

# Shareholder wealth effects of modern slavery regulation

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## Abstract

We examine the shareholder wealth effects of the adoption of the UK Modern Slavery Act 2015 (MSA). The MSA's Transparency in Supply Chains clause introduced new reporting requirements mandating certain firms to provide an annual statement outlining how they identify and mitigate modern slavery in their business and supply chain. An event study of stock price reactions of UK firms covered by the MSA to eight events associated with its adoption provides no evidence of abnormal stock returns. We do, however, uncover significant cross-sectional differences in stock price reactions, with results suggesting that the MSA provides a competitive advantage to firms with a demonstrated track record of addressing slavery risk. We find no effects for pre-regulatory Corporate Social Responsibility disclosure levels on stock price reactions. Our findings highlight the economic value of maintaining socially responsible sourcing practices, and inform the current policy debate on the importance of greater transparency in corporate supply chains.

**Key words:** Modern Slavery Act; supply chain transparency; event study; socially responsible sourcing; CSR disclosure

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## 1. Introduction

Modern slavery is a broad concept describing a set of disparate but related offences of slavery, servitude, forced labor, and human trafficking (Haynes, 2016). People in modern slavery are ‘owned’ by their employers, deprived of their individual liberty, and often controlled with large recruitment debts or threats of harm if they should leave (Chartered Institute of Procurement and Supply [CIPS] and Walk Free Foundation, 2013). Conservative estimates suggest that, on any given day in 2016, 40.3 million people worldwide were victims of modern slavery (International Labour Organization [ILO] and Walk Free Foundation, 2017), with profits obtained from the use of forced labor in the private economy amounting to \$150 billion a year (ILO, 2014). Scandals involving multinational corporations sourcing products made with the use of forced labor have featured frequently and prominently in the popular press. For example, in 2014 it emerged that high-profile companies such as Walmart and Tesco had purchased prawns from a Thai company that relied on fishing boats manned by slaves for its fishmeal supply (Gentleman, 2015).

Against this backdrop, in March 2015 the United Kingdom (UK) passed the Modern Slavery Act 2015 (henceforth MSA), the first law of its kind in Europe. Section 54 of the MSA, entitled ‘Transparency in Supply Chains, etc.’ (TISC), is the MSA’s only provision that explicitly addresses the private sector. The TISC clause places new reporting requirements on firms with a total global annual turnover of at least £36 million that conduct (part of) their business in the UK. In particular, it requires the production of an annual slavery and human trafficking statement describing the actions the firm has taken that year to identify and eradicate modern slavery from its business and supply chain (MSA, 2015a). The UK Government’s stated intent for the TISC clause is “*to make it absolutely transparent what action a business is or is not taking and (...) allow investors, consumers and the general public to decide who they should and should not do business with*” (Home Office, 2015a). The remaining parts of the MSA primarily consolidate and improve existing pieces of legislation on slavery-related offences by individuals, with the aims of increasing the number of successful prosecutions and improving the wider understanding of the crime of modern slavery (Butler-Sloss et al., 2015). Since its inception, the MSA has been highly controversial, with some parties hailing it as

“a unique opportunity to make Britain once again a world leader in the fight against slavery” (Butler-Sloss et al., 2015), and others calling it a “vanity project” that was “being rushed through Parliament without proper consultation” and that would “offer almost no help to the victims of the crime” (Dugan, 2012).

The objective of our paper is to examine the effects of the introduction of the MSA on shareholder wealth.<sup>1</sup> The TISC clause is the only part of the MSA that imposes new requirements on firms.<sup>2</sup> Nevertheless, we cannot completely rule out that stock prices are also affected by non-TISC elements of the MSA. For example, investors may anticipate an increase in firms’ risk of reputational damage due to a higher likelihood of convictions under other parts of the MSA.<sup>3</sup> For this reason, we refer to the MSA in its entirety throughout the paper, except where analyses allow us to focus more narrowly on the TISC clause.

If markets are semi-strong form efficient, abnormal stock returns following the announcement of new regulations should reflect investors’ perceptions of the anticipated net benefits or costs for the individual companies affected (Fama, 1970). The sign of the average stock price effect of the MSA for the entire population of firms affected by the Act is an empirical question, as it depends on investors’ netting of any perceived benefits and costs associated with the MSA. The literature on socially responsible sourcing and corporate disclosure suggests two main mechanisms affecting MSA-related shareholder wealth effects. Firstly, investors’ expectations of the net benefits and costs of the MSA are likely to be influenced by a firm’s pre-regulatory likelihood of having modern-slavery-related incidents in its focal business or supply chain (‘slavery risk’). The direction of the effect of slavery risk is unclear a priori. On the one hand, investors might expect heightened public awareness of the degree to which modern slavery issues are affecting certain firms following the MSA’s adoption. This enhanced salience of modern slavery might lead investors to expect incremental cash

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<sup>1</sup> In line with most other event studies, we focus on equity investors in this paper. We use the terms shareholder and investor interchangeably.

<sup>2</sup> We consulted a number of practitioners with good knowledge of the MSA, as well as managers responsible for MSA compliance within their organizations. They unequivocally confirmed to us that the TISC clause is the part of the MSA that is of most direct relevance to firms and their investors.

<sup>3</sup> In 2016, the UK Department of Justice brought 51 new prosecutions under the MSA, representing a more than fourfold increase relative to the number of prosecutions before the introduction of the Act. While these were prosecutions against individuals, they may also have brought reputational damage to companies connected with the convictions (Churchill, 2017). Companies might also suffer from costly supply chain disruptions if ships carrying their freight are examined in the context of other parts of the MSA (MSA, 2015a).

flow gains for firms with a good track record of addressing the risk of slave labor in their business or supply chains, and incremental cash flow losses for firms with a bad track record of addressing this risk. For example, low-slavery-risk firms might be able to charge higher prices to customers and have more motivated employees through reputation enhancement (Flammer, 2015; Pigors and Rockenbach, 2016), while high-slavery-risk firms may become more vulnerable to stakeholder actions such as protests and litigation following the MSA's adoption (King and Soule, 2007; Koh et al., 2014). To the extent that high-slavery-risk firms find it too difficult or costly to reduce their slavery risk, demonstrated low slavery risk may provide a long-term competitive advantage to firms following the adoption of the MSA (Hart, 1995; Porter and Van der Linde, 1995; Hart and Dowell, 2011; Flammer, 2013; Grewal et al., 2018). We thus obtain an expectation of more favorable MSA-related stock price reactions for low-slavery-risk firms. On the other hand, investors might believe that high-slavery-risk firms will be successful at taking slavery-risk-reducing actions following the MSA's adoption, thereby avoiding the negative cash flow effects associated with the risk of slave labor, and potentially increasing their operational efficiency (Shleifer, 2004; Gualandris et al., 2015). As such, investors might perceive the incremental benefits of the MSA to be higher for high-slavery-risk firms than for their lower-risk counterparts. Under this viewpoint, we obtain a prediction of more favorable MSA-related stock price reactions for high-slavery-risk firms. Moreover, investors might expect the MSA to be a catalyst for future, potentially more stringent government regulations regarding modern slavery issues, which may provoke additional positive and negative cash flow effects (Thomson Reuters, 2015).

Secondly, we expect stock price reactions to be influenced by a firm's pre-regulatory Corporate Social Responsibility (CSR) disclosure levels. In contrast to our first cross-sectional hypothesis, this prediction pertains specifically to the TISC clause, as no other part of the MSA places enhanced disclosure requirements on firms. The direction of the expected impact of CSR disclosure on stock price reactions is also unclear a priori. To the extent that CSR disclosures were already at optimal levels prior to the TISC clause's introduction, stock price reactions should be less favorable for firms with lower CSR disclosure levels, as these firms would likely face higher costs associated with new disclosure requirements. In the context of the TISC clause, disclosure costs could take the form of

proprietary costs (Verrecchia, 1983), political costs (Watts and Zimmerman, 1978), and direct costs associated with drafting the statements. To the extent that CSR disclosure levels were inefficiently low prior to the TISC clause's introduction, however, stock price reactions should be more favorable for firms with lower levels of CSR disclosure. These firms should be able to realize higher net cash flow gains from improving their CSR disclosure quality, including benefits from cost of capital reductions (Lambert et al., 2007) and operational efficiency increases associated with improved monitoring (Grewal et al., 2018).

Our baseline sample consists of UK-domiciled firms included in the FTSE All-Share Index. The sample for the univariate analysis of stock price reactions consists of 357 firms. The sample for the cross-sectional analysis reduces to 205 firms, due to more stringent data availability requirements. The adoption of the MSA resulted from a process that evolved over several years and included eight potentially relevant events. We use a policy event study approach based on Schipper and Thompson's (1983) event study methodology to account for the fact that all events occur on the same trading dates for all firms (Lewis and Verwijmeren, 2014). We detect no significant stock price reaction for the eight MSA adoption events combined, nor for any individual event date. We report a large battery of robustness tests, which all confirm that the stock price reactions are insignificant.

Our key focus is on the role of slavery risk and CSR disclosure levels in explaining stock price reactions to the MSA. We find that abnormal stock returns are more favorable for firms with lower slavery risk in their focal business and supply chains, as proxied by pre-regulatory exposure to social incidents and by labor standards policies. This result is consistent with low slavery risk providing a competitive advantage to firms. Stock price reactions are unaffected by variables capturing CSR and overall disclosure levels. One explanation for the latter result may be that investors believe pre-regulatory information disclosures do not cover the additional elements required by the TISC clause, so that a firm's prior disclosure levels are largely irrelevant to the assessment of the incremental costs and benefits of the clause. Interestingly, results for industry-specific slavery risk proxies suggest that stock price reactions are more favorable for firms in industries with a higher risk of slave labor. Investors may expect high-slavery-risk industries to realize cash flow benefits by 'cleaning up their act' following the passing of the MSA. Our cross-sectional results are stable across a wide range of

robustness tests. Reassuringly, a placebo test indicates that our cross-sectional findings do not occur on non-event dates.

While a large body of literature examines modern slavery from historical, philosophical, and social scientific perspectives, the management literature has been largely silent on this issue (Crane, 2013; New, 2015). Our paper contributes to the literature by examining stock price reactions to the adoption of modern slavery regulation. Overall, our findings suggest that the MSA has heightened investor concerns about the cash flow implications of having slave labor in firms' focal businesses or supply chains. While the average stock price reaction to the MSA adoption is insignificant, our analysis uncovers a significant moderating role of slavery risk measures. Firms with low firm-specific slavery risk, operating in high-slavery-risk industries, have the most favorable cumulative abnormal stock return associated with the MSA's adoption, while firms with high firm-specific slavery risk, operating in low-slavery-risk industries, have the least favorable cumulative abnormal stock return. We hope that our study may be relevant for policy makers who are considering similar modern slavery regulations to the UK.

## **2. Related literature**

The MSA and its TISC clause address labor conditions in firms' focal businesses and supply chains, as well as transparency regarding these conditions. As such, our work is positioned within the literature on socially responsible sourcing and corporate disclosure. The remainder of this section briefly discusses the most relevant papers in each of these two strands of literature, and explains how our paper contributes to these areas of research.

### *2.1. Literature on socially responsible sourcing*

Social responsibility in supply chains has received growing attention in the academic community.<sup>4</sup> A first stream of work within this literature focuses on the antecedents of socially responsible sourcing practices (Jiang, 2009; Distelhorst et al., 2016). A second stream, more relevant

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<sup>4</sup> Although the term 'social' is sometimes used to refer to both environmental and labor-related issues in supply chains, in this paper we use it strictly to refer to labor-related issues, as in Distelhorst et al. (2016) and Huq et al. (2016). Examples of social violations include using forced labor and having poor standards of employee safety.

to our work, examines the consequences of socially responsible sourcing approaches. Within this stream, several theoretical studies document that consumer and policy initiatives aimed at improving supplier social responsibility can have unintended social outcomes, such as increased use of child labor (Basu and Zarghamee, 2009; Cho et al., 2015; Plambeck and Taylor, 2015; Guo et al., 2016). Another thread focuses specifically on labor standards, such as the effects of supplier codes of conduct (Yu, 2008; Jiang, 2009; Huq et al., 2016), or the introduction of new management systems such as lean manufacturing (Distelhorst et al., 2016). Other studies have addressed the effects of socially responsible sourcing initiatives on firm performance, mostly via survey methods (Gallear et al., 2012; Hollos et al., 2012; Lee et al., 2013; Porteous et al., 2015). Most closely related to our work, Jacobs and Singhal (2017) use event study methodology to examine stock price reactions to the Rana Plaza factory disaster for a sample of 39 global apparel retailers with significant sourcing in Bangladesh. They find that the total shareholder wealth effect of the disaster is insignificant, and there is no stock price impact for voluntarily-adopted worker and factory safety agreements following the event. Differently to them, we focus on the stock price effects of government-imposed, rather than voluntary-adopted, rules aimed at reducing social violations.

On a broader level, our paper relates to studies on the link between CSR and corporate financial performance. A meta-analysis of 52 papers suggests a positive relation between the two (Orlitzky et al., 2003). A resource-based explanation for this positive relation holds that strong CSR performance provides a sustainable competitive advantage (Hart, 1995; Porter and Van der Linde, 1995; Hart and Dowell, 2011). Another, non-mutually exclusive explanation maintains that CSR can positively affect firm value by acting as a risk management tool (Heal, 2005; El Ghouli et al., 2011). The rationale behind this ‘risk management’ view is that strong CSR performance can reduce the company’s risk of getting involved in costly conflicts with societal stakeholders (King and Soule, 2007; Koh et al., 2014).

## *2.2. Literature on corporate disclosure*

Two streams of research on corporate disclosure are relevant to our work. Firstly, our paper relates to studies on firms’ disclosure of their CSR activities (‘CSR disclosure’). Within this literature,

most studies focus on determinants of the level and extent of CSR disclosure (Gray et al., 1995; Fifka, 2013). Specific examples of studies in this area include O'Dwyer (2002), who examines managerial perceptions of CSR disclosure, Perego and Kolk (2012), who document the drivers of third-party assurances in sustainability reports, and Rimmel and Jonäll (2013), who analyze Swedish firms' biodiversity reporting practices. Particularly relevant to our study, a few papers analyze disclosure practices in the context of firms' supply chains. Doorey (2011) provides case studies of Nike's and Levi's decisions to provide full disclosure of their factory lists. Kalkanci and Plambeck (2018) develop a game theoretic model of a firm's voluntary disclosure of its suppliers' social and environmental impacts. They document that, under certain conditions, mandatory disclosure requirements can backfire in that they might increase suppliers' impacts. Gualandris et al. (2015) argue that accounting for sustainability issues in supply chains can reduce the risk of supply chain disruptions. A limited number of studies examine the economic consequences of CSR disclosure in terms of its impact on firm value (Belkaoui, 1976; Ingram, 1978), capital constraints (Cheng et al., 2014), and cost of capital (Dhaliwal et al., 2011). Our work complements these studies with an analysis of the stock price effects of governmental supply chain transparency regulation, rather than voluntary CSR disclosure initiatives.

As such, our work also relates to a stream of policy event studies on the stock price effects of mandatory corporate disclosure. Recent years have seen a substantial increase in disclosure regulation (Doshi et al., 2013). Examples of regulations covered in event studies include fair value accounting rules (Beatty et al., 1996; Cornett et al., 1996), International Financial Reporting Standards (Armstrong et al., 2010; Joos and Leung, 2012), and the Sarbanes-Oxley Act (Jain and Rezaee, 2006; Zhang, 2007; Li et al., 2008). While these regulations pertain to the disclosure of financial information, Grewal et al. (2018) examine the stock price effects of the passing of European Union (EU) regulation requiring new disclosure related to firms' environmental, social, and governance (ESG) performance. They do not examine modern slavery disclosure regulation.



### **3. Event definition and history**

In this section, we describe the MSA and outline the relevant events associated with its adoption.

#### *3.1. The MSA and its TISC clause*

The UK was a global pioneer in, at least in theory, abolishing the slave trade in 1807. Nevertheless, slavery practices continue to exist in the UK today (Haynes, 2016). An estimated 3,266 potential slavery victims from 103 different countries of origin were referred to the National Referral Mechanism in 2015 (National Crime Agency [NCA], 2016). Against this backdrop, the UK Government introduced the MSA with the intention of curbing modern slavery in corporate businesses and supply chains.

The first five parts of the MSA are primarily aimed at governments, law enforcement agencies, and non-governmental organizations. They outline modern slavery offences, slavery and trafficking prevention orders, enforcement actions, and victim protection measures previously located within two separate Acts (Mantouvalou, 2010; MSA, 2015a). Part 6 (Section 54) of the MSA, labelled the Transparency in Supply Chains (TISC) clause, is aimed at companies. It requires all organizations with a minimum turnover of £36 million and carrying out any part of their business in the UK to provide an annual statement on their websites and in their annual reports about what they are doing to address modern slavery in their business and supply chains. This TISC statement should be approved by the board of directors or an equivalent management body, and signed by a designated non-executive company director or a general partner in the case of a limited partnership (MSA, 2015b).

The MSA does not dictate what a TISC statement must include or how it should be structured. It does, however, provide a non-exhaustive list of information that may be included. More particularly, a TISC statement should aim to provide information in the following reporting areas: (i) the organization's structure, its business and its supply chains; (ii) its policies in relation to slavery and human trafficking; (iii) its due diligence processes in relation to slavery and human trafficking; (iv) the parts of its business and supply chains where there is a risk of slavery and human trafficking, and the steps it has taken to assess and manage that risk; (v) its effectiveness in ensuring that slavery and

human trafficking are not taking place in its business or supply chains; and (vi) the training and capacity building regarding slavery and human trafficking available to its staff (MSA, 2015b).

In principle, firms can comply with the TISC clause by stating that they have taken no steps to ensure that their business and supply chains are slavery free. If a firm does not produce any TISC statement for a particular financial year, it may receive an injunction through the High Court requiring compliance. Failure to comply with the injunction would imply contempt of a court order, punishable by an unlimited fine (MSA, 2015b).

### *3.2. Event history*

We obtain the event dates for our study through a search on Factiva and other online sources such as the UK Parliament's website, using relevant key words and acronyms (e.g., 'Modern Slavery Bill', 'Modern Slavery Act', 'MSA', 'Transparency in Supply Chains', 'TISC'). We identify a relevant event date as a day on which incremental information related to the adoption of the MSA and its TISC clause (as the two cannot be disentangled) was publicly revealed. In line with Hendricks et al. (2015), we use time stamp information on the press releases associated with the announcements to convert calendar dates into event dates. If the announcement occurs before the stock market closes on a trading day, we use that calendar day as the announcement date. If the announcement is made after the stock market closes on a trading day, or at any time on a non-trading day, we use the next trading day as the relevant event date. For example, one of the events (event 2) represents a newspaper article published on Sunday August 25, 2013. As the subsequent day was a UK bank holiday, the relevant event date corresponding to that event is Tuesday August 27, 2013. We presented an initial list of event dates to the UK Parliament and the UK Home Office in the autumn of 2015. With the help of their representatives, we further refined the list. Table 1, Panel A provides an overview of the eight relevant event dates resulting from this exercise. We now describe each of the event dates in more detail.

<< Please insert Table 1 about here >>

On March 11, 2013 (event 1), the Centre for Social Justice (CSJ), an independent think tank, released a report titled 'It Happens Here' on its website (CSJ, 2013). The CSJ's report outlined

proposed legislation tackling modern slavery, including supply chain disclosure requirements similar to those in the TISC clause, and recommended for this to be enacted. While a wide range of organizations and individuals called for supply chain transparency legislation, this report in particular is regarded as having been a major catalyst for the MSA and its TISC clause, and therefore chosen as the first relevant MSA adoption event (Wallis, 2015). Event 2, on August 27, 2013, consists of Theresa May's announcement that there would be a Modern Slavery Bill (Leppard, 2013).<sup>5</sup> In the same newspaper article, she mentioned the main disclosure requirements of the TISC clause, but did not explicitly name the clause. On October 11, 2013 (event 3), Theresa May asked Labour MP Frank Field to chair an evidence review in preparation for the introduction of a new Modern Slavery Bill (Grierson, 2013). Experts from the UK and the international community were invited to outline what they thought should be included in the legislation. On December 16, 2013 (event 4), a draft Modern Slavery Bill was published and submitted for pre-legislative scrutiny (Morris, 2013). The draft Bill recommended that the UK Government adopt legislation regarding the disclosure of modern slavery issues, to apply to all companies over a certain size doing business in the UK and to build and improve on Californian modern slavery disclosure regulation. Events 1 to 4 have the common characteristic of being associated with an increased likelihood of the adoption of the MSA and its TISC clause. In contrast, on April 8, 2014 (event 5), an event occurred that might have reduced the perceived likelihood of the TISC clause's adoption. On that day, the pre-legislative scrutiny committee published a report on the draft Bill (UK Parliament, 2014a). While the committee members agreed with the principle of requiring companies to provide a supply chain transparency statement, they suggested it could be included as part of the strategic information in companies' annual reports, rather than as a separate item. This recommendation went against one of the key elements of the TISC clause, that the supply chain transparency statement should feature *prominently* and *as an independent item* in corporate annual reports and on corporate websites. Moreover, the committee recommended against making individual company directors responsible for the annual supply chain transparency statement, arguing "*At this stage, legislating to specify companies' internal accountability*

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<sup>5</sup> A Bill becomes an Act if it is approved by the House of Commons and the House of Lords and is formally agreed to by the reigning monarch (known as the Royal Assent). An Act of Parliament is a law, enforced in all areas of the UK where it is applicable (UK Parliament, 2017).

*arrangements for modern slavery eradication is not justified.*” We therefore consider this an event that would have decreased the likelihood of full adoption of the TISC clause in the eyes of investors.

After this apparent setback, the final three events again increased the likelihood of full adoption of the MSA and its TISC clause. On June 10, 2014 (event 6), the UK Government published a response to the pre-legislative committee’s report, alongside the introduction of the Modern Slavery Bill to Parliament (Home Office, 2014). The Bill was close in spirit to the original recommendations made by the CSJ report (i.e., it was not a watered-down version). On November 4, 2014 (event 7), the TISC provision was formally added to the Modern Slavery Bill by a Government amendment at the Commons report stage (UK Parliament, 2014b). Finally, on March 25, 2015, after stock market closure (event 8), the MSA received Royal Assent in Parliament (Nguyen and Guilbert, 2015).

Table 1, Panel B also includes the dates of four additional events following event 1 identified through our key word search, but omitted from our baseline event study analysis because they did not provide new information related to the likelihood of the MSA’s adoption. More particularly, events 9 and 10 involved a mere mention of the Modern Slavery Bill in speeches, without accompanying relevant and incremental information. Event 11 was when the MSA formally came into force. This event should have been fully anticipated by investors given that the Act had received Royal Assent as of event 8. We mention event 12 last of all because it only pertains to a subset of our sample firms. For completeness, we examine the stock price effects of these four additional events in robustness tests discussed in Section 5 of this paper.

#### **4. Hypothesis development**

The literature on socially responsible sourcing and corporate disclosure suggests a range of channels through which the MSA could affect investors’ perceptions of affected firms’ discounted future cash flows. For example, the MSA may increase public awareness of the extent to which firms are affected by slavery issues. This could in turn result in cash-flow-enhancing stakeholder actions (e.g. a willingness to pay a premium price) towards firms able to demonstrate low slavery-risk exposure, and cash-flow-decreasing stakeholder actions (e.g. consumer boycotts) towards firms perceived as having high slavery-risk exposure. The MSA could also result in corporate actions aimed

at reducing slavery risk, which may yield benefits in the form of more efficient operations, and costs in the form of higher input prices. Moreover, investors may perceive the MSA as a catalyst for future modern slavery regulations, which may bring additional benefits and costs.

While these examples pertain to both the MSA and its TISC clause, the additional disclosure requirements under the TISC clause might also affect shareholder wealth. The traditional theoretical view of corporate disclosure regulation is that government intervention is at best ineffective and at worst harmful to shareholder value (Coase, 1960; Stigler, 1964), since firms voluntarily adopt efficient corporate disclosure practices. In this setting, mandatory disclosure regulations force some firms to disclose a larger than optimal amount of information. An alternative view holds that firms' voluntary disclosure levels are insufficient, potentially due to agency costs (Greenstone et al., 2006), which may mean that mandatory disclosure requirements produce positive shareholder wealth effects.

There is also a possibility that the MSA generates no significant stock price reaction at all. For this prediction to hold, investors would have to anticipate no cash-flow-affecting stakeholder actions towards firms, nor any adjustments in corporate (disclosure) behavior following the passing of the Act. In support of this viewpoint, an initial report on the content of TISC statements suggests that most firms adopt a mechanical 'box ticking' approach, with the majority of the FTSE 100 constituents producing statements lacking meaningful information (Business & Human Rights Resource Centre [BHRRC], 2018). Mantouvalou (2018) argues that the minimalist, soft-touch approach of the MSA might create the impression among firms that they can get away unscathed, even if they do not take serious steps to address modern slavery. However, inconsistent with the viewpoint that the MSA and its TISC clause do not matter, slightly more than 50% of the UK firms required to comply with the TISC clause had provided at least one TISC statement as of the end of 2017 (Tiscreport.org, 2018). The same recent BHRRC report finds encouraging improvements in firms' TISC reporting practices in 2017, compared with the year before. It notes that an effective approach towards modern slavery takes time to develop, with many companies having only just started to implement policies. The report also demonstrates that some leading firms show strong engagement with the requirements of the TISC

clause (BHRRC, 2018).<sup>6</sup> In conclusion, while actual compliance seems patchy, and there is room for improvement in firms' TISC statements, it is unlikely that investors would have expected widespread non-compliance with the clause at the time of our eight MSA adoption events. Investors might also not have reacted to the MSA because they were unaware of it, or expected firms and their stakeholders to be unaware of it. While some firms indeed seem to have no knowledge of the implications of the Act (Ergon Associates, 2017; Mantouvalou, 2018), a key word search we conducted in Factiva suggests the MSA and its TISC clause received widespread media attention during our abnormal stock return estimation period. This makes it unlikely that the parties relevant to our research were unaware of the new regulation.<sup>7</sup>

In summary, we do not have a clear prediction regarding the sign of the average stock price reaction to the MSA. While we believe it is unlikely the MSA has no predicted cash flow implications, or that relevant parties have no knowledge of the Act, we keep a 'no result' option open as well. If investors do expect the MSA to be relevant to future cash flows, we expect their reaction to be influenced by two factors, i.e. slavery risk and CSR disclosure levels. We further justify these potential stock price reaction determinants, which both have a sound foundation in the literature and are the key focus of our empirical tests, in the following subsections.

#### *4.1. Impact of slavery risk on stock price reactions*

We define slavery risk as a firm's ex-ante (pre-regulatory) likelihood of exposure to modern slavery incidents, through its focal business or supply chain. Grewal et al. (2018) argue that new EU regulation regarding the disclosure of non-financial information might make investors more sensitive to non-financial information when selecting stocks. In a similar vein, we predict that the MSA will

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<sup>6</sup> The BHRRC report cites Marks & Spencer (M&S) as an example of a leading firm in the area of modern slavery reporting. M&S's TISC statement suggests strong performance in each of the six recommended reporting areas suggested by the UK Government (MSA, 2015b). Examples of firms with very vague TISC statements cited in the report are Paddy Power and Betfair.

<sup>7</sup> Specifically, a relevant key word search in Factiva over the estimation period of March 11, 2013 (event 1) to March 31, 2015 (event 8) yields 910 non-duplicate news items related to the adoption of modern slavery regulation in the UK (we exclude the acronyms MSA and TISC from this search as they yield too many unrelated hits).

cause investors to place a higher weight on slavery risk in their portfolio allocation decisions, for the following three potential reasons.

First, the MSA could result in cash-flow-affecting actions by a range of stakeholders of the firm. Customers are a first important group of stakeholders who may be affected by the MSA. While there is no literature so far on the relation between a firm's exposure to slavery incidents and customer actions, the preponderance of empirical evidence suggests that CSR activities in general generate stronger purchase intentions and brand loyalty (Bhattacharya and Sen, 2004), as well as a higher willingness to pay (Pigors and Rockenbach, 2016). Customers may be more favorably inclined towards low-slavery-risk firms following the MSA, as these firms may find it easier to produce TISC statements demonstrating a low likelihood of involvement in modern slavery, and face a lower risk of being named in the context of MSA-related convictions. Other stakeholders whose behavior may be affected by the MSA are employees. Following the enhanced societal awareness of modern slavery induced by the MSA, employees might have a higher willingness to work for low-slavery-risk firms, and exhibit higher labor productivity in such firms (Flammer, 2015). Finally, capital market participants themselves may be more willing to extend financing to low-slavery-risk firms following the increased salience of modern slavery issues after the MSA's introduction (Beatty and Ritter, 1986; Hong and Kacperczyk, 2009; Cheng et al., 2014). Conversely, firms with a poor track record of addressing slavery issues in their business and supply chains might be forced to reveal their poor performance under the TISC clause. High-slavery-risk firms also face a higher ex-ante risk of being named in the context of MSA-related slavery convictions, and may suffer from adverse stakeholder actions resulting from a heightened societal awareness of modern slavery issues following the Act's introduction (Flammer, 2013). Examples of such actions include consumer boycotts (Creyer, 1997), social protests (King and Soule, 2007), and litigation (Koh et al., 2014). In conclusion, low slavery risk might generate various benefits, resulting from positive stakeholder actions and a lower risk of adverse stakeholder actions, and as such result in a competitive advantage for firms.

Second, in addition to stakeholder actions, the MSA could also result in cash-flow-affecting actions taken by firms themselves. Indeed, the UK Government explicitly expressed hopes that the TISC clause would create a 'race to the top' and encourage firms to take steps to eradicate modern

slavery, “(...) so that they have more to disclose in their annual transparency statements” (Home Office, 2015b). Slavery-reducing corporate actions could lead to higher expected cash flows by encouraging positive stakeholder actions and reducing negative stakeholder actions towards the firm. Corporate actions to reduce slavery incidents could also improve operational efficiency, for example through reducing the risk of supply chain disruptions by moving production towards ‘higher-cost’ manufacturing environments (Brandon-Jones et al., 2017), and lead to innovations (Porter and Van der Linde, 1995). Obviously, corporate actions spurred by the MSA could also result in higher costs, by reducing the use of modern slavery as a source of cheap labor (Shleifer, 2004). However, under the widely (though not universally) shared presumption that managers act in the interests of shareholder wealth maximization (McConnell and Muscarella, 1985), firms would only make changes in their focal business and supply chains insofar as the anticipated benefits of these changes outweigh the costs. Investors may thus predict cash-flow-enhancing corporate actions following the MSA’s introduction, the incremental benefits of which could be stronger for high-slavery-risk firms.

Third, investors might expect the MSA to be a prelude to other governmental actions aimed at reducing modern slavery. More particularly, they may expect the Act to be followed up by potentially more stringent slavery regulation, either in the UK or other countries where the companies have operations (Thomson Reuters, 2015; BHRRC, 2018). The perceived net benefits of these additional regulations are again likely to be influenced by a firm’s slavery risk. Moreover, investors may expect increased governmental scrutiny of firms not complying with the TISC clause. For example, some sources argue for public contract bids to be restricted to companies demonstrating due diligence in their modern slavery statements (BHRRC, 2018). Investors may anticipate such contractual constraints, which should be more binding for high-slavery-risk firms, to come into effect along with the introduction of the MSA. Finally, investors might expect an increased likelihood of freight searches by government officials following the MSA’s adoption, which might cause costly delays and supply chain disruptions, especially for high-slavery-risk firms.

To summarize, while we expect slavery risk to influence stock price reactions to the MSA, the predicted direction of its effect is unclear. More particularly, high-slavery-risk firms are less (more) likely to be targeted by positive (negative) stakeholder actions, but could also realize higher



incremental benefits from adjustments in their focal business or supply chains following the introduction of the MSA, while governmental actions such as additional regulation do not yield a clear prediction. We thus obtain the following dual hypothesis:

*H<sub>1a</sub>: Stock price reactions to the MSA are negatively affected by slavery risk.*

*H<sub>1b</sub>: Stock price reactions to the MSA are positively affected by slavery risk.*

#### *4.2. Impact of CSR disclosure on stock price reactions*

The MSA's TISC clause imposes additional disclosure requirements on firms. Therefore, we expect stock price reactions to be affected by the extent and level of a firm's pre-regulatory disclosure of their CSR activity, which we label 'CSR disclosure'. The direction of the effect will depend on whether investors believe that firms provided sufficient CSR disclosure before the introduction of the MSA. If investors perceive pre-regulatory CSR disclosure to be at optimal levels, the TISC clause will force some firms to disclose more than their optimal amount of CSR information, which could have a negative impact on future cash flows through various disclosure costs. These costs could take the form of proprietary costs resulting from having to share valuable supply chain information with competitors under the TISC clause (Verrecchia, 1983). However, Doorey (2011) argues that such costs are likely to be small in the context of supply chain transparency, since most firms have easy access to information about their industry peers' supply chains. Firms may also incur political costs resulting from stakeholder pressure to undertake projects with non-positive net present value (Watts and Zimmerman, 1978). Furthermore, there may be direct costs associated with drafting and publishing TISC statements. The UK Government argues these costs should be low, however, as the TISC clause is set up to be a 'light touch' reporting requirement.<sup>8</sup> Under this optimal disclosure scenario, firms with low CSR disclosure levels are predicted to incur the strongest cash flow declines caused by the TISC clause, as their low pre-regulatory disclosure levels are likely driven by high disclosure costs. We thus obtain the following prediction:

*H<sub>2a</sub>: Stock price reactions to the TISC clause are positively affected by CSR disclosure levels.*

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<sup>8</sup> In the Home Office's impact assessment notes for the MSA, the direct costs of drafting TISC statements are estimated at approximately £1,390 per business, spread over a period of ten years (Home Office, 2015b).

If investors perceive pre-regulatory CSR disclosure to be suboptimal, by contrast, the TISC clause could bring some firms closer to their optimal levels of disclosure. This could have a positive effect on future cash flows for the following reasons. First, irrespective of its content, the provision of additional information could in itself result in a reduced cost of capital by lowering information risk, since private information is turned into public information (Easley and O'Hara, 2004; Lambert et al., 2007; El Ghouli et al., 2011). Second, the increased information provision under the TISC clause might enable firms to monitor their supply chains more closely, thereby making operations more efficient (Gualandris et al., 2015; Grewal et al., 2018). Under this viewpoint, firms with low CSR disclosure levels should be able to realize larger incremental gains from the introduction of disclosure regulation (Zhang, 2007). Hence:

*H<sub>2b</sub>: Stock price reactions to the TISC clause are negatively affected by CSR disclosure levels.*

## **5. Average stock price reaction to the MSA**

This section discusses the sample and methodology used for our univariate analysis of stock price reactions to the MSA, as well as the results of this analysis.

### *5.1. Sample construction*

Since the TISC clause is the only part of the MSA directly aimed at companies, we restrict our baseline analysis to firms affected by the clause. The TISC clause pertains to any commercial organization conducting (part of) its business in the UK, and with a consolidated global turnover of £36 million or higher (MSA, 2015a). According to official TISC guidance, the UK Home Office expects a common-sense approach to prevail in the determination of whether an organization has a demonstrable business presence in the UK (MSA, 2015b). However, 'common sense' has widely diverging interpretations and may vary with the specific circumstances of a case (Insight ResponsAbility, 2015). Given the ambiguity associated with the identification of non-UK firms affected by the TISC clause, we restrict our baseline analysis to publicly quoted firms domiciled in the UK. We consider alternative samples of firms in robustness tests.

As our initial dataset, we take the constituents of the FTSE All-Share Index as of March 11, 2013, the date of the first event we examine (event 1). The FTSE All-Share Index represents the performance of all eligible companies listed on the London Stock Exchange's Main Market that pass screening for size and liquidity. It aggregates the FTSE 100, 250, and Small Caps indices, and aims to capture 98% of the full value of the UK's market capitalization. We obtain index constituents from Datastream, ending up with 602 firms in total. Table 2 summarizes the subsequent sample construction steps, as well as the number of observations resulting from each step. We remove non-UK-domiciled companies, as well as companies without stock price information available from the first to the eighth MSA adoption event. We also remove investment trusts and private equity firms, as our unit of analysis is the firm rather than an investment vehicle. After eliminating firms with annual sales falling below the £36 million TISC threshold, we obtain a baseline sample consisting of 357 firms. This sample represents 81% of the total market capitalization of the 602 FTSE All-Share Index constituents in our initial sample.<sup>9</sup> The sample that we can use in the baseline cross-sectional analysis is smaller due to additional data availability constraints for the measures used in the cross-sectional analysis. More particularly, while Worldscope data are available for all of the 357 firms, requiring data availability in Asset4 and Thomson Reuters ESG Research Data leads to a decline in the number of usable observations to 283, and requiring data availability in RepRisk to a further drop to 205. This final sample still represents 75% of the total market capitalization of our raw sample.

<<Please insert Table 2 about here>>

## 5.2. Methodology

For the univariate analysis of stock price reactions, we use an approach based on Schipper and Thompson's (1983) event study methodology, consistent with several other event studies examining clustered events (Li et al., 2008; Knittel and Stango, 2013; Lewis and Verwijmeren, 2014). Also following previous policy event studies (Zhang, 2007; Li et al., 2008; Armstrong et al., 2010; Lewis and Verwijmeren, 2014; Grewal et al., 2018), our analysis focuses on the stock price reaction across

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<sup>9</sup> The total market capitalization of the 602 FTSE All-Share Index constituents in our initial sample, as of March 4, 2013 (one week before event 1), was £2,116 billion. The sum of the market capitalizations of our 357 sample firms as of that date was £1,717 billion.

the eight identified events associated with the adoption of the MSA combined. Aggregation across events reduces noise that may result from any particular event. We estimate the following regression analysis over the period July 1, 2012 to March 31, 2015:<sup>10</sup>

$$R_{pt} = \alpha_p + \beta_p R_{mt} + \gamma_p D_t + \varepsilon_{pt} \quad (1)$$

$R_{pt}$  is the value-weighted return on the portfolio of sample firms, with market values as of March 4, 2013 (obtained from Datastream) as weights.  $R_{mt}$  is the return on the market index. In our baseline analysis, we use a value-weighted market index obtained from Datastream, capturing European countries but excluding the UK (Datastream code TOTKMEX). We express the market index in UK pounds to mitigate the impact of currency fluctuations on our results. The Pearson correlation between the returns on this market index and the value-weighted return on our sample firms over the estimation period, excluding the event dates, is very high (0.83), suggesting that this index provides a good counterfactual for our event study analysis.  $D_t$  is a dummy variable capturing the eight MSA adoption announcements. We set  $D_t$  equal to one on the announcement dates of the events that increase the likelihood of full adoption of the TISC clause. Event 5 is the only event that we predict would have decreased rather than increased this likelihood. For event 5, we therefore give  $D_t$  a value of minus one, in line with Schipper and Thompson (1983).  $D_t$  is equal to zero on all other estimation period days.  $\varepsilon_{pt}$  is an error term.  $D_t$ 's coefficient  $\gamma_p$  captures the average abnormal stock return per event date, estimated over the eight events combined (Akyol et al., 2012; Lewis and Verwijmeren, 2014).

### 5.3. Results

Table 3 reports the results of our univariate analysis of stock price reactions. Panel A reports the coefficient  $\gamma_p$  for Equation (1), estimated for our baseline sample. We test each of the time-series regressions for autocorrelation using a Breusch-Godfrey test with a lag length of two. If this test does not reject the null hypothesis of no autocorrelation, we base our reported significance levels for  $\gamma_p$  on

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<sup>10</sup> We set the first date to be well before March 11, 2013 (event 1). We choose the end date to fall at the end of the calendar month of our final event, March 26, 2015 (event 8).

unadjusted ordinary least squares (OLS) standard errors. If the test does reject the null hypothesis, we base the significance levels on Newey-West standard errors, using a lag length of two. The latter instance occurs only for a number of robustness tests in which we use a world market index.

Row (1), Column (2) provides the baseline results. It shows an estimated  $\gamma_p$  coefficient of 0.0038%, translating into a very small total abnormal stock return of 0.03% (0.0038 multiplied by 8) for the eight events combined. The coefficient is not statistically significant. Columns (3) to (5) provide sensitivity tests of this baseline result. Column (3) uses an equal- instead of market-value-weighted portfolio of the 357 sample firms. Column (4) uses a world market index instead of a European market index. In Column (5), we set the event dummy variable in the time-series regression equal to one on the eight event dates, as well as on the dates of the three additional events 9 to 11 outlined in Table 1. We estimate this regression over a period extending until December 31, 2015. We again find no significant day-0 stock price reaction for these three alternative regressions.

<<Please insert Table 3 about here>>

Some event studies incorporate the trading day following the event date in their event window, to control for announcements taking place post stock market closure or on non-trading days (Kim and Klein, 2017). Some studies also include the trading day before the event date, to account for potential investor anticipation of the event (Gagnon and Karolyi, 2018). For completeness, we therefore test for abnormal stock returns on the trading days after and before the event dates, by re-estimating Equation (1) with different definitions of the event dummy variable  $D_t$ . In Row (2), we set  $D_t$  equal to one for the event date and the trading day after the event date, except in the case of event 5 where we set it equal to minus one on these days. In Rows (3) and (4), we adopt analogous definitions of  $D_t$  for event windows including the trading day before the event date. These alternative event dummies have no significant coefficients either. Following the general rule that event study windows should be as short as possible to mitigate contamination from surrounding events (McWilliams and Siegel, 1997), we use a one-day event window in the remainder of our study, consistent with several other policy event studies (Chhaochharia and Grinstein, 2007; Larcker et al., 2011).

Although we are primarily interested in the stock price effects of the eight events combined, we also verify the abnormal stock return associated with each of the eight individual events by estimating the following regression:

$$R_{pt} = \alpha_p + \beta_p R_{mt} + \sum_{k=1}^8 \gamma_{pk} D_{kt} + \varepsilon_{pt} \quad (2)$$

$D_{kt}$  is a dummy variable equal to one on the announcement date of event  $k$ , and zero otherwise.  $D_{kt}$ 's coefficient  $\gamma_{pk}$  captures the abnormal stock return associated with event  $k$ , and is therefore our main coefficient of interest. All other regression parameters are defined as in Equation (1). Table 3, Panel B reports the  $\gamma_{pk}$  coefficients for the individual event dates. We do not find significant stock price reactions to any of the eight events.

Finally, Panel C replicates the analysis in Panel A for a number of alternative samples. Firms that are too small to fall under the TISC clause might still want to comply with the requirements of the clause, following an increase in societal awareness around modern slavery issues resulting from the MSA. Consistent with this intuition, an initial analysis of TISC statements suggests that 9% of these statements come from firms with sales below the TISC threshold (Ergon Associates, 2017). Moreover, firms that do not fall under the TISC clause may still be affected by other elements of the MSA, such as an increased risk of slavery-related convictions. Row (1) therefore examines a portfolio of UK firms constructed following the cleaning steps listed in Table 2, except that we impose the restriction that they have an annual turnover lower than £36 million. We do not find significant stock price reactions. We note, however, that this portfolio only includes 12 firms, as most FTSE All-Share Index constituents have a turnover well above £36 million. This small number of uncovered firms implies we cannot conduct a meaningful difference-in-differences analysis with respect to the sample covered by the TISC clause.

Firms with annual sales between £36 million and £1 billion may still have faced some uncertainty during our estimation period as to whether they would fall under the TISC clause. The reason is that the UK Government ran a consultation exercise to determine the TISC turnover threshold between February and May 2015. The four options for turnover thresholds provided to the respondents ranged between £36 million and £1 billion. On July 29, 2015, it was announced that the

threshold would be set at the lowest of these, £36 million. This threshold was arguably the most probable and therefore largely anticipated, as £36 million is also used in the Companies Act 2006 to define large businesses for other reporting requirements (Home Office, 2015c). Row (2) shows that we find no significant stock price reaction for the subset of firms with sales between £36 million and £1 billion. In an unreported test, we also find no abnormal return for these firms on July 29, 2015, which corresponds to event 12, outlined in Table 1. Row (3) limits the portfolio to the sample of 205 firms used in the baseline cross-sectional analysis, and shows no significant abnormal stock returns for these firms either.

Since the timing of the MSA-related events examined in our study is likely to be exogenous to individual firms, firms should not be able to time certain types of announcements to coincide with these events. We therefore do not expect our univariate results to be biased due to the presence of contaminating firm-specific announcements. Nevertheless, for completeness, we re-estimate the portfolio analysis excluding firms that have made at least one material announcement on any of the eight MSA-related event dates. Our definition of material announcements includes earnings, mergers and acquisitions, share issuances, (convertible) bond issuances, loan initiations, debt redemptions, dividends, and stock splits. We identify these announcements using a manual search in Factiva for each of the 2,856 (i.e. 357 multiplied by 8) firm–event combinations. In total, 96 firms or 26.89% of our sample make at least one material announcement on any of the eight event dates. As Row (3) shows, we do not find a significant stock price reaction for a portfolio excluding these firms, suggesting that the lack of significance in our baseline univariate findings is not caused by the contaminating influence of material firm-specific announcements. In line with some other policy event studies (Akyol et al., 2012; Lewis and Verwijmeren, 2014; Grewal et al., 2018), we also examine whether important economy-wide news may have affected stock price reactions by checking the macroeconomic news portions of the ‘Business and Finance’ sections of the Wall Street Journal and Wall Street Journal Europe (both accessed through Factiva). We do not find evidence of confounding macroeconomic news on the event dates. On the date of event 8, the UK Finance Bill received Royal Assent in Parliament. However, as this Bill had already had various readings in the

House of Commons and House of Lords, we do not consider this a major news event. Overall, we conclude that our event study results are unlikely to be contaminated by confounding news.

In a final univariate analysis, we examine non-UK-domiciled firms that may fall under the TISC clause because they conduct part of their business in the UK and meet the £36 million annual turnover threshold. The UK Government does not provide any specific guidance for identifying these companies. We construct three alternative samples of non-UK companies likely to be covered by the TISC clause. Since firms have considerable discretion regarding the level of aggregation in their geographical segment disclosures (Berger and Hann, 2007), we consider a firm's decision to report accounting information separately for a UK segment as evidence of substantial exposure to the UK. Our first sample thus consists of non-UK firms that report having a UK segment making up at least 10% of their annual sales. We obtain segment data from Capital IQ. Our second sample is based on a textual analysis of firms' annual reports. In line with Campello et al. (2018), we identify firms that have more than five UK-related words (e.g., 'Britain' or 'United Kingdom') in their most recent 10-K filing before event 1 as having substantial exposure to the UK. We obtain 10-K filings from the US Securities and Exchange Commission's Edgar system. By construction, this analysis is therefore largely restricted to US-domiciled firms. Our third sample consists of non-UK firms with a UK subsidiary. We obtain subsidiary data from Capital IQ. We clean these three datasets of international firms following similar criteria to those outlined in Table 2, and estimate a time-series regression similar to Equation (1) for value-weighted portfolios of the resulting samples of 181, 818, and 2,808 firms, respectively. We use the Datastream world market index in these regressions. All event dates are the same as for our baseline analysis, except that we take event 2 to happen on August 26 instead of August 27, 2013, since August 26, 2013 was not an international bank holiday. Rows (5) to (7) show that we do not detect significant stock price reactions for these non-UK firm samples either. We next test our hypotheses on heterogeneity in stock price responses across firms.

## **6. Cross-sectional differences in stock price reactions to the MSA**

This section discusses the variables used for our cross-sectional analysis of stock price reactions to the MSA's introduction, as well as the results of this analysis.



### 6.1. Variables

Our first hypothesis pertains to the influence of slavery risk on stock price reactions to the MSA. The literature does not provide direct suggestions for slavery risk measures. We consider three measures that investors may use to proxy for a given firm's slavery risk. The appendix provides a detailed definition of the independent variables and their sources.

Our first proxy variable, *Social Incidents*, captures a firm's pre-MSA exposure to incidents related to the 'social' element of CSR, such as occurrences of poor treatment of employees. We use RepRisk, a database providing corporate ESG risk measures, as the source for this variable. We first obtain RepRisk's *Peak RRI* measure for each firm. *Peak RRI* captures the firm's maximum exposure to ESG risks over the two years before event 1, as measured by media and stakeholder coverage mentioning the firm's name in the context of ESG incidents. To obtain a cleaner measure of exposure to social incidents, rather than ESG incidents more generally, we multiply *Peak RRI* by *S Percentage*, also obtained from RepRisk. *S Percentage* is defined as the number of media and stakeholder links or mentions that refer to social issues, relative to the total number of links or mentions that refer more generally to ESG issues related to the firm. As such, we use it as a proxy for the relative importance of social risk exposure for a given firm, and adjust the company's *Peak RRI* accordingly. Investors may perceive firms with a higher occurrence of social incidents in the years preceding the MSA to be more at risk of having slavery issues in their focal business or supply chains. We therefore predict a negative (positive) impact of *Social Incidents* under  $H_{1a}$  ( $H_{1b}$ ).

Our second and third proxy variables consist of dummy variables capturing a firm's policies aimed at protecting labor standards. We construct these dummies using information obtained from Asset4, a widely known database of corporate ESG measures. *Critical Countries Policy* equals one if the company has a policy in place to limit activities in undemocratic countries abusing human rights, and zero otherwise. *Forced Labor Policy* equals one if the firm has processes in place to avoid the use of forced labor, and zero otherwise. Investors may perceive firms with labor standards policies in

place as having a lower risk of slave labor being used in their business or supply chains. We therefore predict a positive (negative) impact of our two labor standards dummy variables under  $H_{1a}$  ( $H_{1b}$ ).

Our second hypothesis pertains to the moderating role of CSR disclosure. We construct two proxy variables capturing a firm's pre-regulatory levels of CSR-related information disclosure to external stakeholders. Our first proxy variable, obtained from Asset4, captures a firm's level of transparency regarding its policies aimed at protecting worker rights. It is measured as a dummy variable equal to one if the firm provides a publicly available description of the implementation of its human rights policy, and zero otherwise. We consider this type of CSR disclosure to be most closely related to the additional disclosure elements required under the TISC clause, and as such potentially most relevant to investors. We label this variable *Social Disclosure* to emphasize that it measures disclosure practices related to the social element of CSR, rather than environmental or governance elements of disclosure. Our second proxy variable, obtained from Thomson Reuters ESG Research Data (henceforth TR ESG), captures a firm's CSR disclosure levels more generally. More particularly, *CSR Disclosure* is based on eight indicators reflecting CSR disclosure practices, such as whether the firm has an external auditor for its CSR report, and whether the firm's extra-financial report considers its global activities. We expect a positive (negative) impact of both disclosure measures under  $H_{2a}$  ( $H_{2b}$ ).

In addition, we include three control variables in our baseline regression. First, we control for firm size, measured as the logarithm of the book value of total assets obtained from Worldscope. Firm size may capture several benefits and costs of the MSA. It could act as a proxy for the quality of information available about the firm, since larger firms typically obtain more coverage from analysts and media. Larger firms also tend to receive more political pressure from stakeholders due to their visibility, resulting in higher political costs associated with disclosure (Watts and Zimmerman, 1978), while smaller firms tend to be more proactive at dealing with stakeholder pressures (Darnall et al., 2010). The direct costs of complying with the TISC clause, on the other hand, should be disproportionately smaller for larger firms (Zhang, 2007). Larger firms might also face lower input cost rises following supply chain adjustments driven by the MSA, since they may have more clout with suppliers. We thus have no clear prediction about the impact of  $\text{Log}(\text{Total Assets})$  on stock price

reactions to the MSA. Second, we include two dummy variables controlling for slavery risk on a more aggregate level. *Country–Industry ESG Risk* equals one if the firm has a RepRisk *Country–Sector Average* value above the sample median of 16, and zero otherwise. *Country–Sector Average* captures the ESG risk exposure of the firm’s country of headquarters and primary industry (weighted 50%) as well as the ESG risk exposure of the other countries where the firm is active (weighted 50%). By construction, our sample firms are all domiciled in the UK. Cross-sectional differences in this variable therefore stem from differences in ESG risk exposure related to sample firms’ primary industry and geographical presence in countries other than the UK.<sup>11</sup> Our second industry-dependent control variable, *Industry Slavery Risk*, equals one if the primary four-digit Standard Industry Classification (SIC) code of the firm corresponds to a business activity typically associated with a high occurrence of slave labor. We base the identification of this dummy variable on sources such as Crane (2013) and Core Coalition (2017). High-slavery-risk industries tend to rely heavily on flexible, temporary labor to meet intense cost and time pressures, while multiple sourcing relationships with a variety of agencies typically make transparency of labor difficult to achieve. Examples of high-slavery-risk activities include mining and apparel retailing, while examples of low-slavery-risk activities include banking and publishing. Investors might gauge a firm’s risk of exposure to slavery incidents not only through the firm’s individual exposure, and the labor standards policies it has in place, but also by looking at its main industry and geographical presence. As such, we expect a negative (positive) impact of our two aggregate measures of slavery risk under hypothesis H<sub>1a</sub> (H<sub>1b</sub>).

The dependent variable in the cross-sectional analysis is the firm-specific cumulative abnormal return, *CAR*. To obtain this return, we run time-series regressions on a per firm basis, for each of the 205 firms in the cross-sectional sample:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_i D_t + \varepsilon_{it} \quad (3)$$

All parameters in Equation (3) have similar definitions to those for Equation (1). Instead of the return on the entire portfolio of firms, however, we now use the return  $R_{it}$  on each individual firm  $i$ ’s stock as the left-hand-side variable (Knittel and Stango, 2013; Lewis and Verwijmeren, 2014). The

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<sup>11</sup> RepRisk does not break down ESG measures or social-incident-related links by industry or by country. Thus, this measure refers to ESG risk more generally rather than the risk of social incidents in particular.

coefficient  $\gamma_i$  on the date dummy variable  $D_t$  captures the average abnormal stock price effect of an MSA-related event for firm  $i$ , estimated across the eight events. The total (cumulative) MSA-related abnormal stock return ( $CAR_i$ ) for firm  $i$  can then be obtained by multiplying the estimated value for  $\gamma_i$  by eight (the number of event dates) (Lewis and Verwijmeren, 2014). We next run the following baseline cross-sectional regression analysis:

$$CAR_i = \alpha_i + \beta_1 \text{Social Incidents} + \beta_2 \text{Critical Countries Policy} + \beta_3 \text{Forced Labor Policy} + \beta_4 \text{Social Disclosure} + \beta_5 \text{CSR Disclosure} + \beta_6 \text{Log(Total Assets)} + \beta_7 \text{Country} - \text{Industry ESG Risk} + \beta_8 \text{Industry Slavery Risk} + \varepsilon_i \quad (4)$$

Table 4, Panel A presents descriptive statistics for the variables in our baseline cross-sectional analysis. We only discuss the most salient numbers here. Only a small fraction of the firms (6% and 13%, respectively) have policies in place to limit their exposure to undemocratic countries and avoid forced labor. Approximately two-thirds of the firms describe the implementation of their human rights policy, as captured by a *Social Disclosure* dummy variable equal to one. Sample firms tend to be large, with average (median) *Total Assets* of £42,530 (£2,308) million. Several of the variables, including *CAR*, have a large gap between their average and median values. In unreported robustness tests, we find our cross-sectional results remain similar when we winsorize *CAR* and/or the continuous independent variables at the 1<sup>st</sup> and 99<sup>th</sup> percentiles, suggesting that outliers do not drive our results. Table 4, Panel B provides Pearson correlations between the variables. Among the independent variables, *CAR* has the largest correlation with *Industry Slavery Risk* (0.15,  $p$ -value of 0.03). The largest (absolute value) correlations between independent variables occur, unsurprisingly, between *Social Disclosure* and *CSR Disclosure*, and between *CSR Disclosure* and the logarithm of *Total Assets* (both 0.48,  $p$ -value of 0.00).

<< Please insert Table 4 about here >>

## 6.2. Results

Table 5, Column (1) gives the baseline regression results. *CAR*, the dependent variable, is expressed as a percentage.  $t$ -statistics are based on robust standard errors clustered by two-digit SIC code. The maximum variance inflation factor (VIF) is well below five (1.58), suggesting there is no

multicollinearity problem in the regression analysis. We briefly report the findings here, and provide a more extensive discussion of the results and their implications in the next section.

<< Please insert Table 5 about here >>

We find a negative impact of *Social Incidents* ( $p$ -value  $< 0.05$ ). Economically, a one-standard-deviation increase in *Social Incidents* implies a 0.99% decrease in the *CAR*. We further find a positive impact of the two dummy variables capturing labor standards policies, *Critical Countries Policy* (coefficient of 2.077,  $p$ -value  $< 0.01$ ) and *Forced Labor Policy* (coefficient of 1.526,  $p$ -value  $< 0.10$ ), consistent with hypothesis  $H_{1a}$ . Inconsistent with our dual hypotheses  $H_{2a}$  and  $H_{2b}$  on the role of CSR disclosure levels, *Social Disclosure* and *CSR Disclosure* both have insignificant coefficients. The impact of  $\text{Log}(\text{Total Assets})$  is also insignificant. The two dummy variables capturing aggregate slavery risk, *Country-Industry ESG Risk* and *Industry Slavery Risk*, have a positive impact (coefficient of 1.432,  $p$ -value  $< 0.05$ ; and coefficient of 1.897,  $p$ -value  $< 0.01$  respectively), consistent with  $H_{1b}$ . In Column (2), we replace the three individual measures of firm-specific slavery risk by a composite measure, *Composite Firm Slavery Risk*. This dummy variable is equal to one ('High') if the firm has a *Social Incidents* value above the sample median, as well as values of zero for the two labor standards policy dummy variables, and equal to zero otherwise. We also replace the two aggregate slavery risk variables by a composite measure, *Composite Industry Slavery Risk*. This dummy variable is equal to one ('High') if both of the aggregate slavery risk proxies are equal to one, and equal to zero otherwise. For firms with high ex-ante slavery risk (*Composite Firm Slavery Risk* = 1), we estimate that the eight events associated with a higher likelihood of MSA adoption result in 2.08% lower abnormal stock returns, translating into a market value decrease of £84.25 million (approximately \$127 million) for the typical sample firm. Furthermore, we estimate that having high ex-ante industry-wide slavery risk (*Composite Industry Slavery Risk* = 1) is associated with 2.01% higher abnormal stock returns around the eight MSA adoption events, translating into a market value increase of £69.76 million (approximately \$105 million) for the typical sample firm.<sup>12</sup> The benefits of having low

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<sup>12</sup> The market value changes reported in this section do not capture actually observed wealth effects for investors. The reason is that event 5 is associated with a decreased likelihood of MSA adoption and therefore received a coefficient of  $-1$  in our regression model used for estimating *CAR*. The market value changes should rather be interpreted as wealth effects associated with an increased likelihood of MSA adoption (Pincus, 1997).

firm-specific slavery risk might be stronger in business environments with higher slavery risk. To test this prediction, Column (3) repeats the analysis in Column (2) with an interaction term between the two composite slavery risk measures. We do not find a significant interaction effect, suggesting that the advantages of having low firm-specific slavery risk are not restricted to certain industry types.

The remaining columns of Table 5 show robustness of the baseline result to the inclusion of additional control variables. All control variables are defined in the appendix. Column (4) re-estimates the baseline regression adding *Average Industry EBIT*, which captures the profitability of a firm's three-digit SIC industry. More profitable industries might have a higher likelihood of being targeted by various stakeholders, and therefore face higher political costs associated with additional disclosure requirements (Grewal et al., 2018). We also add *Leverage* and *Market to Book*, two control variables suggested in the event study of Hendricks et al. (2009), on the right-hand side. These three variables are not significant, with the other regression results remaining similar to those in Column (1). Columns (5) and (6) examine whether investors consider more general measures of CSR activity when assessing the benefits and costs of the MSA for individual firms. Column (5) adds *CSR Performance*, as captured by an ESG performance score obtained from TR ESG. We omit *CSR Disclosure* from this regression, as it is by construction included in *CSR Performance*. The coefficient on *CSR Performance* is insignificant, suggesting investors do not consider firms' overall CSR activity in reacting to the MSA. Column (6) adds *CSR Controversies* (obtained from TR ESG), with a higher score reflecting more negative ESG-related news stories ('controversies') about a firm. We find this variable has a negative impact ( $p$ -value < 0.05). Thus, in addition to social issues connected to the firm (captured by *Social Incidents*), investors also seem to place a negative weight on firms' more general CSR violations.

While our baseline regression includes measures of CSR disclosure levels, it does not control for a firm's overall information quality, except through *Log(Total Assets)*. We include a measure of liquidity (*Turnover*), percentage of shares held by insiders (*Closely Held Shares*), and industry concentration (*Herfindahl*) as additional proxies for information asymmetry in Column (7). We retain *CSR Controversies* as a control variable in that regression, given its statistical significance in Column (6). Information asymmetry tends to be lower for firms with more liquid shares, and for firms with a

lower percentage of insider ownership (Armstrong et al., 2010). Some researchers argue that information asymmetry tends to be higher in concentrated industries, as firms typically make fewer disclosures in such industries, while others argue that the theoretical relation between concentration and information quality is not straightforward (Lang and Sul, 2014). We find a significant positive impact of *Herfindahl* ( $p$ -value  $< 0.01$ ), with the other proxy variables being insignificant. To the extent that *Herfindahl* acts as an inverse proxy for disclosure levels, this positive impact is in line with a more general version of  $H_{2b}$ , predicting that firms with weaker (CSR) disclosure levels have more to gain from the additional disclosure requirements under the TISC clause.

Finally, we conduct a number of tests examining the sensitivity of our regression results to alternative estimation procedures. First, consistent with a robustness test in Zhang (2007), we replicate the cross-sectional analysis using abnormal stock returns estimated with market model regressions over a pre-event estimation, which we define as the 200 trading days ending ten trading days before event 1. Similar to our baseline analysis, the individual event directional predictions are incorporated into the calculation of these market model-based *CARs* (Schipper and Thompson, 1983; Pincus, 1997). Specifically, we multiply the abnormal stock return for event 5 by  $-1$  before summing all event day average abnormal returns. When we replicate the baseline regression in Table 5, Column (1) using these market model-based *CARs* as a dependent variable, results remain consistent in sign and significance.<sup>13</sup>

Second, following Armstrong et al. (2010) and Grewal et al. (2018), we conduct a placebo test to verify that our cross-sectional results do not occur on non-event dates. The test consists of the following five steps: (i) randomly selecting eight non-event dates and constructing a dummy variable capturing these dates; (ii) using Equation (3) to calculate a *CAR* for each firm, through an approach similar to that in our baseline cross-sectional regression; (iii) running the baseline model in Table 5, Column (1) with this *CAR* as the dependent variable, for each of the 205 firms in the baseline sample; (iv) storing the coefficient estimates obtained for this regression; (v) repeating this process 500 times, thereby obtaining a distribution of non-event regression coefficients for each explanatory variable. The baseline regression coefficients of significant explanatory variables fall into the tails of the

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<sup>13</sup> Detailed results of untabulated robustness tests can be obtained from the corresponding author.

simulated distributions of coefficients. This suggests that our significant cross-sectional regression findings are indeed associated with MSA adoption events.

Overall, our results suggest that stock price reactions to the MSA are more favorable for firms with a track record of tackling slavery risk, but who face high exposure to slave labor by virtue of their operating environment. To provide additional insight into how firm- and industry-specific slavery risk contribute to the overall sample *CAR*, we calculate the average *CAR* for four groups of sample firms conditioned on their values for *Composite Firm Slavery Risk* and *Composite Industry Slavery Risk*.<sup>14</sup> We base this additional univariate test on the market model-based *CARs* defined earlier, enabling us to use both parametric and nonparametric test statistics commonly adopted in other event studies (MacKinlay, 1997; Corrado, 2011). To evaluate average *CARs*, we use the test advocated by Brown and Warner (1985) accounting for cross-sectional dependence due to clustering of event dates. The numerator of the test statistic is the average *CAR*. The denominator is the standard deviation of abnormal stock returns estimated over the same pre-event estimation window as the one used for estimating the *CARs*, multiplied by the square root of the number of event days (eight in our case) (Robinson et al., 2015; Hendricks et al., 2018). We evaluate the significance of median *CAR* values and of the percentage of negative *CAR* values using a Wilcoxon signed-rank and a binomial sign test, respectively.

The results of this additional subsample analysis are shown in Table 6. Consistent with inferences from the cross-sectional regression analysis, the high firm-specific, low industry-specific slavery risk subset of firms has the lowest average (median) *CARs* of  $-2.03\%$  ( $-0.70\%$ ). The statistical significance of the *CARs* for this subset is mixed (the *t*-statistic has a *p*-value of 0.19, while the two non-parametric tests have *p*-values of 0.00 and 0.02, respectively). Also consistent with the cross-sectional regression analysis, the low firm-specific, high industry-specific slavery risk subsample has the highest average (median) *CAR* of  $2.51\%$  ( $1.30\%$ ). We note that this subsample is only very small ( $N = 19$ ), limiting our ability to make statistical inferences. As expected, *CARs* of the remaining two subsamples are much smaller in absolute value, and not significant according to any test statistics. For completeness, we also report *CARs* for the full cross-sectional sample ( $N = 205$ ).

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<sup>14</sup> We thank an anonymous referee for suggesting this analysis.



These are not significant, consistent with univariate results on MSA-related stock price reactions reported in Tables 3 and 4. We obtain similar *CAR* estimates for the four different subsamples when we use the baseline ‘date dummy-based’ *CARs* obtained from Equation (3).

<< Please insert Table 6 about here >>

## 7. Discussion and conclusion

We examine the shareholder wealth effects of modern slavery regulation embedded in the UK’s MSA. As the only element of the MSA that imposes new rules on firms, the TISC clause in particular has direct relevance to firms and their investors. A representative quote from an investor we consulted on this matter is “(...) *Legislation [in the MSA] is pretty much focused on TISC. The other bits are unnecessary. Investors do not seem aware of [the other bits]*”. Nevertheless, we cannot completely rule out that investors may consider other elements of the MSA relevant to cash flows. For example, investors may believe that certain firms are at risk of being named and shamed in the context of convictions under other parts of the Act. As a case in point, two brothers were convicted under the MSA, for trafficking workers from Poland to work in a Sports Direct warehouse (BHRRC, 2018). Moreover, firms may face supply chain disruptions caused by delays arising from freight searches warranted by the MSA (MSA, 2015a). We therefore focus on the MSA in its entirety, except where noted otherwise.

We detect no significant abnormal stock return on eight event dates associated with the adoption of the MSA. This ‘no result’ conclusion withstands a battery of robustness tests using alternative methodological specifications and samples. Our finding of a non-significant overall stock price effect has two potential interpretations. First, investors perceive the MSA as irrelevant to the future cash flows of UK firms, for example because they believe the Act will not influence stakeholder perceptions or corporate behavior, or because there is a general lack of awareness of the Act. Second, investors consider the MSA cash-flow-relevant, and the non-significant average reaction hides heterogeneity in the stock price reactions across firms. Consistent with the latter interpretation, a cross-sectional regression analysis of 205 UK firms reveals that stock price reactions to the MSA are less favorable for firms with higher slavery risk. More particularly, in line with our hypothesis  $H_{1a}$ ,

firms with a higher occurrence of social incidents in the recent past have more negative stock price reactions, and firms with policies in place to protect labor standards have more favorable stock price reactions. The resource-based view on CSR holds that having superior CSR performance can give firms an advantage over their industry peers (Hart, 1995; Porter and Van der Linde, 1995; Hart and Dowell, 2011). Consistent with this view, Flammer (2013) and Grewal et al. (2018) present empirical results illustrating that firms can obtain a competitive advantage from having strong environmental and ESG performance, respectively. Our results suggest that the resource-based view on CSR performance also applies to the specific context of a firm's performance in addressing slavery risk. More particularly, investors seem to perceive the ability to demonstrate low slavery risk as a competitive advantage for firms, resulting in higher expected future cash flows. Our findings are also consistent with the risk management view on CSR, to the extent that investors seem more aware of the risk posed by firms' exposure to slave labor following the adoption of the MSA.

We do not find evidence of an interaction effect between firm- and industry-specific slavery risk measures, suggesting that the benefits of having low firm-specific slavery risk hold across sectors with high and low risk of slave labor. We believe that this finding can be explained by the fact that no industry is completely free of the risk of modern slavery – even in industries with a relatively 'low' likelihood of slave labor, firms can still gain a competitive advantage by having a low demonstrated slavery risk in their focal business and supply chain. Consistent with this interpretation, it is worth noting that a number of initial TISC statements from companies explicitly mention the fact that “*no sector or industry can be considered immune (to the risk of slave labor)*” (e.g. Admiral Group, 2016). Also in line with this interpretation, a recent report notes that the MSA has forced a wide range of industries to consider slavery issues, including business activities that were not previously under consumer scrutiny for their risk of slave labor (Ergon Associates, 2017).

Interestingly, our results suggest that aggregate measures of slavery risk associated with a firm's industry and geographical presence have an independent, positive influence on stock price reactions to the MSA's adoption. We believe this finding is consistent with the argument underpinning our hypothesis H<sub>1b</sub>, that firms might take corrective actions in their operations and supply chains to mitigate slavery risk following the introduction of the MSA. These actions could lead to higher

expected cash flows, for example by reducing the likelihood of reputational damage associated with high-profile slavery cases, or by spurring innovation in supply chains (Porter and Van der Linde, 1995). Investors might perceive the incremental benefits of such corporate actions to be highest for industries that had a high ex-ante slavery risk.

We do not find an influence of pre-regulatory CSR disclosure levels on stock price reactions, except for a positive impact of industry concentration. There are a number of non-exclusive explanations for our lack of strong evidence regarding hypotheses H<sub>2a</sub> and H<sub>2b</sub>. Investors may perceive the TISC clause as a source of information orthogonal to information already provided through prior corporate disclosures, thereby making pre-MSA disclosure levels irrelevant to their assessment of the incremental benefits of the clause. Investors may also consider the additional disclosure costs and benefits of the TISC clause negligible, because they already know a lot about the supply chains of their competitors, because the cost of setting up and publishing the statements is very small, and/or because they do not expect the additional disclosure provoked by the clause to lead to efficiency improvements. Finally, investors may not expect high levels of firm compliance with the TISC clause in the first place. However, while actual compliance seems patchy, initial reports suggest it is unlikely that investors would have expected widespread non-compliance with the clause at the time of the eight MSA adoption events (BHRRC, 2018; TISCreport.org, 2018).

A key message for corporate managers, from our research, is that investors appear to place more weight on slavery risk indicators following the introduction of the MSA, with more favorable shareholder wealth effects observed for firms with better performance in addressing the risk of slave labor. As such, our findings might serve to encourage firms to identify the likelihood of modern slavery in their focal businesses and supply chains. Investors also seem to have adjusted their weightings of industry-wide slavery risk measures following the MSA's adoption, but individual firms arguably have less control over those measures. Our study may be useful for policy makers in countries currently considering the introduction of modern slavery regulation, and inform the broader discussion around supply chain transparency.

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<sup>15</sup> All web links were last accessed on July 31, 2018.

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**Table 1: Relevant dates for the adoption of the MSA and its TISC clause***Panel A: Events included in baseline tests*

| Event date            | Description   | Increasing/decreasing likelihood of adoption |
|-----------------------|---|--|
| (1) March 11, 2013    | Release of Centre for Social Justice (CSJ)'s It Happens Here report which acted as an important catalyst for the Modern Slavery Bill and TISC clause.   | Increasing                                   |
| (2) August 27, 2013   | Home Secretary Theresa May announces there will be a Modern Slavery Bill. She also mentions the main disclosure requirements of the TISC clause, but does not explicitly name the clause.   | Increasing                                   |
| (3) October 11, 2013  | Home Secretary Theresa May asks leading Labour MP Frank Field to chair an evidence review to introduce a new Modern Slavery Bill. Experts from the UK and the international community - including senior police officers, lawyers and charities - will be invited to outline what they think should be included in the legislation. | Increasing                                   |
| (4) December 16, 2013 | Draft Modern Slavery Bill is published and submitted for pre-legislative scrutiny. The Bill recommends that the UK Government adopt legislation, which should apply to all companies over a certain size doing business in the UK.  | Increasing                                   |
| (5) April 8, 2014     | Pre-legislative scrutiny committee publishes a report on the draft Bill. They agree with imposing a mandatory TISC statement but suggest it could be included in companies' strategic annual reports, rather than as a separate clause. They also advise against the appointment of an antislavery commissioner in companies.       | Decreasing                                   |
| (6) June 10, 2014     | UK Government publishes a response to the pre-legislative committee's report alongside introduction of the Bill to Parliament.  | Increasing                                   |
| (7) November 4, 2014  | TISC provision is added to the Modern Slavery Bill by UK Government amendment at Commons Report Stage.  | Increasing                                   |
| (8) March 26, 2015    | Modern Slavery Act 2015 receives Royal Assent in Parliament.  | Increasing                                   |

*Panel B: Events omitted from baseline tests*

| Event date             | Description  | Reason for omission   |
|------------------------|--|---|
| (9) September 30, 2013 | Home Secretary Theresa May mentions the Modern Slavery Bill in a speech at the Conservative Party conference.                                      | No new information revealed   |
| (10) June 3, 2014      | The Queen mentions the Modern Slavery Bill in her annual speech.   | No new information revealed   |
| (11) October 29, 2015  | The TISC clause is formally brought into force.  | No new information revealed   |
| (12) July 29, 2015     | Prime Minister David Cameron announces that the size threshold for companies to qualify for the TISC clause is set at £36 million of annual sales. | Only pertains to subset of companies; the announced size threshold was in line with expectations. |

*Notes:* This table outlines the event dates associated with the adoption of the Modern Slavery Act (MSA) and its Transparency in Supply Chains (TISC) clause, generated by our search in Factiva and other online sources. For events occurring on a non-trading day or after the stock market's closure for the day, we take the next trading day as the event date. Panel A reports the eight event dates considered in our baseline univariate and cross-sectional analyses. We selected these events because they are each associated with the release of incremental information related to the MSA that may have been relevant for investors. All events except event 5 are assumed to have resulted in an increased likelihood of the MSA being adopted. Panel B reports four event dates following event 1 that we omitted from the baseline analysis because they were not associated with the release of information relevant for investors (events 9, 10, and 11), or because they only pertain to a subset of the sample firms (event 12).