revealed that banks were falsely inflating (or deflating) their rates to either profit from trades or give the impression that they were more creditworthy than they were, especially during the 2007/08 financial crisis. In the words of Andrew Lo, MIT Professor of Finance: *"This (the Libor scandal) dwarfs by orders of magnitude any financial scam in the history of markets"*[15].

Regarding Barclays, the CSR event is related to the announcement of the settlement between the bank and the US authorities, which occurred on 27/6/2012 and which resulted in Barclays being fined US$450 million. A few days later both the Chairman and the CEO of the bank resigned.

Given the above, our "estimation window" runs from 10/01/2012 to 26/6/2012 and again we employ four different "event windows" (15, 30, 45 and 60 days). Figure 4 depicts cumulative abnormal returns for the 60 trading days that followed the event and table 5 presents the relevant t-tests.

The chart shows that cumulative abnormal returns went into clear negative territory in the days that followed the settlement but then their trend was reversed and by the end of the 60-day period after the event they were close to zero (i.e. almost back to "normal"). This can also be seen by the t-tests which indicate that average abnormal returns were negative and statistically significant (at the 10% level) for the 15-day period that followed the event but were not statistically significant thereafter. All in all, it appears that the effect of this event was quite short-lived.

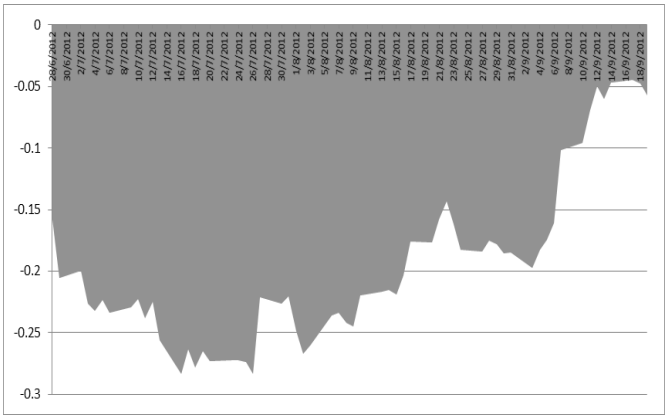

Figure 4: Cumulative Abnormal Returns of Barclays over the "Event-Windows"

Table 5: t-test for the Barclays Event

Days in event window	***15***		***30***	***45***	***60***
Average Abnormal Returns	-0,0186		-0,0081	-0,0040	-0,0009
Standard Error	0,0111		0,0064	0,0045	0,0036
t-statistic	-1,6749	*	-1,2672	-0,8861	-0,2637

Note 1: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels, respectively.
Note 2: Table presents t-tests for "event windows" of 15, 30, 45 and 60 days. (H0: AAR=0; H1: AAR<0)

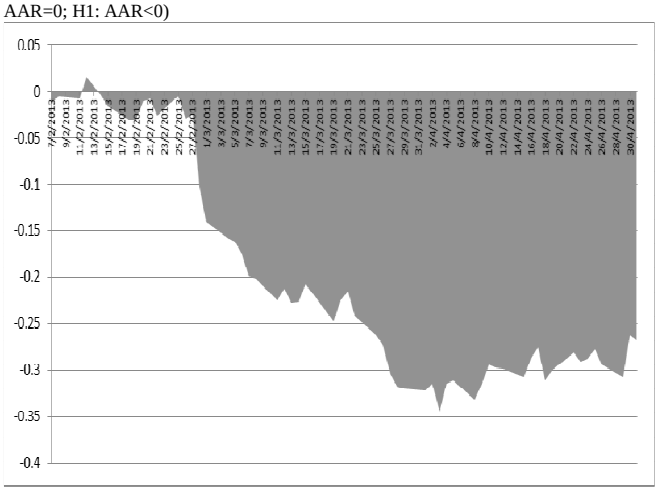

Figure 5: Cumulative Abnormal Returns of Royal Bank of Scotland over the "Event-Windows"

Table 6: t-test for the Royal Bank of Scotland Event

Days in event window	***15***		***30***		***45***		***60***	
Average Abnormal Returns	-0,0016		-0,0075		-0,0065		-0,0045	
Standard Error	0,0038		0,0038		0,0030		0,0026	
t-statistic	-0,4243		-1,9553	**	-2,1627	**	-1,7135	**

Note 1: ***, **, * indicate statistical significance at the 1%, 5% and 10% levels, respectively.
Note 2: Table presents t-tests for "event windows" of 15, 30, 45 and 60 days. (H0: AAR=0; H1: AAR<0)

We now turn our attention to Royal Bank of Scotland, which was also involved in the Libor scandal and which received a $612 million fine imposed by the UK and US authorities. It is worth noting that when the scandal occurred, the UK government owned 81% of Royal Bank of Scotland. The fine imposition occurred on 6/2/2013 and as such this will be our CSR event date for this event.

[12] http://www.bbc.co.uk
[13] http://investors.rbs.com
[14] Annual report 2015
[15] O'Toole, James (10 July 2012). *"Explaining the Libor interest rate mess"*. CNN. *Retrieved 16 July 2012*.

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As such, the "estimation window" is defined as 21/8/2012 to 5/2/2013 and the four "event windows" span between 7/2/2013 and 1/5/2013.

Here the picture looks somewhat different in comparison to Barclays; as can be seen from figure 5 cumulative abnormal returns hover around zero in the first few days that followed the event but deteriorate substantially thereafter. This is confirmed by the tests in table 6, where average abnormal returns are not statistically significant in the 15-day "event window" but significant - though declining numerically - at the 5% level in the "event windows" that follow.

So, it seems that the stock prices of both Barclays and Royal Bank of Scotland were affected by the Libor scandal but that the effect on the stock of the former was short-lived, whereas the effect on the latter was substantially longer.

V. CONCLUSION

This paper has used the "event-study" methodology to focus on the relationship between CSR (or the lack of it) and stock market performance. More specifically, five events were selected; two from the oil industry (BP and Exxon oil spills) and three from the banking industry (HSBC – money laundering; Barclays and Royal Bank of Scotland – Libor scandal) and an assessment was made to see whether these events had a significant effect on the abnormal stock returns of these firms.

To estimate the abnormal returns for each company, we employed the market model to estimate the "normal" or "expected" return over the various "event-windows". We than subtracted this from the actual return over the "event-windows" to obtain the abnormal returns. Standard t-tests were then carried out to assess the statistical significance of these abnormal returns over time. We used "event-windows" of 15, 30, 45 and 60 days to assess the impact of the events over time.

Our results indicate that, except for the HSBC money laundering event, all other CSR events appear to have a significant effect on stock market performance as average abnormal returns come out as statistically significant, at least for some of the "event-windows" employed. From there onwards, some interesting differences regarding the time-frame of the effect were documented; more specifically, for the two oil spills, it seems that the BP event took more time to get in "full-swing" but lasted longer in comparison to the Exxon event. Similarly, in the case of the Libor scandal, the effect on Barclays was much quicker and lasted for a shorter period in contrast to state-owned Royal Bank of Scotland where it took some time to show but lasted for a much longer period.

All in all, it seems that it would make sense for firms seeking to maximize their shareholders' wealth to exhibit CSR, as lack of it seems to be penalized by the markets. This means that apart from potential large fines (because of such events) investors may "screen out" such stocks from their investment portfolios. Moreover, it appears that the way firms deal with CSR events, after they have occurred, can also be important in the aftermath.

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