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The Value of CSR in Times of Increased Policy Uncertainty: Evidence from the Brexit Referendum

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Abstract

Scrutinising the 2016 Brexit Referendum, this paper examines the impact of economic policy uncertainty on the relationship between corporate financial performance and CSR using a sample of 320 non-financial firms listed at the London Stock Exchange. The sample covers the period of 2014 to 2018 with 2016 marking increased, and 2017 and 2018 representing years of moderated policy uncertainty. Using cross-sectional regression analysis of shock-period buy-and-hold returns, this paper finds (I) a statistically and economically significant inverse relationship between reservoirs of social capital previously accrued through CSR initiatives and returns. The effect is driven by the Governance component of CSR, whereas the impact of combined Environmental and Social pursues was not found to be meaningful. Using difference-in-difference methodology with continuous treatment, this investigation concludes (II) high-CSR and low-CSR firms do not differ in terms of sensitivity to adverse Brexit shock implications on operating performance, profitability, financial health, and firm value. Further, (III) effects of CSR on aforementioned aspects of real performance were not found to vary alongside levels of policy uncertainty.

Keywords: Brexit referendum; CSR; ESG investing; policy uncertainty.

1. Introduction

In the title of his article from 1970, Milton Friedman famously claimed that "The Social Responsibility of Business is to Increase Its Profits". Almost 40 years after one of the most influential neoclassical economists negated the fundamental question of whether firms should go beyond investing in activities with direct link to profit generation, corporations and investors draw a different picture: Over the last two decades, Corporate Social Responsibility (CSR) and environmental, social and governance (ESG) initiatives[1] have developed into popular buzzwords in business literature (Rüegg-Stürm, 2014). At the end of 2017, 12 trillion dollars were invested in socially responsible assets in the USA alone (Forum, US Social Investment, 2018). Likewise, 78% of the world's largest 4,900 companies disclose information on governance mechanisms and their social and environmental impact (KPMG, 2017). The justification behind pursuits of socially responsible activities are that they create a form of intangible, alternative capital: the so-called social capital comprising relational wealth among stakeholders. Important component of this capital is increasing trustworthiness of firms. Knack and Keefer (1997); Putnam (1993) argue this to reduce transaction costs as stakeholders attribute lower uncertainty about whether firms honour their contracts to firms they trust.

Conversely, the last decade of expanding trust-building initiatives to mitigate uncertainty among stakeholders was accompanied by numerous political events inducing policy uncertainty[2] across markets affecting stock markets and real performance (inter alia, Baker et al., 2016; Kelly, Pastor, &

[1] Both concepts of CSR and ESG (used interchangeably in this paper) refer to corporate activities beyond profit generation that include, amongst others, "civic engagement, shared beliefs, and disposition towards cooperation between the firm and its stakeholders" (Lins, Servaes, & Tamayo, 2017, p. 1790). Thereby, firms go above and beyond legal requirements, which might well be justified by strategic reasoning (Jo & Harjoto, 2012). The acronym CSR has its roots in managerial literature based on Ansoff (1965) and Freeman (1984) Stakeholder Approach to Strategic Management. In contrast, ESG is employed in the context of Socially Responsible Investing (SRI). Hence, the concept of ESG might be understood as a form of measurement of CSR (Bouslah, Kryzanowski, & M'Zali, 2013). Following authors such as Bouslah et al. (2013); Bouslah, Kryzanowski, and M'Zali (2018); Di Giuli and Kostovetsky (2014); Renneboog, Ter Horst, and Zhang (2008) this paper proxies CSR using all three ESG dimensions.

[2] Policy uncertainty is defined by Baker, Bloom, and Davis (2016) as uncertainty about economic policy decisions. They identify four elements of economic policy uncertainty: uncertainty regarding the (1) identity of deci-

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Veronesi, 2016; Pastor & Veronesi, 2012; Voth, 2002).

The coinciding trends raise the question as to whether firms can actively instrumentalise trust-building CSR initiatives to mitigate adverse effects of uncertainty on corporate financial performance. To the best knowledge of the author, no previous investigation was conducted to scrutinise the effects previously accumulated social capital has on corporate financial performance during times of increased policy uncertainty. Instead, literature has treated the relationship between financial performance and CSR, and financial performance and policy uncertainty as individual research streams.

As for CSR and firm performance, literature is abundant and has focused on establishing causality and directionality of effects of CSR on different aspects of corporate financial performance. Authors such as Brammer, Brooks, and Pavelin (2006); Jo and Na (2012); Kim, Li, and Li (2014) focus on stock returns and idiosyncratic market risk. Bird, D. Hall, Momentè, and Reggiani (2007); Guenster, Bauer, Derwall, and Koedijk (2011); Jiao (2010); Jo and Harjoto (2011) investigate operating performance and firm value. Also access to finance was addressed in literature (Cheng, Ioannou, & Serafeim, 2014; Cui, Jo, & Na, 2018; Ghoul, Guedhami, & Kim, 2017; Harjoto & Jo, 2015). Two opposing schools of thought have emerged explaining the relationship: the stakeholder view of the firm that promotes positive effects through reputation building (e.g. Jo & Harjoto, 2012; Makni, Francoeur, & Bellavance, 2009), and the shareholder view of the firm arguing in favour of Friedman based on overinvestment costs (e.g. Barnea & Rubin, 2010; Cespa & Cestone, 2007). The relative justification of one theory over the other has received much attention, but no consensus was reached so far.

As for policy uncertainty, stock market reactions to elections (Kelly et al., 2016; Li & Born, 2006; Pantzalis, Stangeland, & Turtle, 2000) and to Baker et al. (2016) economic policy uncertainty index were analysed. Further, studies by N. H. Nguyen and Phan (2017); Phan, Nguyen, Nguyen, and Hegde (2019); Xu, Chen, Xu, and Chan (2016) also investigate firm behaviour. But little research addresses differences in sensitivity to uncertainty in the cross-section of firms (Hill, Korczak, & Korczak, 2019).

More recent shock-based papers on CSR provide context for a link between policy uncertainty and CSR's effects on firms: Bouslah et al. (2018); Buchanan, Cao, and Chen (2018); Lins et al. (2017), focusing on the 2008 financial crisis, indicate the two opposing theories on CSR describe effects that exist relative to each other. Overall dominance of one effect over the other is influenced by macro-level conditions, with dominance being more pronounced under adverse conditions.

One of the most recent and prominent – since still persisting – source of uncertainty is the European Union Membership Referendum (Brexit Referendum) that took place on 23rd June 2016. The Referendum has proven that policy uncertainty is a likewise source for adverse macro conditions. The vote of UK citizens to leave the European Union (EU) has led policyrelated uncertainty in the UK soar to unprecedented heights. At the same time, the UK's economy is confronted with unforeseeable consequences. The exit from the EU planned for October 2019 will overhaul the overall legal framework within which companies interact in the UK and across UK borders (Edgington, 2019; Hill et al., 2019).

This paper advances both research streams on CSR and policy uncertainty by unifying them to analyse the impact of policy uncertainty on the relationship between CSR and corporate financial performance. As both research streams are prone to the endogeneity problem (Harjoto & Jo, 2015; Julio & Yook, 2012; Ullman, 1985), we apply a shock-based causal inference methodology. Thereby, the Brexit Referendum provides the natural experiment to close the identified research gap, using a sample of 320 non-financial firms listed at the London Stock Exchange over the period of 2014 to 2018. We further progress literature by disentangeling contributions of overall CSR by analysing effects of the combined Environmental and Social, as well as the Governance pillar of CSR. A third contribution is to compare evaluations of CSR by investing stakeholders (by analysing buy-and-hold returns in an event study) with evaluations by non-investing stakeholders (by analysing operation performance, financial health, and firm value using difference-in-difference analysis).

The following conclusions have been drawn. CSR investments, especially Governance related pursues, can destroy shareholder wealth during policy uncertainty. However, from the view of non-investing stakeholders, no effects on real performance are evident – for none of the analysed aspect of CSR. Further, the latter relationship does not vary across different levels of policy uncertainty. The findings are robust across a series of robustness tests.

These findings have various implications for practitioners. For investors, they suggest avoiding high-CSR firms during increased policy uncertainty, especially if they have established Good Corporate Governance practices. From the perspective of financial managers, we infer CSR investments are not an effective means to limit exposure to policy uncertainty shocks.

Our findings are also relevant for politics given that the US Congress is debating on mandatory ESG disclosure regulations (Harty, 2019), and given that von der Leyen, the newlyelected president of the EU Commission, addressed plans of environmental taxes in her campaign speech (Stearns, 2019). Negative effects on stock returns and neutral effects on real performance suggest ESG dimensions are still areas in which Government has to intervene for companies to meet legitimate concerns of certain stakeholders.

The remainder of this study is structured as follows. Section 2 discusses the theoretical motivation behind the effect of social capital on corporate firm performance and the link to

sion makers, the (2) nature and (3) timing of policy actions, and economic ramifications of "noneconomic" policy matters such as military actions. Baker et al. (2016) policy uncertainty index has established as a generally accepted measure in financial research (see, inter alia, Fernández-Villaverde, Guerrón-Quintana, Kuester, and Rubio-Ramírez (2015); N. H. Nguyen and Phan (2017); Pastor and Veronesi (2012, 2013)). Thus, Baker et al. (2016) definition is followed in this paper.

policy uncertainty. Section 3 discusses the data analysed and motivates the natural experiment employed for regression analysis. Section 4 and 5 present and discuss results of baseline and robustness tests. Section 6 discusses the paper's findings in context with previous shock-based inferences. Section 7 concludes.

2. Theoretical Framework

2.1. Social Capital and Corporate Financial Performance

The question of main interest in financial research on CSR links back to Friedman's article from 1970: Can companies' socially responsible behaviour be brought in line with investors' interest of value maximisation? Two schools of thought have developed in literature offering opposing answers to this question: (I) the stakeholder, and (II) the shareholder view of the firm.

The stakeholder view has its roots in Ansoff (1965) and Freeman (1984) seminal works and suggests a positive relationship between CSR activities and corporate financial performance. The argument supporting the positive effect is the "reputation-building hypothesis" (Jo & Harjoto, 2012; Makni et al., 2009). Its argument is that social, ethical, and environmental as well as good corporate governance initiatives build up a reputation among external parties in the form of goodwill and trust in the company, i.e., create so-called social capital[3] (Guiso et al., 2004, 2008; Sacconi & Degli Antoni, 2011). More specifically, Luo and Bhattacharya (2009) highlight the value of CSR to firms stems from the beliefs stakeholders hold about the firm. If CSR activities and conveyed implications about the firm receive positive evaluation from stakeholders, social capital is generated. Social capital, in turn, is hypothesised to increase financial performance by generating different forms of relational wealth among different stakeholder groups (Godfrey, 2005).

For non-investing stakeholders, Lins et al. (2017) mainly trace positive effects back to creating moral incentives for stakeholders to honour their contract. Given the information asymmetries between the parties and the fact that contracts are on future transactions, stakeholders and companies always face the risk of the other party not honouring them. From the stakeholders' perspective, CSR activities are theorised by Putnam (1993) to foster trust and cooperation and to mitigate conflicts (Freeman, 1984). This argumentation is supported by empirical evidence of a positive relationship between perceived trustworthiness of firms and stakeholder cooperation (see, inter alia, Guiso, Sapienza, & Zingales, 2015; Servaes & Tamayo, 2013). Knack and Keefer (1997) infer stakeholders may perceive the breaching of contracts by the firm as less likely, which reduces the need for formal contracts and thus transaction costs. In this context, Sharfman and Fernando (2008) and El Ghoul, Guedhami, Kwok, and Mishra (2011) find evidence for high CSR reducing the cost of equity capital and Goss and Roberts (2011) for reduced default risk.

As for shareholders, Guiso et al. (2008) explain that due to agency problems, the investment decision is not only driven by accounting data, but also by an act of faith in the reliability of disclosed information. Building on this, Lins et al. (2017) also argue trust-based measures need to be considered. Therefore, social capital measures are requested to provide additional information on the company's integrity and credibility, which leads to higher relative valuation in cases of positive perception (Bouslah et al., 2013; Lee & Faff, 2009). In this sense, social capital can be understood as a means of reducing information asymmetries, which is empirically supported by Cui et al. (2018). Ghoul et al. (2017) add the effect is especially pronounced in countries that lack market-supporting institutions.

An opposing negative effect of CSR on corporate financial performance is put forth by the second school of thought, the shareholder view of the firm. This school does not dispute positive effects of social capital's relational wealth. Rather, a managerial opportunism argument is derived from the agency theory, the so-called "overinvestment hypothesis". This argument follows Friedman (1970) notion that costs of CSR might outweigh the benefits. According to the agency theory, shareholders have fewer insights on business operations than managers due to the separation of ownership and control (Shleifer & Vishny, 1997). In case of diverging interests, Buchanan et al. (2018) theorise managers can exploit the incomplete contracts to pursue their interests and potentially harm investors in their wealth maximisation. Scholars supporting the shareholder view posit managers do have an intrinsic interest in investing in CSR activities beyond an optimal, shareholder-benefitting level; either to increase their reputation as socially responsible managers (Barnea & Rubin, 2010) or to reduce the probability of replacement (Cespa & Cestone, 2007). Even though Eccles, Ioannou, and Serafeim (2014) argue CSR can reduce agency problems since managers are forced to apply a long-term focus and are thus associated with more responsible decision-making, Surroca and Tribó (2008) find empirical evidence for managers exploiting CSR for opportunistic pursuits. Their findings suggest entrenched managers employ CSR investments as a defence strategy. In this sense, CSR investments might diverge company resources and thus harm real performance. Orlitzky (2013) posits overinvestments also have a negative effect on stock returns. He suggests the created social capital is not systematically correlated with financial fundamentals of the firm. The results are unjustified excess market valuations leading to excess market volatility.

An abundant stream of literature is devoted to proving which theory holds in reality. Table 7 in the appendix pro-

[3] The concept of social capital itself stems from the field of sociology. In this context, La Porta, Lopez-de Silanes, Shleifer, and Vishny (1997, p. 333) define it as "a propensity of people in a society to cooperate to produce socially efficient outcomes". The concept was operationalised by economists such as Coleman (1988) or Guiso, Sapienza, and Zingales (2004, 2008) to be understood as a resource for profit-generating activities. In an OECD paper, Scrivens and Smith (2013) decompose this resource into four pillars: relationships, social network support, civic engagement, and trust. This definition overlaps with the concept of CSR and ESG outlined in footnote 1. For a detailed theoretic motivation of the concepts' link, see Sacconi and Degli Antoni (2011).

vides an examplary overview and hints at the conclusion that literature is inconclusive. Waddock and Graves (1997) attribute this to inconsistencies in conceptualising CSR as different studies focus on different components of CSR (see Table 7). More severely, Ullman (1985) criticises that problems of endogeneity and the omitted variable bias are another explanation for inconsistencies, discrediting the validity of past research.

The methodological issue raised by Ullman (1985) is attempted to be overcome by more recent, shock-based studies which offer a different conclusion: In previous research designs, the relationship is mostly understood to be time-invariant. Buchanan et al. (2018, p. 76), however, propose the two school of thoughts are less of two mutually exclusive explanations of which one is theorised to be correct and the other to be wrong. Rather, they have to be understood as antagonising channels through which CSR takes effect and which exist alongside each other. They suggest the relationship is time-varying and the overall effect depends on which mechanism is dominant during the time period in question.

Based on the stakeholder theory, Lins et al. (2017) derive from the notion of reciprocity of social capital that in difficult times, stakeholders are more likely to "do whatever it takes" to support firms with high social capital. As examples, they name employees working harder, and outside agencies being more sympathetic and supportive. In contrast, Buchanan et al. (2018) argue that under the shareholder theory, shocks are expected to increase overinvestment effects.

As for idiosyncratic, firm-specific adverse legal events, Godfrey, Merrill, and Hansen (2009) find evidence for social capital acting as an insurance policy. They find that after the event, high CSR scores have a positive effect on two-day cumulative abnormal returns. Similarly, Minor (2015) suggests firms with high CSR investments can, on average, save $1 billion in firm value upon negative legal events. More recent and more closely related papers focus on aggregated market shocks. Lins et al. (2017) investigate three adverse events: the 2008 financial crisis, the Enron, and the Worldcom scandal. All three events led to a decrease in the aggregated level of trust in companies in the US. For the first two events, they find a positive relationship between CSR and stock returns; for the first event they also find a positive relationship with operational performance. They conclude that social capital especially pays off in crises of trust. Two more studies analyse the risk-mitigation effects over varying economic conditions, both two focusing on the 2008 financial crisis. Bouslah et al. (2018) investigate the effect of social performance on idiosyncratic risk. Their results suggest that the relationship significantly depends on the macroeconomic condition, with an effect of reducing volatility by 1.18% to 1.84% during the crisis period. Buchanan et al. (2018) come to an opposing conclusion. Even though they observe a higher firm value as measured by Tobin's Q for CSR firms before the crisis, the opposite holds for the crisis period. This might seem contradictory given Lins et al. (2017) finding of a positive impact on short-term operating profitability. However, Tobin's Q is a more forward-looking market valuation than accounting-based returns and profitability measures (Guenster et al., 2011). Hence, the two findings might indicate that even though firms with a high reservoir of social capital are assigned to a valuation premium and are less affected in short-term profitability, the market does not perceive high CSR firms to outperform in terms of future cash flows when faced with a market downturn.

2.2. Corporate Financial Performance in Times of Policy Uncertainty

Findings of Lins et al. (2017) and Buchanan et al. (2018) indicate that the effect of social capital on corporate firm performance is time-varying, depending on the market condition; in their case predominantly analysed around the 2008 financial crisis. Building on Guiso et al. (2008, p. 2557) argument that making business with firms is an act of faith in the reliability of the firm's information disclosure, Lins et al. (2017, p. 1791) argue that the trust element of social capital should pay off more during economic turmoil. This paper posits an increase in policy uncertainty is an event negatively affecting firms that allows investigating whether previously accrued social capital helps firms to weather difficult times. In fact, the effects of policy uncertainty on firm performance have been investigated extensively. And in fact, an abundant research stream has emerged emphasising adverse effects on financial markets and the real economy.

One well-established research stream is devoted to analysing the impact of uncertaintybearing recurring elections, termed electoral uncertainty by Kelly et al. (2016). Several studies focus on its impact on the aggregated stock market to analyse the existence of risk premia for electoral uncertainty. Abnormally high stock returns shortly before elections were observed by Pantzalis et al. (2000) for national elections in 33 countries and by Li and Born (2006) for US presidential elections. Together with Gao and Qi (2013) finding of rising municipal bond yields accompanying US gubernatorial elections, these findings are indicative of an existing risk premium, even though Białkowski, Gottschalk, and Wisniewski (2008) could not support this across 27 markets. In a similar vein, stock market volatility around elections was analysed. Findings by Kelly et al. (2016) across 271 international elections and G20 summits, by Gemmill (1992) for the 1987 British parliamentary election, and by Goodell and Vähämaa (2013) for US presidential elections suggest an increase in implied volatility. Boutchkova, Doshi, Durnev, and Molchanov (2012) offer more granularity: industries which are more sensitive to politics experience higher return volatility. In contrast to these aggregated effects, Julio and Yook (2012) and Jens (2017) study real effects of electoral uncertainty. Both studies suggest that firms reduce investments before US national and gubernatorial elections.

N. H. Nguyen and Phan (2017) and Pastor and Veronesi (2012) indicate these studies only capture part of policy uncertainty – a broader concept than electoral uncertainty. Following the definition of Baker et al. (2016), the first concept also refers to policy changes affecting the macroeconomic setting such as trade agreements and tax legislation, as

well as economic impacts of non-economic political events. This broader concept has been analysed regarding macroeconomic effects by Baker et al. (2016) and Fernández-Villaverde et al. (2015). Both reason negative impacts on overall economic conditions. This was for instance, illustrated by Standard & Poor's first-ever downgrading of US Treasury bonds due to policy uncertainty (Kelly et al., 2016). Similarly, Stock and Watson (2012) indicate policy uncertainty negatively affected recovery after the financial crisis. This notion is further supported by Giavazzi and McMahon (2012) linking policy uncertainty to reductions in household consumption and savings increases. As for influences on aggregated stock markets, academic literature follows studies on electoral uncertainty investigating a potential risk premium for political uncertainty measured by Baker et al. (2016) index or the International Country Risk Guide (see, inter alia, Erb, Harvey, & Viskanta, 1996). This notion is supported by Voth (2002) finding of increased stock volatility. Another researched aspect is company behaviour. According to Gulen and Ion (2016), companies become more selective; especially firms with higher degrees of investment irreversibility and higher financial constraints. This is further supported by Bloom, Bond, and van Reenen (2007) and Jens (2017). Another set of studies is dedicated to real effects on corporate financial performance. In terms of profitability, Belo, Gala, and Li (2013) establish that cash flows vary over political cycles in the US. This is in line with Cremers and Yan (2016) suggestion of uncertainty increasing cash flow volatility and ultimately default risk. Similarly, An, Chen, Luo, and Zhang (2016) observe that cash flow volatility caused by changes in investment leads to reduced profitability as measured by return on assets in China. Together with Phan et al. (2019) and Xu et al. (2016) linking uncertainty to reduced cash holdings, one might infer increased risk of financial distress. Investigations of the cost of capital provide further support. Waisman, Ye, and Zhu (2015) found bond spreads to increase through uncertainty. Francis, Hasan, and Zhu (2014) support this increase in debt financing costs by detecting an additional risk premium for firms' exposure to policy uncertainty priced in bank loan spreads.

Despite the event's topicality, some studies analyse the Brexit Referendum's impact on economy. Hill et al. (2019) subsume the Brexit Referendum to be a shock to policy uncertainty as it has consequences which are more far-reaching than most parliamentary or presidential elections. As for Brexit, the debate does not focus on selected policies but rather affects the total of government policies that shape the business environment. The vote thus leaves companies facing uncertainty about future operations in the UK. For instance, international trading agreements, immigration policies and the overall legal framework primarly driven by EU law are to be overhauled. Despite anticipated impact on corporate decision making, Davies and Studnicka (2018) comment most research addresses macroeconomic consequences. Even though Minford, Gupta, Le, Mahambare, and Xu (2016) expect positive impacts on the UK[4], most studies suggest severe negative effects such as a decline in foreign direct investment (see, inter alia, Dhingra, Ottaviaono, Sampson, & van Reenen, 2016; Fraser of Allander Institute, 2016). Focusing on the stock market, Davies and Studnicka (2018) detect significant negative abnormal returns for FTSE350 companies, especially for firms with global value chains. This is in line with Boutchkova et al. (2012) but contradicts Beaulieu, Cosset, and Essaddam (2005). In contrast to the various studies on uncertainty on an aggregated level, several studies on Brexit analyse how different firms and industries are affected. Tielmann and Schiereck (2017), for instance, report a negative valuation effect for the logistic sector, while Ramiah, Pham, and Moosa (2017) suggest the banking industry is especially strongly affected. The latter finding is supported by Hill et al. (2019). They further find that internationalisation moderates and greater firm size magnifies effects of Brexit uncertainty. Further, growth firms, due to their dependence on further investments, are especially hard-hit. However, to the best knowledge of the author, no paper has investigated the influence of CSR on the exposure to policy uncertainty.

2.3. CSR, Firm Performance, and Policy Uncertainty

The literature review on the relationship between CSR and policy uncertainty respectively on corporate financial performance reveals an overlapping research gap in both streams of literature. As for policy uncertainty, aggregated adverse effects on the stock markets, firm behaviour, and operating performance are well documented. But even though policy uncertainty has reached unprecedented hights (see Figure 1), "we know surprisingly little about how this uncertainty affects different firms and industries" (Hill et al., 2019, p. 58). While the few recent studies on Brexit address this gap by analysing individual sectors and different firm characteristics such as internationalisation, to the best knowledge of the author, no investigation focusing on whether accrued social capital mitigates effects of uncertainty has been conducted so far. This leads us to the corresponding gap in CSR literature. Three papers have indicated that the overall effect of CSR depends on the relative, time-varying dominance of the reputation-building benefits over the overinvestment costs. The investigations establish the overall dominance is influenced by aggregated macro-conditions. However, the studies mainly focus on the 2008 financial crisis, with the USA being the only market analysed. Hence, it still has to be established whether findings also hold during other adverse macro-events and in different markets.

In this sense, this paper scrutinises the 2016 Brexit Referendum to contribute to closing both research gaps. By analysing how previously accrued social capital influences financial performance of firms listed at the London Stock Exchange in the year of and the two years after the Referendum (moderated policy uncertainty), this paper advances the

[4] Sampson, Dhingra, Ottaviaono, and van Reenen (2016) criticise underlying assumptions to be too optimistic.

literature on CSR as well as on policy uncertainty. We further combine several research streams by scrutinising both stock market and real performance of firms. Real performance is captured on the level of operating performance, financial health, and firm value. This not only captures a broad picture of financial performance but also differences in how investing and non-investing stakeholders value CSR. Following Buchanan et al. (2018); Lins, Volpin, and Wagner (2013), we investigate CSR effects on corporate financial performance during the shock and the recovery period to scrutinise whether effects are unique to times of high uncertainty.

In terms of stock market performance, literature on policy uncertainty indicates the existence of risk premia required by investors (inter alia, Erb et al., 1996; Voth, 2002). Underlying causes might be increased cash flow volatility and default risk (An et al., 2016; Cremers & Yan, 2016). If the stakeholder view holds, i.e. if CSR has positive effects on returns, then shareholders' positive valuation of integrity and credibility should cause investors to be less pessimistic about future firm performance. This, in turn, should lead to valuation premia for high CSR firms (Godfrey, 2005; Guiso et al., 2008; Lee & Faff, 2009). This leaves us with the following first hypothesis:

> H_0^1: Social capital is positively related to shock-period stock returns.

In terms of real performance, the stakeholder view posits that the relational wealth created among different stakeholders – e.g. employee commitment, customer loyalty, credibility among investors and lenders – acts as a reservoir of goodwill. This is related to the notion of reciprocity suggesting that during difficult times stakeholders which have been accommodated in the past are willing to "do whatever it takes" to support firms in need. This can relate back to different levels of firm performance during policy uncertainty. In terms of real performance, the stakeholder view posits that the relational wealth created among different stakeholders – e.g. employee commitment, customer loyality, credibility among investors and lenders – acts as a reservoir of goodwill. In times of weakened economic conditions, customers might, for instance, be more willing to "stick" with companies of which they hold higher beliefs and lenders could be more complaisant (Lins et al., 2017). Further, previouslybuilt trust could dampen increases of information asymmetries in times of uncertainty (Cremers & Yan, 2016). Following the stakeholder approach, these considerations might shield firms from reduced profitability due to policy uncertainty (An et al., 2016). These considerations leave us with the following two hypotheses for operational performance (measured by gross marging, sales growth, return on assets, and return on equity), and financial health (measured as financial slack and Altman's Z):

> H_0^2: Social capital is more positively related to operating performance during policy uncertainty.

> H_0^3: Social capital is more positively related to financial health during policy uncertainty.

We include financial slack due to Xu et al. (2016) and Phan et al. (2019) findings of reduced cash holding and higher costs of lending during policy uncertainty (Francis et al., 2014). It can be interpreted as a cushion of cash firms can use to weather economic downturns. This might be attributable to Eccles et al. (2014) argument of managers of high-ESG firms being more responsible.

Given the theorised positive effects that trust created through CSR has on operating performance and financial health, we anticipate the market to have more optimistic views on cash flow volatility caused by policy uncertainty. Eventually, this should positively impact firm value measured as Tobin's Q:

> H_0^4: Social capital is more positively related to firm value during policy uncertainty.

A fith and last hypothesis to be tested addresses another limitation of the shock-based CSR research designs. Table 7 indicates that different elements of CSR might be perceived differently by various stakeholder groups. For instance, Harjoto and Jo (2015) found that high overall CSR scores capturing legal and normative aspects increase firm value, whereas disaggregated high normative CSR scores are significantly linked to reduced firm value. In contrast, Bird et al. (2007) found a positive relationship on stock returns for employee-related activities, but an inverse relationship for environmental activities. Hence, it might well be anticipated that the different pillars of CSR affect corporate financial performance differently. CSR is disaggregated into two components: a combined Environmental and Social (ES),[5] and an individual Governance score.

> H_0^5: Different components of CSR have different effects on corporate financial performance.

In summary, this paper posits that in high-uncertainty periods, trust- and cooperative-based relationships between firms and stakeholders should pay off more than in more certain times. In this sense, we anticipate to find evidence in favour of the stakeholder view of the firm.

3. Research Design

3.1. Empirical context

Buchanan et al. (2018) point out research on the relationship between corporate financial performance and CSR faces to major challenges. The first is that the shareholder and stakeholder view constitute two antagonising channels for CSR effects with time-varying relative dominance. The second challenge is the directionality of the relationship, i.e. that CSR might not be endogenous to firm performance. For

[5] The rationale behind this is mainly based on the high correlation between the E and S scores. See section 4.1. for further explanation.

instance, Waddock and Graves (1997) find effects in both directions of influence and Hong, Kubik, and Scheinkman (2012) show increases in firms' financial constraints, on average, have a negative influence on CSR involvement. Motivated by scholars such as Buchanan et al. (2018); Derrien and Kecskés (2013); Duchin, Ozbas, and Sensoy (2010); Lins et al. (2017, 2013)[6], these challenges are addressed by applying a shock-based study design. Following Lins et al. (2017), this paper applies two shock-based investigations: For one, uncertainty-period buy-and-hold shock-period returns are analysed while difference-in-difference (DiD) methodology is applied to investigate financial real performance. Contrary to previous studies, a political shock, the Brexit Referendum on 23rd July 2016, is analysed.

3.2. Brexit Referendum as a Policy Uncertainty Shock

The conclusion of the Referendum being an exogenous shock was laid out by previous studies highlighting the multifaceted legal, macro-, and microeconomic effects of Brexit, which are still unforseeable in the year of the UK's permanent exit from the EU. This notion is supported by Figure 1 plotting Baker, Bloom, and Davis (2019) Policy Uncertainty Index. June 2016 marks the highest uncertainty level ever recorded. Additionally, Brexit could not have been anticipated in advance as Brexit polls in the one-and-a-half years leading to the vote (FIGURE 2) indicate neither the Leave nor the Remain side had gained a persistent lead. Only in the few months prior to 23rd of June, the Remain party had gained a slight majority and even despite this, the opposite outcome was achieved. Both notions hint at the event meeting Atanasov and Black (2016, p. 216) requirement of an exogenous shock with permanent effect for shock-based causal inference studies such as event studies and DiD.

The second peak of policy uncertainty in 2016 might raise the concern that the Referendum might not have marked an isolated shock, violating a second DiD credibility criterion by Atanasov and Black (2016, p. 216). However, a look at the Brexit timeline reveals the spike coincides with political reactions to the Referendum. For instance, the First Minister of Scotland announced the intention to pass a Scottish independence referendum bill on 13 October 2016 given that the majority of Scots voted Remain (Walker, 2019).

A glance at current strategic decisions of corporations reveals a picture beyond estimated effects on macroeconomic conditions and consequences of Brexit procedures on stock markets as analysed in literature so far. Rather, it becomes apparent that corporations increasingly adapt their strategies to be prepared to deal with possible Brexit scenarios. British Steel has announced 400 job cuts in September 2018 because of the weakened pound (Sommerlad & Chapman, 2019). Similarly, Barclays has moved £190bn of assets under management to Ireland to avoid losing passporting rights allowing to serve customers EU-wide, with HSBC, RBS, and Lloyds following their lead (Crow, 2019). Turing to non-financial industry, a 2019 survey by the Institute of Directors surveying 1,200 business leaders suggests that ca. 30% of the surveyed either already have moved or are actively considering moving operations outside the UK (BBC, 2019). Given the various actions by firms to prepare for the worst-case scenario of a no-deal Brexit, it can be assumed that the shock is also sufficiently strong for DiD analysis (see Atanasov & Black, 2016, p. 216).

In summary, overall evidence suggests the Brexit Referendum to be a suitable event for shock-based causal inference study.

3.3. Sample Construction

The sample construction is based on financial and CSR data available on Thomson Reuter's databases Datastream and ASSET4, respectively. ASSET4 was introduced in 2002 and has been widely used in literature to investigate the effects of CSR on financial performance (see, inter alia, Cheng et al., 2014; Ghoul et al., 2017). The database rates companies across environmental, social, and governance aspects[7] on an annual basis. For the analysis of the individual pillars of CSR, the aggregated Environmental and Social, and the individual Governance scores provided by ASSET4 on Datastream were used. For the aggregated CSR analysis, a composite CSR score was calculated as the equally-weighted average of the E, S, and G scores (see, inter alia, Cheng et al., 2014).

ASSET4 comprises a worldwide universe of 7,975 historical constituents. Among those, 566 are public companies listed in the UK. To investigate whether accumulating social capital is beneficial for financial performance in uncertain times, the effects of pre-Brexit ESG scores on financial performance after the referendum are analysed. Even though the scores as of 2015 would have been the most recent scores available prior to the referendum, this paper relies on the scores as of 2014. This is done to control for two antagonising effects documented in literature: Buchanan et al. (2018); Lins et al. (2017) indicate firms might increase CSR investments as a risk management tool if adverse events are anticipated. Given that the people's vote was one of the conservative party's campaign pledges in the 2015 general election (Wheeler, 2017), some firms might have anticipated an increase in policy uncertainty. On the contrary, Julio and Yook (2012) provide evidence for the tendency that firms reduce investments in election years. The necessity to do so is illustrated by the high variance between ESG scores of 2014 and 2016. Based on these considerations, the ASSET4 universe as of 2014 comprising 405 companies constitutes the initial

[6] All these studies investigate whether firms with different characteristics (e.g. corporate governance or CSR practices) are affected differently by the 2008 financial crisis.

[7] Thomson One makes use of more than 400 different data points to construct 178 comparable measures, from which scores for ten categories are calculated. These categories are aggregated to form the three dimensions of Environmental (categories: resource use, emissions, innovation), Social (categories: workforce, human rights, community, product responsibility), and Governance (categories: management, shareholders, CSR strategy) scores (Reuters, 2019).

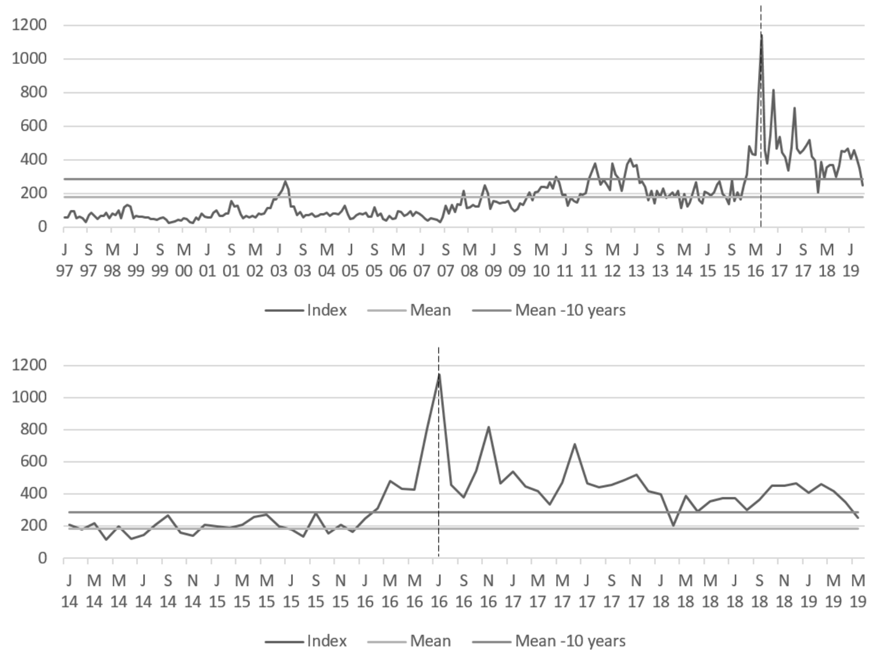

Figure 1: UK News-Based Policy Uncertainty Index (data by Baker et al. (2019))

The first graph shows the development of the UK Policy Uncertainty Index since the beginning of records; the second graph shows the development for the sample period of the data analysis. The line labelled mean shows the mean Policy Uncertainty Index since the beginning of records; the line labelled mean -10 years shows the mean for the last ten years. The dotted line indicates the date of the Brexit Referendum.

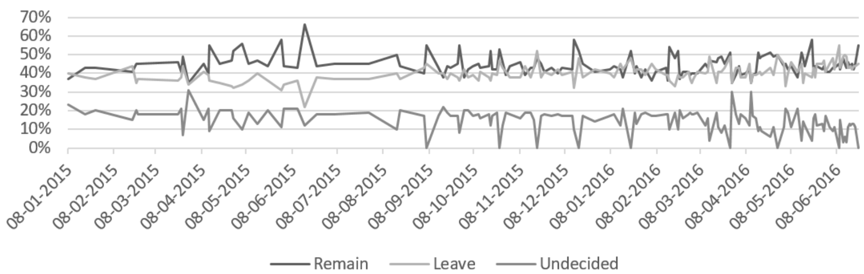

Figure 2: Outcome of Brexit Polls Conducted in 2015 and 2016 (based on Financial Times, 2016)

sample[8].

Following general convention in literature, financial firms[9] were removed. For one, due to differences in balance sheet structure. Secondly, because Ramiah et al. (2017) and Hill et al. (2019) found UK financial firms to be more severely affected by Brexit, possibly due to the threat of losing their EU bank license passport. This leaves us with an unbalanced panel of yearly financial data for 320 firms, starting in 2014 and ending in 2018 (1,600 firm-year observations). The financial and CSR variables used are defined below.

[8]The information on the universe of ASSET4's historical constituents was obtained from Datastream.

[9]Financial firms were identified using the two-digit ICB industry codes provided by FTSE International and obtained from Datastream.

3.4. Empirical Methodology

3.4.1. Shock-Period Returns

First question of interest is the effect of CSR on stock returns during the shock period. Following Lins et al. (2017), shock-period stock returns are measured as the firm's raw buy-and-hold returns (BHAR). BHARs were chosen to allow for compounding effects and thus to better capture investors' tendency to buy and hold equities for multiple months under the existence of transaction costs (Brooks, 2014; Dutta & Jog, 2009). The holding period commences three months prior to and liquidation of the position is three months after the Referendum, resulting in a holding period from March to September 2016. As illustrated in eqn. (1), BHARs are calculated as the difference between the compounded shock-period returns of the firm and of a benchmark. Thereby, the UK market portfolio provided by the University of Exeter's Xfi

Table 1: Definition of Variables

Variable	Measure
Panel A: Cross-Sectional Regression	
ltd_atw	Long-term debt over total assets as of 31/12/2015.
dlc_atw	Short-term debt over total assets as of 31/12/2015.
cash_taw	Cash and short-term investments over total assets as of 31/12/2015.
sizew	Natural logarithm of total assets as of 31/12/2015 to account for the highly skewed nature of this variable.
beta_rmrfw	Exposure to market risk estimated over the period between 01/2014 to 12/2015.
beta_umdw	Exposure to momentum factor estimated over the period between 01/2014 to 12/2015.
beta_hmlw	Exposure to value factor estimated over the period between 01/2014 to 12/2015.
beta_smbw	Exposure to size factor estimated over the period between 01/2014 to 12/2015.
Panel B: DiD Model	
Dependent Variables	
tqw	We follow Buchanan et al. (2018) and measure firm value using Tobin's Q approximated as follows: $$tq_t = \frac{at_t + (chso * prcc\_f_t) - ceq_t}{at_t}$$ at is total assets, chso is common shares outstanding, prcc_f is year-end stock price, and ceq is common equity. A value below 1 indicates a firm is undervalued; a value above 1 indicates it is overvalued.
sales_gw	Sales growth defined as current annual sales divided by sales of the previous year.
gmw	We follow Lins et al. (2017) and calculate gross margin as: $$gm_t = \frac{sales_t - cogs_t}{sales_t}$$ cogs is cost of goods sold.
zscorew	Altman (1993) Z-score. We follow Bouslah et al. (2018) and calculate as follows: $$zscore_t = 1.2 * \left(\frac{wcap_t}{at_t}\right) + 1.4 * \left(\frac{re_t}{at_t}\right) + 3.3 * \left(\frac{ebit_t}{at_t}\right) + \left(\frac{sale_t}{at_t}\right) + 0.6 * \left(\frac{mkval_t}{lt_t}\right)$$ wcap is working capital, re is retained earnings, ebit is earnings before interest and taxes, mkval is market value of equity, and lt is book value of total liabilities. The lower the zscore, the higher the likelihood of default.
s_cashw	Financial slack which measures the cash available to finance new projects. It is calculated as: $$s\_cash_t = \frac{oancf_t - dpc_t + xrd_t}{at_t}$$ oancf is the net cash flow from operating activities, dpc is depreciation, and xrd is R&D expenses.
roew	Return on equity measured as net income in year t over total common equity in year t.
sales_pew	Sales in year t over employees in year t.
roaw	Return on assets measured as net income in t over total assets in t.

(Continued)

Table 1—continued

Independent Variables	
esg2014	Composite measure of CSR (ESG score) as of 2014.
envs2014	Environmental score as of 2014.
socs2014	Social score as of 2014.
es2014	Composite environmental (E) and social (S) score as of 2014.
gov2014	Corporate Governance score as of 2014.
sizew	Firm size measured as natural logarithm of total assets in t.
capexpw	Current capital expenditures standardised by current total assets.
fabaw	Tangibility proxied by current property, plant and equipment over current total assets.
cash_taw	Cash holdings measured by current cash and short-term investments over current total assets.
bleveragew	Book leverage as the ratio of current long- and short-term debt to current total assets.
turnoverw	We follow Ding, Ferreira, and Wongchoti (2016) and include the natural logarithm of average monthly volume over shares outstanding at the end of each year t in models on Tobin's Q and ROE.
rdw	R&D intensity measured as current research and development expenses over current sales.
advertw	Servaes and Tamayo (2013) show the effect of CSR on firm value depends on customer awareness measured by advertising expenditures over sales. Following Arora and Dharwadkar (2011), current selling, general and administrative expenses over current sales is used instead due to data availability.
Interaction Terms	
ibresg	Interaction term between the Brexit Referendum dummy (1 in 2016; zero otherwise) and esg2014.
ipostesg	Interaction term between the post Brexit Referendum dummy (1 in 2017 and 2018; zero otherwise) and esg2014.
ibres	Interaction term between the Brexit Referendum dummy (1 in 2016; zero otherwise) and es2014.
ipostes	Interaction term between the Brexit Referendum dummy (1 in 2017 and 2018; zero otherwise) and es2014.
ibrcg	Interaction term between the Brexit Referendum dummy (1 in 2016; zero otherwise) and gov2014.
ipostcg	Interaction term between the post Brexit Referendum dummy (1 in 2017 and 2018; zero otherwise) and gov2014.

Note: the suffix w denotes winsorization at the 1% and 99% level. To ensure a robust sample size, we follow Buchanan et al. (2018) and set R&D equal to zero when R&D expenses are missing.

Centre for Finance & Investment was used as a benchmark[10].

$$\mathrm{BHAR}_{i,t} = \prod_{t=1}^{t}\left[1+R_{i,t}\right] - \prod_{t=1}^{t}\left[1+\mathrm{E}\left(R_{M,t}\right)\right] \qquad (1)$$

$R_{i,t}$ $= \dfrac{P_{i,t}-P_{i,t-1}}{P_{i,t-1}}$

$\mathrm{E}\left(R_{M,t}\right)$ expected return of the market portfolio at time t

The BHARs are then analysed in a cross-sectional regression to determine whether and how they are influenced by ESG, ES, and Corporate Governance. The baseline model includes linear ESG, ES and Governance scores as continuous variables. To control for omitted variables that happen to be correlated with CSR measures and influencing inferences drawn, we follow Lins et al. (2017) and include three sets of controls. The first set is firm's financial health. Earlier studies suggest that policy uncertainty is inversely related to cash holdings (inter alia, Phan et al., 2019; Xu et al., 2016) and frim profitability (An et al., 2016) as well as positively related to costs of debt financing (Francis et al., 2014). Given that these circumstances increase the risk of financial distress (Cremers & Yan, 2016), one might assume that profitable and cash-rich firms performed better during the shock period. This effect is captured by the financial health variables. The second effect controlled for are firm-specific characteristics, which were found to forecast stock returns successfully (inter alia, Kong, Rapach, Strauss, & Zhou, 2011; Rapach & Zhou, 2013). Finally, we include the Fama-French-Carhartt (Carhart, 1997; Fama & French, 1993) four-factor exposures[11]. To maintain a robust sample size, factor loadings were estimated over a period of 24 months prior to January 2016 (instead of 60 months as suggested by Lins et al. (2017)). Firms for which data was only available for fewer than 12 months to estimate the factor loadings were omit-

[10] http://business-school.exeter.ac.uk/research/centres/xfi/famafrench/files/

[11] The factor returns were again obtained from the Xfi Centre for Finance & Investment. Stata commands for estimating the factor loadings are provided in the appendix.

ted[12]. This leads to the following regression setup. All control variables are defined in Table 1. We measure financial health indicators and firm size at the end of 2015.

$$\{\text{cross-sectional regr.}\}\text{: BHAR}_i = b_0 + b_1 * \text{CSR}_{i,2014} + b_2' * X_{i,2015} + \text{indust} + \varepsilon_{it} \quad (2)$$

α	constant
b_1	estimated effect of CSR on shop-period BHARs
$\text{CSR}_{(i,2014)}$	proxy for CSR (linear ESG, ES, or G score) measured at year-end 2014
b_2'	vector of coefficients for the control variables
X_i	vector of control variables lagged by one year
indust	industry fixed effects
ε_{it}	error term

Building on findings of the effect of CSR varying across industries (e.g. Jo & Na, 2012), we include industry dummies at the two-digit ICB industry code level. This further pays credit to findings by Hill et al. (2019); Ramiah et al. (2017); Tielmann and Schiereck (2017) suggesting some industries were more severely affected by the Referendum than others. Further, heteroskedasticity-consistent standard errors were applied.

3.4.2. Corporate Financial Performance Surrounding the Brexit Referendum

The DiD methodology is a shock-based research design for causal inferences aiming at limiting selection and omitted variable bias (Atanasov & Black, 2016, p. 216). A standard DiD design assumes a shock separates firms into treatment and control groups. Thereby, the treatment firms are the ones affected by the shock, whereas the control firms remain completely unaffected (Chava & Purnanandam, 2010, p. 273). This allows to empirically estimate the shock's effects on the treated; the average treatment effects for the treated firms (ATT). They are estimated "as (after-minus-before change for treated firms) minus (after-minus-before change for control group)" (Atanasov & Black, 2016, p. 218):

$$\{\text{panel DiD}\} : y_{it} = \alpha + f_i + g_t + (\delta_{\text{DiD}} * w_{it}) + \varepsilon_{it} \quad (3)$$

α	constant
f_i	firm fixed effects
g_t	time fixed effects
ε_{it}	error term
δ_{DiD}	empirical estimate of ATT
w_{it}	interaction term between a treatment dummy variable (1 for firms in the treatment group; 0 for firms in the control group) and a time dummy (1 if observation is in the event window; 0 if outside of the event window)[13]

[12] This was the case for 16 firms.

[13] Atanasov and Black (2016, p. 218) explain in this case the interacted variables do not need to be included separately to estimate the interaction term's coefficient due to firm and time fixed effects.

In the present case, all UK firms were affected by the Brexit Referendum, independent of their social capital previously accumulated through CSR. Rather, it is attempted to capture a differing sensitivity to policy uncertainty of firms based on their CSR performance. According to Lins et al. (2017) and Chava and Purnanandam (2010), a more related research design is the DiD model with continuous treatment (DiD-continuous), which will be applied in the following analysis. DiD-continuous allows capturing the effect of firms with differing shock sensitivity. It is posited that policy uncertainty affects firms' performance by increasing uncertainty among market participants about companies' future cash flows and financial health. Trust build-up through CSR activities and the concept of reciprocity are hypothesised to alleviate these uncertainties among shareholders, lenders, and customers. Consequently, it is expected that an increase in social capital reduces exposure to policy-induced uncertainty. Thereby, ESG scores as of 2014 provided by ASSET4 are instrumentalised to impose a parametric form on the shock sensitivity[14]. The latter leads to replacing the interaction term w_{it} from eqn. (3) with an interaction between the shock-representing time dummy and the sensitivity-to-shock measure (Atanasov & Black, 2016, p. 253)[15]:

$$\{\text{panel DiD - continuous}\} : y_{it} = \alpha + f_i + g_t + \left(\delta_{\text{DiD}} * \text{event}_{it} * \text{sensitivity}_i\right) + \varepsilon_{it} \quad (4)$$

The model setup applied in this study follows Lins et al. (2017) in capturing effects of CSR on firm performance during the shock period, i.e. in 2016, and after the shock period, i.e. from 2017 to 2018. This setup allows us to scrutinise the effects of CSR on financial firm performance in times of increased and moderate policy uncertainty. In this sense, the research design allows detecting whether effects of CSR are unique to times of increased policy uncertainty. Figure 3 illustrates how the sub-sample periods were set out. The following DiD-continuous model was set up:

[14] The theoretical considerations behind the channel through which uncertainty affects firms and continuous variable to measure sensitivity are perceived to be in line with Atanasov and Black (2016, p. 253) "only-through-condition" for DiD-continuous designs.

[15] Atanasov and Black (2016, p. 253) explain a common variation of DiD with a continuous sensitivity measure is to estimate a standard DiD regression using high- and low-sensitivity subsamples indicated with a treatment dummy variable. The treatment dummy equals 1 for high and 0 for low sensitivity (e.g. top vs bottom quarter or third; medium sensitivity is dropped). This variation was not chosen due to concerns of small sample size and selection bias.

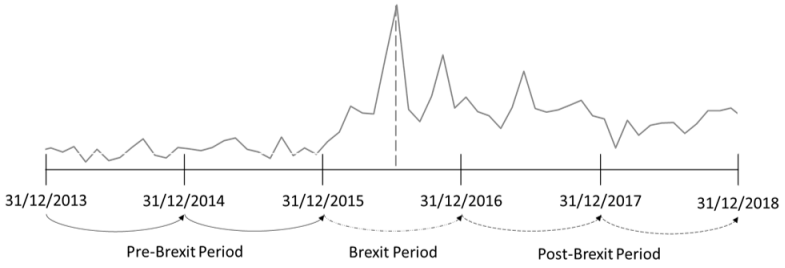

Figure 3: Construction of Sample Periods

$$y_{it} = b_0 + b_1 * \text{CSR}_{i,2014} * \text{Brexit} + b_2 * \text{CSR}_{i,2014} * \text{PostBrexit} + b_3' * X_{i,t-1} + f_i + g_t + \varepsilon_{it} \quad (5)$$

b_0	constant
b_1	Brexit-period interaction term
$\text{CSR}_{(i,2014)}$	proxy for CSR measured at year-end 2014
Brexit	dummy variable set to one in 2016; otherwise zero
b_2	Post-Brexit-period interaction term
PostBrexit	dummy variable set to one in 2017 and 2018; otherwise zero
b_3'	vector of coefficients for the control variables
$X_{(i,t-1)}$	vector of control variables lagged by one year
f_i	firm fixed effects
g_t	time fixed effects
ε_{it}	error term

Firm fixed effects were chosen as an econometric specification to control for unobservable characteristics influencing a particular firm's financial performance (firm fixed effects). Time-fixed effects are included to control for patterns in the performance of all firms, which are likely to persist in times of policy uncertainty (see, inter alia, Davies & Studnicka, 2018; Hill et al., 2019). Both settings aim at reducing the omitted variable bias. Additionally, standard errors are clustered at the firm level. Thereby, a common time-series characteristic also prevalent in panel data is controlled for: the possible temporal serial correlation in error terms by each firm (Petersen, 2009; Thompson, 2011).

The control variables used in the models mainly correspond to the ones used by Buchanan et al. (2018). Additionally, we follow Ding et al. (2016) and also control for stock turnover in the models explaining Tobin's Q and ROE. Table 1 provides an overview.

4. Empirical Results

4.1. Descriptive Statistics

In the appendix, panel A of Table 5 and Table 6 respectively provide the descriptive statistics for all variables. Our primary variables of interest are ESG, ES and Governance scores. From Table 5, we can see that the overall ESG score in 2014, the baseline year of analysis, is rather high with a mean of 71.6, a median of 80, and a cut-off point for the bottom quartile of 55.68. This might indicate UK firms tend to perceive CSR activities as a worthwhile investment, indicating first support for the stakeholder view. This is further enforced by the maximum value being close to 100 across all ESG dimensions. Turning to individual dimensions, Governance exibits the highest values on average, with environmental scores being the lowest. Given that Servaes and Tamayo (2013) argue governance to mainly address shareholder issues, the higher Governance scores could be interpreted to indicate a tilt in CSR activities towards the shareholder view. Turning to Table 5 reveals ESG scores were not persistent during the first half of the sample period from 2014-2016. Overall, ESG scores increased by 16% on average, with ES scores even by 17%. In contrast, governance scores remained relatively stable on average (0.5% increase).

Our first dependent variable to be analysed, BHARs, are on average slightly negative, with the median (-9%) and bottom quartile returns (-15.8%) being strongly negative. Negative BHARs are in line with Davies and Studnicka (2018) finding significant negative abnormal returns surrounding the Brexit Referendum. Together with the fact that the average Z-score during the sample period is below 1.8[16], BHARs indicate stakeholders might have been concerned about some firms' survival prospects. In this sense, it is not surprising that mean and median for Tobin's Q is below 1, suggesting firms are on average undervalued during the sample period (Hirschey, 1985). The latter notion is further supported by the high gross margin and reasonable sales growth exhibited on average.

Panel B of Table 5 and Table 6 show the pairwise correlation coefficients. It is evident that for both cases, correlations between independent variables to be combined in a regression are below 0.65 so that no issues of multicollinearity arise.

In terms of the correlation between the ESG pillars, it has to be noted that there is a high (0.74), statistically significant correlation between the environment and social score. Hence, it can be assumed that regressions with just the environment or just the social score included in the interaction terms will most likely capture similar effects[17]. Thus, CSR is

[16] According to Altman (1993), a score below 1.8 indicates a firm is headed for bankruptcy. However, it has to be noted this cut-off point was estimated in 1993.

[17] This anticipation was corroborated in untabulated estimations of the

split into just two components: a composite environmental and social (ES), and an individual governance (G) score. The two-way separation is further justified by the moderate correlation between G and both the ES score and its individual components.

In a standard DiD design with clearly separated treatment and control groups, it is further needed to defend that the dependent variables in question follow a similar trend for both company groups prior to the event. Thereby, the possibility of the outcome being driven by other unobserved factors is ruled out (Atanasov & Black, 2016). Even though Atanasov, Black, Ciccotello, and Gyoshev (2010) and Lins et al. (2017) do not defend this underlying assumption of DiD in their continuous treatment setups, we still want to ensure a common pre-treatment development prior to the Referendum among firms with high and low sensitivity to the shock. Following our hypotheses, firms with higher ESG scores are theorised to be less sensitive. Analogous to Lambert, Noth, and Schüwer (2017) and L. Nguyen and Wilson (2018), the trend assumption is verified employing a graphical inspection of the dependent variables' mean values for firms with different shock-sensitivity over time. To do so, firms are clustered into tertiles[18] based on their ESG, ES and Governance scores in 2014. Then, the bottom (theorised highest sensitivity) is compared to the top (theorised lowest sensitivity) tertile. Table 7 in the appendix reports the graphs, the majority of which support a shared pre-event trend[19], further supporting eligibility of the DiD methodology.

4.2. Regression Outcomes

4.2.1. Cross-Sectional Regression

Table 2 presents regression estimates of shock-period buy-and-hold-returns (March to September 2016) on linear ESG, ES, and Governance scores as well as different sets of control variables. In models (1) to (3), only stock-market-focused factor loadings are included; financial health and size measures are additionally included in models (4) to (6).

Model (1) exhibits the composite CSR measure is marginally statistically significant at 10% level and negative, providing indicative evidence for a negative effect of previously accrued social capital on the change in shock-period returns. The specification of column (1), however, does not pay credit to effects of firm-specific characteristics that were found in literature to impact firm performance during policy uncertainty. Controlling for this (column (4)), overall CSR's negative effect is more pronounced. Statistical significance increases to the 5% level. Economic significance rises by ca. 1.6%-points[20] given the standard deviation of 2014 ESG scores of 22.962. Hence, a one-standard-deviation increase in 2014 ESG scores causes a reduction in shock-period BHARs by 5.1%-points. Given the mean of shock-period returns of -2.1%, this effect is economically large. Turning to the controls, regression results do not support our anticipation of firms with better financial health having superior stock performance as all financial health variables are insignificant. This is also the case for the size measure. This finding is consistent across all models.

As for the stock-market-centered controls, CSR has a slightly higher economic significance as market risk (4.9%-points) under setup (4). The momentum exposure still remains the most significant influencing factor as a one-standard-deviation-increase leads to a reduction of BHARs by 7.3%-points.

In the following, we disentangle CSR to see if the ES and Governance components are evaluated differently by investing stakeholders. As for the ES pillar, respective coefficients are again negative, but insignificant both without (2) and with (5) controls for financial health and size. In contrast, Governance scores are significant at the 5% level in both setups ((3) and (6)), again with negative coefficients. The impact of governance is also largely economically significant with an impact of -3.54%-points and -4.11%-points respectively per one-standard-deviation-increase (14.173) in pre-Referendum Governance scores. This is further supported by Governance having an impact on returns of more than half of the market risk exposure (5.92%-points) without and almost the same impact (4.35%-points) with firm characteristic and financial health controls. Compared to the ESG factor, Governance has a higher economic impact for a one-standard-deviation-increase in the first model set-up, but turns out to be of lower significance in the second setup.

Taken together, the statistical significance and economic magnitude of ESG and Governance scores on shock-period buy-and-hold-returns indicate accrued social capital indeed offers important explanation for shock-period returns. Given the insignificance of coefficients for ES scores, we infer the effect of ESG is mainly driven by the Governance pillar. The signs of ESG and Governance coefficients signal investors were more concerned about firm performance when pre-Referendum social capital reservoirs were high. One explanation for this might be Burkart, Gromb, and Panunzi (1997) argument of good corporate governance restricting managerial initiative. Finkelstein and D'Aveni (1994), for instance, support this with their finding of powerful CEOs being able to make quicker decisions in uncertain environments. Hence, investors might attribute Good Corporate Governance practices to a reduced ability to withstand policy uncertainty due to managerial restrictions. This is empirically supported by

DiD-models in Table 3 with individual environmental and social scores. They exhibited mostly identical coefficients for the interaction terms.

[18] Contrary to Lambert et al. (2017), we divide firms into tertiles instead of quartiles due to the significantly lower sample size.

[19] For clustering by ESG, the pre-Brexit trend seems to be supported for all dependent variables but ROE and ROA. The same goes for clustering by ES. For Governance, it is Tobin's Q, gross margin, financial slack, and ROA which seem less convincing. We nevertheless perform DiD regression analysis for these dependent variables.

[20] We follow Bouslah et al. (2018, n. 31) and measure economic significance by multiplying the standard deviation of ESG scores as of 2014 by the estimated coefficient associated with the linear ESG measure. For instance, we calculated for ESG: $22.962 * (-0.0022) = -0.051$.

Table 2: Shock-Period Returns and Continuous ESG Scores

Heteroskedasticity-consistent standard errors are presented in parentheses. ***, **, * indicate the estimated coefficient is significantly different from zero at the 0.01, 0.05, and 0.1 level respectively.

VARIABLES	(1) bharw	(2) bharw	(3) bharw	(4) bharw	(5) bharw	(6) bharw
esg_14	-0.0015*			-0.0022**		
	(-1.77)			(-2.03)		
es_14		-0.0012			-0.0014	
		(-1.43)			(-1.37)	
gov_14			-0.0025**			-0.0029**
			(-2.19)			(-2.14)
profw				-0.2541	-0.3202	-0.3112
				(-0.97)	(-1.17)	(-1.14)
ltd_atw				0.1516	0.1719	0.1671
				-1.22	-1.38	-1.35
dlc_atw				-0.07	-0.0854	-0.0586
				(-0.43)	(-0.52)	(-0.35)
cash_taw				0.204	0.2369	0.2553
				-0.64	-0.73	-0.77
beta_rmrfw	0.0817***	0.0794***	0.0755***	0.0625*	0.0614*	0.0555*
	-2.75	-2.68	-2.69	-1.82	-1.78	-1.66
beta_umdw	-0.1025***	-0.1025***	-0.1057***	-0.0860**	-0.0830**	-0.0858**
	(-2.98)	(-2.99)	(-3.17)	(-2.20)	(-2.11)	(-2.26)
beta_hmlw	0.0732***	0.0736***	0.0780***	0.0602***	0.0603***	0.0648***
	-4.03	-4.06	-4.28	-3.02	-3.02	-3.28
beta_smbw	-0.0544**	-0.0524*	-0.0470*	-0.0432	-0.0446	-0.041
	(-2.00)	(-1.92)	(-1.83)	(-1.37)	(-1.41)	(-1.31)
Constant	0.0861	0.0568	0.1918*	-0.0143	0.0451	0.2217
	-1.06	-0.72	-1.85	(-0.06)	-0.19	-1.02
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	308	308	308	267	267	267
R-squared	0.331	0.326	0.332	0.361	0.354	0.362

van van Essen, Engelen, and Carney (2013) showing Governance was negatively related to firm performance during the 2008 financial crisis. Lins et al. (2017) corroborate the same effect on stock returns.

Findings indicate investors required a risk premium for CSR investments aggregated across CSR components and for Good Governance additionally to a policy uncertainty risk premium (Belo et al., 2013; Erb et al., 1996). In this sense, our findings suggest the rejection of H_0^1 of social capital being positively related to shock-period stock returns while providing support in favour of H_0^5.

4.2.2. Difference-in-Difference Regressions

We next scrutinise whether non-investing stakeholders hold positive beliefs about firms investing in CSR, which translate into increased real performance on the level of operating performance, financial health, and firm value surrounding the Brexit Referendum. In the models presented in Table 3, the variables of interest are the two interaction terms between CSR measures and time dummies. The coefficient of the interaction term "ibr" captures the differential impact of the respective CSR measure on the scrutinised corporate financial performance measure in the year of the Referendum after controlling for firm characteristics and after removing the firms' average performance (firm fixed effects) over the entire estimation period and after removing time-series patterns (time-fixed effects) among the overall financial performance measure (Lins et al., 2017). In this sense, the coefficient of "ibr" measures marginal effects of CSR in times of increased economic policy uncertainty. The coefficient of "ipost" captures the equivalent effect for times of moderated policy uncertainty.

If effects of CSR are more pronounced during increased policy uncertainty, we should observe a significant coefficient for "ibr" interaction terms as well as a reversal of the effect in the post-Referendum period (Buchanan et al., 2018).

Panel A of Table 3 presents regression results regarding the composite ESG measure. Looking at operating performance, we first analyse distribution as an influencing channel for CSR. We thereby investigate whether customers were

more willing to stick with a company due to previously-build, positive beliefs about them. Here, our first model in column (1) scrutinises whether higher-CSR firms exhibit higher changes in gross margins surrounding the Referendum. Neither interaction term shows a statistically significant coefficient at 5%, indicating higher-CSR firms did not realise higher mark-ups around the Referendum. We next turn to sales growth (2) and again find no significant effect at 5% in both time periods. Cognizant that there are no differences between high and low-CSR performers in 2016 and post-Referendum, it is not surprising that we cannot detect any significant effect of CSR on profitability during high and moderated policy uncertainty.[21] This finding holds for both ROA (column (3)) and ROE (column (4)). Hence we can infer high-CSR firms neither exhibit increased operating performance relative to other firms during high nor during moderated policy uncertainty. Our findings are in line with Nelling and Webb (2009), but contradict Guenster et al. (2011).

Our next set of models focuses on financial health. The first explained variable is financial slack (5), i.e. the cash available to finance new projects. We find overall CSR performance to have no significant effect on the cash cusion of firms to withstand tough times. The model on Altman's Z (6) indicates ESG neither has a stabilising nor destabilising effect on firms during or after 2016. Given the two variables are in part derived from explained variables in the models on operating performance, the findings are not surprising. In sum, we cannot support Goss and Roberts (2011) finding of reduced default risk.

Column (7) exhibits our last level of real performance: firm value. Tobin's Q further offers a forward-looking market perspective. Additionally, it captures the market value managers can generate per unit of underlying asset so that Tobin's Q also assesses managerial quality (Guenster et al., 2011). Nevertheless, the market perspective is also influenced by operating performance and financial health criteria. In this sense, findings of insignificant interaction term coefficients for both subsample periods are in line with the previous model settings. In this finding, we contradict Ghoul et al. (2017); Guenster et al. (2011); Jiao (2010); Nelling and Webb (2009).

Among the control variables, it might be worth noting that size exhibits highly significant negative effects at 1% level on sales growth and operating profitability measured by ROA, as well as financial slack over the whole sample period. Further, firms with higher operating performance measured by ROA and sales growth seem to exhibit higher financial slack (5) and financial stability (6). Higher sales growth is also significantly positively linked to higher gross margins (1). These findings, however, apply for the whole sample period and are but indicative findings for effects during policy uncertainty. Nevertheless, they seem to generally be in line with Davies and Studnicka (2018) and Hill et al. (2019) investigations on Brexit exposure and, more generally, on impacts of policy uncertainty (inter alia, Boutchkova et al., 2012; Gulen & Ion, 2016).

To address hypothesis number five, we reestimate the DiD-models but interact the Brexit and PostBrexit dummies with aggregated ES (Table 3 Panel B) and Governance scores (Table 3 Panel C) respectively. Regarding the main variables of interest, insignificant effects across all models and both interaction terms remain persistent. Further, significance and sign of aforementioned controls are consistent across all panels. Note that the correlation between ES and Governance scores as of 2014 is significantly below 0.65 so that consistent results were not necessarily anticipated. Hence, we cannot corroborate our previous finding of Governance having more significant impacts on financial performance than ES. In contrast to investors, non-investing stakeholders of UK-listed firms did not exhibit the selective value attribution that was found by Harjoto and Jo (2015); Jiao (2010); Kim et al. (2014); Nelling and Webb (2009) for the US. In this sense, no support is provided for H_0^5 on the level of real performance; however, we find evidence against it on the level of stock performance.

In summary, the DiD models reveal two key findings. First, the benefits of relational wealth previously created through the sum of CSR as well as on the levels of ES and Governance do not outweigh their costs during increased policy uncertainty in 2016. In context with our theoretical framework, we conclude neither the effects of the reputation-building benefits nor overinvestment costs prevailed. More specifically, relational wealth along distribution channels did not have significant effects. At the same time, managers of high-CSR firms are not indicated to have exploited incomplete contracts for intrinsic interests to an extent harming real performance sourrounding the Referendum. In sum, high-CSR firms' real performance is neither less nor more sensitive to Brexit-induced policy uncertainty.

The second finding is the effect consistency across the shock and post-shock periods. Hence, we were not able to detect a dynamic relationship between CSR varying across times of increased and moderated economic policy uncertainty. Hence, our model outputs contradict what was initially anticipated. However, this finding might be attributable to the fact that policy uncertainty levels after the Referendum are slightly lower, but still mostly above the overall and ten-years mean. The reason might be that Brexit procedures are still ongoing without any agreements on a Brexit deal between the UK and the EU. In fact, commentators perceive a no-deal Brexit which would leave the UK without access to the EU free-trade zone to be ever more likely (Wilson, 2019). Hence, effects of policy uncertainty are still well persistent in 2017 and 2018 (Figure 1). With that said, the magnitude of the reduction in policy uncertainty might not be strong enough. Alternatively, changes in policy uncertainty might exhibit a response lag effect in significantly changing stake-

[21] We further investigate effects of ESG, ES, and Governance on the customer channel in untabulated regressions leading to consistent fndings. We regress accounts receivables over sales against the same explanatory variables but do not find customers of high-CSR frims to pay their accounts faster in the year of the Referendum or after. Further, we investigate whether employees are more productive by regressing sales per employee. We again fail to detect any significant relationship.

Table 3: Real Performance and CSR Surrounding the Brexit Referendum

Standard errors clustered at firm level are reported in parentheses. ***, **, * indicate the estimated coefficient is significantly different from zero at the 0.01, 0.05, and 0.1 level respectively.

Panel A: Effects of Composite ESG Scores on Real Performance in the year of and after the Brexit Referendum							
VARIABLES	(1) gmw	(2) sales_gw	(3) roa_netincw	(4) roew	(5) s_cashw	(6) zscorew	(7) tq2w
ibresg	0.0001	-0.0003	0.0000	0.0000	-0.0001	-0.0001	0.0000
	(0.30)	(-0.48)	(-0.06)	(-0.62)	(-0.67)	(-0.05)	(0.08)
ipostesg	-0.0001	-0.0007	-0.0001	-0.0001	0.0000	0.0012	-0.0003
	(-0.42)	(-1.07)	(-0.22)	(-1.31)	(0.02)	(1.06)	(-0.94)
lagsizew	-0.0272*	-0.0978***	-0.0685***	-0.0006	-0.0453***	-0.1257*	-0.0005
	(-1.77)	(-2.91)	(-4.82)	(-0.33)	(-5.23)	(-1.69)	(-0.03)
lagcapexpw	0.0637	-1.6932***	-0.2582**	-0.0175	-0.0956	-1.7353***	0.3153**
	(0.48)	(-5.67)	(-2.01)	(-1.02)	(-1.05)	(-2.73)	(2.07)
lagfabaw	0.0390	0.1420	0.0068	0.0036	-0.0723*	0.5574	0.0320
	(0.49)	(0.84)	(0.08)	(0.19)	(-1.68)	(1.64)	(0.36)
lagcash_taw	0.0515	-0.1543	0.0987*	0.0104	-0.0044	0.2922	0.0357
	(0.87)	(-0.94)	(1.66)	(1.29)	(-0.10)	(0.72)	(0.43)
lagbleveragew	-0.0414	0.0810	0.1147**	0.0028	-0.0471	-0.2071	0.3032***
	(-0.75)	(0.82)	(2.45)	(0.26)	(-1.64)	(-1.12)	(5.60)
lagrdw	-0.7948	-0.4914	-0.0055	0.0304	-0.0902	0.3270	-0.2107
	(-1.42)	(-0.58)	(-0.02)	(1.49)	(-0.34)	(0.22)	(-0.63)
lagadvertisingw	0.0813	0.3491***	0.0021	-0.0083	-0.0232	-0.1158	-0.0089
	(0.74)	(2.85)	(0.03)	(-1.11)	(-0.68)	(-0.47)	(-0.15)
turnoverw				-0.0030*			-0.0033
				(-1.75)			(-0.28)
lagroa_netincw	0.0654	0.0819		-0.0021	0.0488**	0.5627***	-0.0810
	(1.38)	(0.81)		(-0.38)	(2.22)	(2.92)	(-1.44)
lagsales_gw	0.0727***		0.0441*	0.0055	0.0327**	0.2720***	0.0013
	(3.06)		(1.67)	(1.18)	(2.44)	(3.25)	(0.05)
Constant	0.8079***	1.3767***	0.9935***	-0.0018	0.7780***	3.5795***	0.4231
	(3.57)	(2.66)	(4.69)	(-0.06)	(6.01)	(3.22)	(1.44)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,310	1,313	1,309	1,256	1,308	1,278	1,255
R-squared	0.046	0.16	0.097	0.035	0.09	0.126	0.115
Firms included	283	284	283	274	283	278	274

Panel B: Effects of Composite ES Scores on Real Performance in the year of and after the Brexit Referendum							
VARIABLES	(1) gmw	(2) sales_gw	(3) roa_netincw	(4) roew	(5) s_cashw	(6) zscorew	(7) tq2w
ibres	0.0001	-0.0004	0.0000	0.0000	0.0000	0.0006	0.0001
	(0.40)	(-0.68)	(0.15)	(-0.54)	(0.09)	(0.51)	(0.34)
ipostes	0.0000	-0.0004	0.0001	-0.0001	0.0001	0.0020*	-0.0002
	(-0.05)	(-0.64)	(0.34)	(-1.18)	(0.93)	(1.67)	(-0.75)
lagsizew	-0.0271*	-0.0983***	-0.0680***	-0.0008	-0.0448***	-0.1206	-0.0012
	(-1.74)	(-2.89)	(-4.73)	(-0.39)	(-5.22)	(-1.65)	(-0.06)
lagcapexpw	0.0645	-1.6902***	-0.2581**	-0.0172	-0.0981	-1.7558***	0.3159**
	(0.49)	(-5.63)	(-1.99)	(-1.01)	(-1.08)	(-2.80)	(2.08)

(Continued)

Table 3—continued

lagfabaw	0.0423	0.1513	0.0115	0.0045	-0.0666	0.5822*	0.0346
	(0.52)	(0.89)	(0.14)	(0.24)	(-1.55)	(1.73)	(0.38)
lagcash_taw	0.0493	-0.1599	0.0955	0.0097	-0.0072	0.2640	0.0348
	(0.83)	(-0.96)	(1.62)	(1.27)	(-0.16)	(0.65)	(0.42)
lagbleveragew	-0.0423	0.0785	0.1134**	0.0025	-0.0487*	-0.2181	0.3030***
	(-0.76)	(0.79)	(2.41)	(0.23)	(-1.67)	(-1.18)	(5.61)
lagrdw	-0.8118	-0.5133	-0.0183	0.0274	-0.0938	0.2748	-0.2217
	(-1.43)	(-0.60)	(-0.07)	(1.39)	(-0.35)	(0.19)	(-0.67)
lagadvertisingw	0.0831	0.3525***	0.0043	-0.0078	-0.0208	-0.1070	-0.0066
	(0.75)	(2.87)	(0.06)	(-1.06)	(-0.61)	(-0.44)	(-0.11)
turnoverw				-0.0030*			-0.0031
				(-1.73)			(-0.26)
lagroa_netincw	0.0650	0.0800		-0.0021	0.0482**	0.5563***	-0.0795
	(1.35)	(0.79)		(-0.37)	(2.18)	(2.90)	(-1.42)
lagsales_gw	0.0732***		0.0444*	0.0057	0.0327**	0.2704***	0.0017
	(3.02)		(1.67)	(1.22)	(2.46)	(3.24)	(0.07)
Constant	0.8057***	1.3822***	0.9863***	0.0003	0.7692***	3.5070***	0.4322
	(3.53)	(2.64)	(4.62)	(0.01)	(6.00)	(3.19)	(1.46)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,310	1,313	1,309	1,256	1,308	1,278	1,255
R-squared	0.045	0.159	0.097	0.032	0.09	0.129	0.115
Firms included	283	284	283	274	283	278	274

Panel C: Effects of Governance Scores on Real Performance in the year of and after the Brexit Referendum

VARIABLES	(1) gmw	(2) sales_gw	(3) roa_netincw	(4) roew	(5) s_cashw	(6) zscorew	(7) tq2w
ibrgov	0.0000	-0.0000	0.0000	-0.0001	-0.0003	0.0006	-0.0002
	(0.04)	(-0.06)	(-0.00)	(-1.21)	(-1.09)	(0.51)	(-0.55)
ipostgov	0.0001	-0.0011	0.0001	-0.0001	-0.0001	0.0013	-0.0005
	(0.30)	(-1.41)	(0.26)	(-0.99)	(-0.54)	(0.86)	(-1.10)
lagsizew	-0.0266*	-0.1015***	-0.0680***	-0.0009	-0.0459***	-0.1209	-0.0022
	(-1.72)	(-2.98)	(-4.61)	(-0.42)	(-5.28)	(-1.64)	(-0.12)
lagcapexpw	0.0689	-1.7314***	-0.2545**	-0.0193	-0.1000	-1.7010***	0.3013**
	(0.51)	(-5.61)	(-1.99)	(-1.08)	(-1.09)	(-2.64)	(1.97)
lagfabaw	0.0444	0.1411	0.0106	0.0049	-0.0733*	0.5501	0.0293
	(0.57)	(0.82)	(0.12)	(0.26)	(-1.76)	(1.61)	(0.33)
lagcash_taw	0.0478	-0.1603	0.0969	0.0088	-0.0032	0.3141	0.0338
	(0.79)	(-0.98)	(1.65)	(1.18)	(-0.07)	(0.77)	(0.40)
lagbleveragew	-0.0428	0.0772	0.1142**	0.0023	-0.0461	-0.1994	0.3027***
	(-0.77)	(0.77)	(2.43)	(0.21)	(-1.60)	(-1.09)	(5.58)
lagrdw	-0.8176	-0.5071	-0.0142	0.0206	-0.0915	0.4681	-0.2370
	(-1.45)	(-0.59)	(-0.05)	(1.16)	(-0.36)	(0.32)	(-0.72)
lagadvertisingw	0.0826	0.3518***	0.0036	-0.0078	-0.0239	-0.1197	-0.0101
	(0.75)	(2.77)	(0.05)	(-1.06)	(-0.71)	(-0.48)	(-0.18)
turnoverw				-0.0030*			-0.0036
				(-1.75)			(-0.30)
lagroa_netincw	0.0632	0.0855		-0.0021	0.0502**	0.5631***	-0.0803
	(1.33)	(0.85)		(-0.38)	(2.27)	(2.91)	(-1.43)

(Continued)

Table 3—continued

lagsales_gw	0.0738***		0.0442*	0.0059	0.0327**	0.2641***	0.0034
	(3.03)		(1.65)	(1.24)	(2.48)	(3.14)	(0.14)
Constant	0.7994***	1.4342***	0.9852***	0.0015	0.7864***	3.5028***	0.4491
	(3.50)	(2.72)	(4.48)	(0.05)	(6.05)	(3.18)	(1.51)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,310	1,313	1,309	1,256	1,308	1,278	1,255
R-squared	0.045	0.161	0.097	0.031	0.09	0.124	0.115
Firms included	283	284	283	274	283	278	274

holder behaviour in a way that affects the relationship between ESG and corporate financial performance.

Further discussion in light of previous shock-based studies will be provided in section 6. In sum, both key findings contradict hypotheses H_0^2 to H_0^4.

5. Robustness Tests

5.1. Cross-Sectional Regression

Following Lins et al. (2017), we reestimate our baseline regressions in Table 8 in the appendix and replace the continuous CSR measures by dummies indicating the top (t3) and medium tertile (t2). The bottom tertile is captured by the constant. We thereby evaluate whether our previous finding of inverse effects on BHARs are more pronounced at higher levels of ESG and Governance scores.

The robustness test reveals negative effects of higher levels of pre-event social capital are robust for the Governance pillar, but not for the composite ES and ESG levels. This indicates effects of ES and ESG depend upon econometric specifications and are thus less pronounced as indicated by the baseline model.

We also conduct a further robustness test put forth by Lins et al. (2017) and measure CSR at different points in time to see whether our results are driven by the point in time of measuring CSR. Alternatively, we measure CSR in 2015 as another pre-shock measure, and in 2016. Results are reported in Table 9 and Table 10 in the appendix. In 2015, all variables of interest are not significant at 0.05 level; in 2016, the ESG coefficient is only negative and significant with stock-market-based controls, while ES is negative and significant in both model setups. The findings contradicting the baseline model are not surprising given the high increases in ESG, ES, and Governance scores between 2014 and 2016, mainly for low-tier firms. We explain this with Godfrey (2005) theory of firms instrumentalising CSR engagement as a risk management tool in anticipation of turbulent times (Buchanan et al., 2018; Godfrey, 2005; Godfrey et al., 2009; Lins et al., 2017). This is indicated in the descriptive statistics by low-tier cutoff-points for ESG quadrupling. For Govenance, the increase was even sevenfold. As low-tier firms moved closer to the average, kurtosis and negative skewness increased, further supporting this indication. Further research is needed, though, to establish a causality. Under these considerations, insignificance of Governance scores might hint at increased Good Governance efforts in times of increasing policy uncertainty are appreciated by investors as a means of reducing agency conflicts (Cui et al., 2018; Eccles et al., 2014; Knack & Keefer, 1997; Putnam, 1993), possibly to mitigate increased cash flow uncertainty (Cremers & Yan, 2016). In contrast, overinvestment concerns arise among investors for increased combined environmental and social endeavours (Surroca & Tribó, 2008). This indication, again, requires further research.

5.2. Difference-in-Difference Models

Firstly, we again reestimate basline DiD-models using CSR measures as of 2015 and 2016. The regression results are reported in the appendix. In summary, the variables of interest, the two interaction terms, remain insignificant at the 5% level. Consequently, the results mainly reinforce the previous findings of ESG, ES, and Governance having no significant impact on real performance on the level of operating profitability, financial health, and overall firm value.

In a second set of untabulated robustness tests, we test for alternative variable definitions. As for dependent variables, we reestimate baseline DiD-models for Tobin's Q and ROA using the following alternative definitions:

$$\text{TQ} = \frac{\text{market value of equity}_t + \text{total liabilities}_t}{\text{book value of equity}_t + \text{total liabilities}_t} \tag{6}$$

$$\text{ROA}_{\text{ebit}} = \frac{\text{ebit}_t}{\text{total assets}_t} \tag{7}$$

Our main findings remain unchanged. This also holds when reestimating all 21 baseline regressions using the market instead of the book leverage. Market leverage was calculated as follows:

$$\text{ML} = \frac{\text{long-term debt}_t + \text{current liabilities}_t}{\text{total asset-common equity}_t + \text{market capitalisation}_t} \tag{8}$$

The same goes for reestimating all 21 baseline regressions with the natural logarithm of market capitalisation and

revenues, respectively as alternative size measures. We can summarise the findings from the DiD-models are robust to alternative variable definitions.

6. Further Discussion on the Dynamic Relationship Between CSR and Corporate Financial Performance

This paper contributes to literature on the dynamic relationship between CSR and corporate financial performance with three main findings: (1) CSR and especially Governance are inversely related to shock-period returns, (2) high-CSR and low-CSR firms' real performance does not differ in terms of sensitivity to adverse Brexit shock implications, and (3) effects of CSR on real performance do not vary alongside levels of policy uncertainty. We now proceed to discuss our findings in context with the three papers most closely related to our work.

These three findings are in contrast to Bouslah et al. (2018); Buchanan et al. (2018); Lins et al. (2017), all finding effects of CSR to be more pronounced during an adverse shock to markets, the 2008 financial crisis. Putting our findings in context with these papers, we identify two mechanisms that could contribute to the disparity.

This paper resumes as a first inference that previous findings do not necessarily hold in other markets and / or for aggregated shock events other than financial market shocks. Buchanan et al. (2018, p. 82) already hinted at this notion. They found firms engaging in CSR to not exhibit different firm values on average compared to non-CSR firms immediately after the financial crisis. They trace this back to increases in policy uncertainty, given the substantial quantitative easing rounds used by the US Federal Reserve to stabilise the economy. Similarities between the uncertainty situation in the US after the financial crisis and the Referendum are evident: in both cases, prolongued economic downturns and long-term declines in household consumptions were expected (inter alia, Dhingra et al., 2016; Fraser of Allander Institute, 2016; Sampson et al., 2016). The severity of the Referendum's threat to the economy was further illustrated by the dramatic drop of the British Pound Sterling to US Dollar exchange rate (Allen, Treanor, & Goodley, 2016). It was so severe that the Bank of England reacted with lowering the base interest rate from 0.5% to 0.25% two months after the Referendum to mitigate financial pressure on the real economy (Bank of England, 2016). Aggregated shocks to economic policy uncertainty might be of such a structural macroeconomic nature that effects of CSR on real performance diminish. As for the crosssectional regression, the horizon for returns might have been too short-sighted to capture this effect.

Opposing, Lins et al. (2017, p. 1816) detect positive effects of CSR on returns and operating performance still persist in the years after the crisis from 2010 to 2013. Their finding leaves us to suggest as a second inference that there is another, complemental factor influencing the effect of varying macro conditions on the relationship between CSR and firm performance: aggregated levels of trust among stakeholders towards firms. Aggregated trust levels in the US stayed relatively low after the 2008 financial crisis, which Lins et al. (2017) attribute to be the reason behind the lacking reversal in stock return valuation premia and operating outperformance for high-CSR firms[22]. In contrast, overall trust levels and especially trust in companies in the UK have reached a new hight in 2013, marking the highest level since the 2008 financial crisis. Ever since 2013, trust levels have mostly stagnated according to the Edelman Trust Barometer (Daniel J Edelman Ltd., 2018). Edelman scores for trust in businesses range from 46 to 43 between 2016 to 2018, compared to 36 in 2008. In this sense, our findings are indicative support for Sapienza and Zingales (2012) viewpoint that trust in companies becomes more important when overall levels of trust in markets, institutions, and corporations are low. Hence, presented empirical findings could be seen as further indication for links between financial payoffs to social capital being more pronounced in times of low aggregated levels of trust as established by Guiso et al. (2008) and Lins et al. (2017).

7. Conclusion

This paper examines the impact of economic policy uncertainty on the relationship between corporate financial performance and CSR surrounding the 2016 Brexit Referendum. The investigation focuses on the 320 non-financial firms listed at the London Stock Exchange which are part of the ASSET4 ESG database as of 2014. The sample period covers the years of 2014 to 2018 with 2016 indicating increased, and 2017 to 2018 indicating moderated policy uncertainty. As a measure of previously accrued social capital, ESG, ES, and G scores as of 2014 were employed. The main results can be summarised as follows. First, we find moderate empirical support for social capital previously accrued through CSR initiatives to negatively affect buy-and-hold shock-period returns. The negative impact is driven by the Governance score. Effects are statistically and economically meaningful. Results are, however, not robust to capturing sensitivity by using tertile dummies (for ESG) or using ESG, ES, and G scores as of 2015 and 2016.

Second, we do not find non-investing stakeholders value relational wealth created through CSR to an extent that significantly affects the real performance of firms during the year of the Referendum. This holds across both levels of CSR analysed and across operational performance, financial health, and firm value.

Third, we do not confirm previous findings of a dynamic relationship between CSR and corporate financial performance across times of increased (2016) and of moderated policy uncertainty (2017 and 2018). The last two findings are robust to using ESG, ES, and G scores measured at alternative points in time.

[22]The Financial Trust Index indicates 11% and 12% of respondents trusted the stock market and large corporations respectively in 2009. Responses only changed moderately to 15% and 17% at the end of 2013 (Sapienza, Zingales, & Jones, 2019).

We interpret that from the perspective of investing stakeholders, the shareholder view's overinvestment hypothesis was supported for the Brexit period. In contrast, from the perspective of non-investing shareholder and effects on real performance, neither the shareholder nor the stakeholder argument outweighted the other. Consequently, social capital reservoirs are a firm characteristic that increases stock return's but not real performance's sensitivity to Brexit uncertainty.

In the context of the emerging literature on the time-varying nature of CSR effects, we cannot infer that policy uncertainty caused by Brexit is a macro condition that alters effects of social capital in a way that they are more pronounced than during moderate policy uncertainty. This might be because CSR effects are more sensitive to rather short-lived, market-related shocks, but less sensitive to prolonged financial frictions (Buchanan et al., 2018). This indication could be further tested by repeating the conducted analysis once Brexit-induced uncertainty has terminated, i.e. once the UK has officially withdrawn from the EU and has recovered from immediate macroeconomic effects. A second inference discussed is that macro shocks might only influence the (dis-)equilibrium between reputation-building benefits and overinvestment costs if overall levels of trust in companies decline (Lins et al., 2017).

However, these inferences have to be interpreted with caution as, so far, no other study has analysed impacts of policy uncertainty shocks on the relationship between CSR and corporate financial performance. Therefore, it is suggested to perform further robustness tests in the form of alternative research designs. One example could be the standard DiD setup employed by Buchanan et al. (2018). Thereby, firms with ESG scores are assigned to the treatment and firms without to the control group. This would require to create a matched sample to ensure covariate bias to establish DiD credibility (Atanasov & Black, 2016). A frequently employed technique is nearest-neighbour propensity score matching with common support (e.g. Buchanan et al., 2018; Lambert et al., 2017; L. Nguyen & Wilson, 2018)[23]. When applying the matching technique, it might also be interesting to estimate ATTs using propensity score matching[24] instead of DiD regression estimation. Atanasov and Black (2016) further suggest exploying shock Instrumental Variable and Regression Discontinuity designs as additional robustness tests for DiD. They also mention placebo tests as possible robustness tests but suggest they are more relevant to studies on legal shocks.

Alternatively, ESG measures of different data providers such as Bloomberg or MSCI could be used for robustness checks.

Given that shock-based research on CSR is still emerging, this study provides several indications for further research. In terms of the Brexit event, it is first suggested to apply the DiD-methodology also for stock returns. A second proposal is to implement a triple-differencein-difference setup in which CSR and the time dummies further interact with either firm size, internationalisation, maturity, or performance. Theoretical justification is that Davies and Studnicka (2018) and Hill et al. (2019) find firms differing on these characteristics also differ in their exposure to Brexit uncertainty. Additionally, Chan, Watson, and Woodliff (2014) and Gamerschlag, Möller, and Verbeeten (2011) indicate larger firms have higher ESG activities, whereas Hong et al. (2012) report the same effect for more profitable firms.

Another interesting direction is to look at different types of aggregated shock events, e.g. additional shocks of policy uncertainty such as 9/11, legal shocks such as the withdrawal of the United States form the Paris climate change agreement, or further market shocks such as the dot-com bubble. This would be useful to establish criteria for shocks that are likely to influence the (dis-)equilibrium between shareholder and stakeholder view of the firm. Related to this is the proposition to conduct the analysis on different countries since Ghoul et al. (2017) provide evidence for incremental value of CSR being stronger in countries with reduced market-supporting institutions.

[23] Stata code for performing nearest-neighbour propensity score matching is provided in the appendix.

[24] This is done in Stata using the command *teffects*.

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