**Impact of Brexit Disclosure on Trade Credit**

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**Abstract**

The Financial Reporting Council (FRC) issued guidance for companies regarding the disclosure of significant changes in principal risks. We explore the nexus between Brexit disclosure and trade credit decisions. Our findings suggest a positive relationship between Brexit disclosure and trade credit decisions; however, this relationship varies across industries. This variation indicates that UK companies are responsive to regulatory requirements and pressures, undertaking the necessary adjustments to minimise their exposure to Brexit-related risks.

**Keywords:** Brexit disclosure; trade credit.

**JEL: M4; G3**

1. **Introduction**

The UK’s decision (Referendum, 23 June 2016) to leave the EU created significant risk and uncertainty for UK companies. The decision resulted in risk and uncertainty, precisely it has been one of the top three sources of uncertainty surrounding UK companies during the post-referendum period (CEPR, 2024). However, the level of uncertainty has been higher for industrial sectors that are more dependent on trade with the EU as well as EU migrant labour.

The UK provides a unique country context to examine the impact of Brexit disclosure on trade credit decisions.[[1]](#footnote-1) On 23 June 2016, the United Kingdom (UK) held a referendum on leaving the European Union (EU). On 31 January 2020, the UK left the EU. **Therefore, the** Financial Reporting Council (FRC) has issued guidance on Brexit disclosure (FRC 2017). In their guidance, they highlighted the importance of reporting Brexit-related information annual report narratives. Disclosing this information provides investors with the ability to understand the potential effect of Brexit on businesses and companies’ plans to address some of the risks that may arise (FRC, 2017). Recent research by Vasilescu and Weir, (2022) concludes that companies provide more Brexit risk disclosure in annual report narratives following the publication of FRC risk reporting guidance.

Although the guidance refers to investors, we believe that other stakeholders including suppliers and customers may be interested in Brexit information as Brexit may lead to uncertainty for suppliers and consumers (Gysegom et al., 2019). To reduce this uncertainty, firms are encouraged to report relevant Brexit information in annual report narratives to reduce information asymmetry between companies and their suppliers and consumers. This paper provide a new measure of Brexit disclosure. It then examines whether Brexit disclosure impacts trade credit decisions. This research is vital as it has potential managerial and policy implications. It helps to inform regulators (and managers) about the benefits of increased Brexit disclosure to customers and suppliers. Despite extensive prior literature on disclosure and trade credit decisions (Hu et al., 2018; Haj-Salem and Hussainey, 2021; and Al Lawati and Hussainey, 2024), there is little research on whether Brexit information affects trade credit. We aim to fill this research gap and answer the following questions:

RQ1: To what extent does Brexit disclosure affect trade credit received from suppliers?

RQ2: To what extent does Brexit disclosure affect trade credit offered by UK companies?

This paper contributes to the literature by first using automated textual analysis software to measure levels of Brexit disclosure in annual report narratives. Second, we link between Brexit disclosure scores with trade credit offered by companies and received from suppliers. So far, to the best of the authors’ knowledge, it is the first paper to examine the impact of Brexit disclosure on trade credit and show that Brexit disclosure positively affects trade credit decisions.

The paper is organised as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 discusses the methodology. Section 4 discusses the findings. Section 5 concludes the paper.

1. **Literature review and hypothesis development**

**2.1 Risk disclosure decision – signalling theory perspective**

Information asymmetry theory suggests that suppliers and customers may have incomplete information about corporate financial position (Elmarzouky et al., 2021), which can lead to a lack of trust and increase the cost of credit. By disclosing information about the potential impact of Brexit, firms can reduce this information asymmetry and increase transparency, improving the confidence of trading partners and reducing the cost of credit. In the case of Brexit, firms may be disclosing information about their exposure to potential changes in trade policies, tariffs, and regulations that could affect their ability to pay suppliers or receive payment from customers. This information could help to alleviate concerns and uncertainties among trading partners, which could in turn improve their willingness to extend credit. Brexit information could inform suppliers and customers about corporate future financial stability, which could lead to improved access to trade credit.

**2.2 Nexus between Brexit disclosure and trade credit decision**

2.2.1 Brexit disclosure and trade credit obtained.

From the agency theory perspective in procedural Brexit disclosure, reducing information asymmetry between management and shareholders could affect trade credit decisions. Trade credit is the loan extended by one trader to another when the goods and services are bought or sold on credit term at a later agreed date without immediate payment (Xu et al., 2020a). Although trade credit is considered a costly source of financing compared with bank loans, the literature shows a growing demand for and supply of trade credit by companies and suppliers (Xu et al., 2020a). Trade credit is considered the most accessible and important source of short-term finance and does not require any loan paperwork. It also helps firms to maintain their stock in the quiet seasons for the busy periods. Trade credit increases the firm’s cash flow and finances for short-term growth (Xu et al., 2020b). The effect of Brexit has prompted an important focus on the firm narrative disclosure. Since the introduction of the Brexit plan, many businesses have suffered from high uncertainty, which needs to be discussed in annual reports.

The significance of the Brexit impact should be related to the detail in the disclosure provided. Even if some firms have minimal impact, managers may provide information on how the business could be affected by Brexit, including sensitivities of critical estimates (ICAEW). Providing more voluntary information mitigates information asymmetry, and consequently, there is a positive association between disclosure in the annual reports and the ability to receive more trade credit (Haj-Salem and Hussainey, 2021).

Information asymmetry may cause credit constraints (Stiglitz & Weiss, 1981). This is consistent with the point that more voluntary information reduces information asymmetries and agency problems. Xu et al. (2020a) indicate that with more readable annual reports, suppliers are likely to grant more trade credit to customers. Based on the signalling theory, companies may tend to provide more information related to the effect of Brexit on their businesses to send an assurance to the market in general and the creditors regarding their affordability. This signal may enhance the company’s reputation and market valuation (Haj-Salem and Hussainey, 2021). Sending more information to the market will reduce information asymmetry, minimising risk and allowing suppliers to ease their trade credit. Research focusing on the impact of Brexit disclosure on trade credit is far from conclusive, primarily due to the newness of Brexit (Van den Bogaerd & Aerts, 2015; Ceustermans et al., 2019). Therefore, unlike banks, suppliers and customers will evaluate the creditworthiness and affordability mainly from the annual reports (Ceustermans et al., 2019).

There is a lack of empirical evidence on the effect of Brexit information and trade credit. However, several studies explore the impact of corporate disclosure on trade credit. Probably the closest papers to ours are papers by Hu et al. (2018), Haj-Salem and Hussainey (2021), and Al Lawati and Hussainey (2024). Hu et al. (2018) examined the influence of environmental information disclosure on short-term borrowing ability. They find that higher levels of voluntary disclosure led to better short-term borrowing ability. Haj-Salem and Hussainey (2021) find a positive association between risk disclosure and trade credit. Al Lawati and Hussainey (2024) examined the impact of forward-looking disclosure on short-term liabilities and found a positive impact.

Based on the above discussion, we hypothesise that:

*Ceteris paribus, providing more Brexit-related information has a positive impact on trade credit obtained by companies.*

2.2.2 Brexit disclosure and trade credit offered.

Greater information transparency provides both shareholders and customers with easy access to information and allows shareholders and consumers to be aware of managers’ operating decisions and performance (Chung et al., 2015). This greater information transparency will lead to many benefits, such as reducing agency problems, improving stakeholder monitoring including shareholders and consumers, supporting managerial credibility, building trust with stakeholders and increasing sales and revenue, thus increasing firm value (Chung et al., 2015).

In related studies, Xu et al. (2020a) find a positive association between the readability of the annual reports and trade credit. Xu et al. (2020b) find a positive association between corporate social responsibility disclosure and trade credit decisions. Ceustermans et al. (2017) find a positive relationship between voluntary disclosure and trade credit decisions. Due to the uncertainty linked with Brexit, stakeholders including investors demand more information to assess the risks linked with the firm’s future prospects and to make investment decisions (Vasilescu and Weir, 2022).

During the Brexit period, companies try to maintain investors’ trust in the business operation and performance by disclosing more Brexit-related information to reassure stakeholders (Vasilescu and Weir, 2022). This may enhance business relations with stakeholders including customers, and therefore increase sales volume and thus would predict an increase in sales on credit.

Based on that, we argue that disclosing more Brexit-related information is positively associated with companies’ sales on credit and therefore with an increase in trade credit allowed by companies to their consumers. We, thus, hypothesise that:

*Ceteris paribus, providing more Brexit-related information has a positive impact on trade credit offered by companies.*

**3. Research method**

### **3.1 Sample and data collection**

We delineated our sample to encompass all non-financial companies listed on the UK FTSE All-Share index from 2017 to 2021 (360 firms; 1800 firm-year observations). This time frame has been carefully selected to encapsulate a critical window wherein the repercussions of Brexit would be most palpably reflected in corporate disclosures. To maintain the purity and relevancy of our dataset, we undertook a meticulous exclusion criterion wherein firms devoid of Brexit information in their annual reports were omitted from the sample. This stringent filtration process is predicated on the rationale that the absence of Brexit mentions fundamentally undermines the integrity of our research focus which is centrally anchored on deciphering the implications of Brexit disclosures on trade credit decisions. Post this exclusionary process, our final sample crystallised to embody 1743 firm-year observations, thereby offering a rich and robust dataset for the ensuing analysis. The financial variables pertinent to the FTSE All-Share listed firms were scrupulously extracted from Bloomberg and Eikon. To ensure a nuanced understanding of how UK companies navigated the complex landscape engendered by Brexit, we scrutinised the annual reports to not only quantify the instances of Brexit disclosures but also to unravel the qualitative nuances that offer deeper insights into corporate strategies and stakeholder communications during this turbulent period.

We also revisited our dataset with a specific focus on the immediate aftermath of the Brexit referendum. Acknowledging the transitional nature of the fiscal year ending in 2017, we conducted a supplementary analysis by rerunning our regression models, this time excluding data from 2017. This adjustment aimed to distil the enduring effects of Brexit, untainted by the initial uncertainties and adjustments that may have disproportionately influenced financial reporting and corporate behaviour in the immediate post-referendum period. By doing so, we sought to ensure that our findings are reflective of sustained trends and strategic adjustments made by firms in response to Brexit, rather than transient reactions to the referendum outcome.

**3.2 Brexit-related disclosure measurement**

We used natural language processing and corpus linguistics software to extract the narrative sections and measure the level of Brexit-related information in the annual reports. We follow El-Haj et al (2019) and use Corporate Financial Information Environment (CFIE) software to measure Brexit disclosure. We used the bag of word method to capture Brexit disclosure scores using CFIE software. The word list choice was made using LancsBox software (developed by Lancaster University) to find the most frequent words in the annual reports of FTSE All-share non-financial firms for a sample of 1800 annual reports. We also examine 50 randomly selected annual reports to check the usage of these words in the narrative sections of the annual report. We use LancsBox to track back that the word gives the intended meaning in the context; otherwise, the word has been removed. We used the number of sentences, not the number of words, as one statement can contain more than a sentence. We finalise the wordlist that contains words related to Brexit (See Table 1).

CFIE software is used to score the frequency of the wordlist within the annual report. The software automatically encodes UK annual report PDF files, breaking down the content of annual reports into subsections. Also, it counts any given word list uploaded in the software. We uploaded our developed bag of words in the software. Then, the software generates aggregate Brexit disclosure scores for each firm by counting the frequencies of sentences containing at least one of these Brexit words.

To check our Brexit disclosure scores’ validity and reliability, we compared manual and automated textual content analysis scores. We examined whether there was consistency between the two methods by calculating the internal consistency using Cronbach’s alpha and then confirming such consistency by looking at whether both methods conveyed the same content using the correlation between the manual and automated scores for Brexit risk disclosure.

**[Table 1 here]**

We noted that most of the discussion on Brexit in annual reports narratives is directly or indirectly related to trade credit decisions. For example, the chairman of 4imprint Group plc makes fairly strong statements about the impact of Brexit on suppliers, consumers, revenue, demand, margin, product price and sales as follows:

* ‘*Brexit concerns (UK) may lead to uncertainty for both suppliers and consumers*.’
* ‘*The uncertainty surrounding the Brexit process is unhelpful. Overall, however, we consider that the nature and geography of the Group’s operations, with 97% of the Group’s revenue originating in North America, leave it in a strong position to absorb any negative effects’*.
* ‘*Our UK business (3% of Group revenue) may be affected by any general economic malaise due to Brexit*’.
* ‘*In addition, if Brexit results in any significant depreciation in the value of Sterling, imported product would likely become more expensive, potentially squeezing margins or choking demand if price increases are passed on to customers’*.
* ‘*Also, under a “no deal” scenario suppliers may experience difficulties with imports held up at ports and sales to EU customers amounting to around £1m per year may become subject to tariffs, additional administration and resulting delays*’

(4imprint Group plc, 2018 Annual Reports and Accounts)

The chairman of Aggreko plc makes a statement about the demand for their company’s services, while the chairman of 888 Holdings plc makes a statement about the supply of services within the EU. The chairman of Ascential plc, 2017 discusses further the disruption of Trade and operation inefficiencies due to Brexit.

* ‘*Demand for our services likely to be affected by Brexit.*’ **(**Aggreko plc, 2018 Annual Reports and Accounts)
* While ‘*If 888 were to remain registered, licensed and operating in Gibraltar in these circumstances, its ability to rely on EU freedom of services/establishment principles in supplying its services within the EU will be limited; furthermore, it may become ineligible to continue to hold regulatory licenses in certain EU jurisdictions’*. (888 Holdings plc, 2018 Annual Reports and Accounts)
* “*Political and regulatory changes, such as those that may arise following the UK’s decision to leave the EU, may disrupt patterns of trade, impose operating inefficiencies, and may also significantly affect the Company’s tax position*”. (Ascential plc, 2017 Annual Reports and Accounts)

**3.2.1 The tone of Brexit disclosure**

Using CFIE software and the bag-of-words method, the tone of Brexit disclosure is calculated. We use [Loughran and McDonald's (2011)](https://www.sciencedirect.com/science/article/pii/S1057521920301435#bb0295) wordlist to measure tone, for two reasons. First, it is created based on a financial document, named 10-K filings, and therefore, it is more applicable to financial reporting and business communication research than other general dictionaries such as Harvard or Diction ([Loughran & McDonald, 2016](https://www.sciencedirect.com/science/article/pii/S1057521920301435#bb0300)). Second, it is more comprehensive as it contains 354 positive and 2329 negative words compared with [Henry’s (2008)](https://www.sciencedirect.com/science/article/pii/S1057521920301435#bb0210) wordlist, which contains 104 positive words and 85 negative words. Although [Loughran and McDonald’s (2011)](https://www.sciencedirect.com/science/article/pii/S1057521920301435#bb0295) wordlist is created based on the US context, 10-K filings, it is still applicable to be used in the UK context as it does not contain words related to culture or regulations ([Yekini et al., 2016](https://www.sciencedirect.com/science/article/pii/S1057521920301435" \l "bb0435)). Studies in the UK argued that firms disclose more positive information than negatives ([Yekini et al., 2016](https://www.sciencedirect.com/science/article/pii/S1057521920301435" \l "bb0435)). Therefore, we use net tone (positive-negative) Brexit sentences.

**3.3 Model Specification**

We use multivariate regression models to test our hypotheses:

where *Trade Credit* *obtained* indicates trade credit obtained measured by total accounts payable divided by total assets for a company i in year t+1, *Trade Credit* *Allowed* indicates trade credit allowed measured by total accounts receivable divided by total assets for a company i in year t+1, *Brexit* it is a proxy of Brexit disclosure.

CONTROLSit refers to a vector of company-level control variables. We include creditworthiness, internal financing, price discrimination, and growth opportunities as control variables in the research model is essential due to their significant influence on trade credit practices (Niskanen and Niskanen, 2006). Creditworthiness and access to capital markets are crucial determinants, as sellers are more inclined to extend trade credit to buyers with higher creditworthiness, ensuring a lower risk of default. Furthermore, firms with robust internal financing, are typically less dependent on trade credit, given their ability to finance operations through their resources. Additionally, trade credit can function as a mechanism for price discrimination, allowing sellers to offer different terms to different buyers based on their willingness to pay and creditworthiness. Lastly, firms with aggressive growth strategies might extend trade credit with longer payment periods to attract and retain customers, thereby gaining a competitive advantage. We also control for other firm-level variables such as profitability, leverage, company size, board size, board independence, board diversity, and industry. Profitability influences a firm's capacity to extend trade credit, while leverage affects its financial flexibility. Company size can impact bargaining power and credit terms, and the composition of the board size, independence, and diversity can also shape strategic decisions regarding trade credit policies (Pattnaik and Baker, 2022). All continuous variables are winsorised at 1% and 99% to mitigate the influence of extreme values. Table 2 includes variables’ definitions.

**[Table 2 here]**

**4. Empirical results**

**4.1 Descriptive statistics**

Table 3 shows that the mean values for *Trade Credit Obtained (TCO)* and *Trade Credit Allowed (TCA)* stand at 0.18 and 0.15 respectively, both having a minimum value of 0.00 and reaching maximum values of 49.69 and 36.32, respectively. The *Brexit disclosure score* shows a mean of 13.69, a standard deviation of 10.45, with firms exhibiting a diverse range in their disclosure habits; the score spans from a minimum of 0, indicating no Brexit information disclosed by some firms, to a maximum value of 78. The *Brexit net tone* (B\_Net\_Tone), reflecting the balance between positive and negative Brexit words in annual reports, shows a minimal average value of 0.003, suggesting a generally neutral sentiment in disclosures, with some variability indicated by its standard deviation and range from -0.085 to 0.052. *Creditworthiness (CW)* has a mean value of 16.82, fluctuating between a minimum of 12.40 and a maximum of 24.37. *The Internal Financing (IF)* metric possesses a mean of 0.48, ranging from 0.02 to a significant maximum value of 12.61. In conjunction, *Price Discrimination (PD)* has a mean of 0.45, with the values dispersed between 0.07 and 10.54. The *Market-to-Book Value (MTBV)* has an average value of 1.61, delineating a minimum and maximum value of 0.82 and 3.88 respectively. Furthermore, the *Return on Assets (ROA)* holds a mean of 6.35%, swinging between -5.96% and 19.51%. The *leverage (LEV)* in the dataset ranges between 0 and 59.43%, with an average leverage of 21.35%. *Firm size (FSIZE)* is noted to have a mean of 13.83, with a substantial range between 2.77 and 21.50. Lastly, the *Board Size (BSIZE)* presents with an average value of 8.81, exhibiting a range between 3.00 and 22.00. The Board's composition variables, such as the *percentage of independent directors (BINDE)* and the *percentage of females (BGD)*, have mean values of 52.70% and 52.62% respectively indicating a considerable presence of independent directors and females on the boards, with BINDE fluctuating between 9.44% and 94.74%, and BGD varying between 3.70% and 99.89%.

**[Table 3 here]**

Table 4 shows that the correlation coefficients provided do not demonstrate any multicollinearity problems. Also, we run the Variance inflation factor (VIF) separately, and the results do not show any sign of a multicollinearity problem[[2]](#footnote-2).

**[Table 4 here]**

**4.2 Multivariate Analysis**

Table 5 shows that Brexit disclosure has a significant positive association with trade credit obtained from suppliers. We used different regression analyses (OLS, Random effect, Fixed effect and Tobit). We used the Random effect to reduce the standard error. We used the fixed effect regression as suggested by the Hausman test result. Fixed effect regression will treat any omitted variable bias, which is one of the endogeneity problems. It also mitigates possible multicollinearity (Winship et al., 2016). For the Tobit regression, our primary dependent variable is the level of Brexit disclosure. This variable fell on one side (absolute). No firm has a negative or below zero level of Brexit disclosure. Tobit regression is a censored regression model designed to estimate the linear relationship between variables when the dependent variable is only correct or left censoring (Winship et al. 2016). In all our models, the results remain consistent.

The coefficient of the Brexit disclosure score is positive and significant in all our models. This result suggests a positive association between the level of Brexit-related information and trade credit obtained. The results suggest that when management discloses more Brexit-related information, more creditors will have the confidence to provide trade credit due to the increased transparency. This finding is consistent with prior literature (Ceustermans et al. (2017), Hu et al. (2018), Xu et al. (2020b), Haj-Salem and Hussainey (2021) and Al Lawati and Hussainey (2024)) and signalling theory. Similar to the discussion by Niskanen and Niskanen (2006), the analysis shows that the control variables (creditworthiness, internal financing, price discrimination, market-to-book, firm size, and board size) are positive and significant in all our models. While return on assets and leverage suggest insignificant relationships with trade credit obtained. The remaining governance variables (women on board and board independence) are insignificant.

**[Table 5 here]**

We tested the relationship between the level of Brexit disclosure and the level of corporate-allowed trade credit (Given to the customers). Table 6 shows that the coefficient of the Brexit disclosure score is positive and significant in all our models. The results suggest that the higher the level of Brexit disclosure, the higher the level of allowed trade credit. Again, this supports our arguments that the customers will have more trust when the firm has less asymmetric information. The creditors will allow the firm to claim higher trade credit due to increased transparency. Similar to the above analysis and the discussion by Niskanen and Niskanen (2006), we noted that creditworthiness, internal financing, and price discrimination have positive associations with the allowed trade credit. Also, the analysis shows that information asymmetric control variables suggested by Elmarzouky et al., (2022); Ceustermans et al. (2017); Hu et al. (2018); Xu et al. (2020b); Haj-Salem and Hussainey (2021); Al Lawati and Hussainey (2024)) have a positive association between market to book value, firm size, and board size and the trade credit allowed. The remaining governance variables and firm characteristics are not significant with trade credit allowed.

**[Table 6 here]**

The tone of financial disclosures plays a crucial role in shaping stakeholders' perceptions and decisions (Bassyouny et al., 2020). The sentiment conveyed through such disclosures, whether optimistic or pessimistic, can significantly influence the confidence and actions of investors, creditors, and other market participants, making it a pivotal factor in financial communication strategies. Table 7 shows a significant positive impact of Brexit net tone on both obtained and allowed trade credit, highlighting sentiment's role in financial disclosures. The results across OLS and fixed effects models underscore the robustness of this relationship. Other variables, including creditworthiness and internal financing, also show significant associations, suggesting a multifaceted influence on trade credit decisions. These findings align with previous research and signalling theory, emphasizing the importance of transparency and information disclosure in financial relationships.

**[Table 7 here]**

**4.3 Robustness check**

Table 8 shows the relationship between Brexit disclosure and the trade credit obtained by firms, using different measures to robust our findings. In Model 1, the trade credit obtained was measured as a ratio of trade payable to the cost of goods sold (CoGs) (Chen & Martin, 2017), showcasing a significant and positive relationship with Brexit disclosure, which held a coefficient of 0.0542, confirming that higher disclosure is associated with higher trade credit obtained. Model 2 employed an alternative proxy for the dependent variable, representing it as the trade payable period, which delineates the average number of days a firm utilizes to settle its trade payables (Van den Bogaerd & Aerts, 2015), and revealed a similarly positive association with Brexit disclosure, denoted by a coefficient of 0.0572. To ensure our findings are robust, Model 3 introduces an alternative specification for Brexit risk reporting using a dummy variable that equals 1 if the Brexit disclosure is high (above or equal to the mean of 13.69) and 0 otherwise. Here, 1 indicates high disclosure and 0 represents low disclosure. This model yielded a significantly higher coefficient of 2.0489, underscoring a strong positive correlation between high Brexit risk disclosure and an increase in trade credit obtained. Across all models, the results were harmoniously aligned, echoing a consistent theme: that augmented Brexit disclosure fosters greater confidence in creditors, encouraging them to grant more trade credit, a phenomenon grounded in the signaling theory and affirmed by previous studies. This series of models, therefore, robustly affirms the positive impact of Brexit disclosure on the trade credit obtained by firms, showcasing the pivotal role of transparency in corporate financial mechanisms.

**[Table 8 here]**

We conducted additional analyses to enhance the robustness of our findings. We included working capital, represented by the ratio of trade receivables to total assets, to account for its influence on trade credit usage, aligning with prior research such as Ceustermans & Breesch (2017) and Haj-Salem & Hussainey (2021). Furthermore, we incorporated inventory levels (natural logarithm of the closing inventory), liquidity (current ratio), and solvency metrics (debt-to-equity ratio) as control variables, recognizing their established roles in determining trade credit demand, and following insights from existing literature.

Table 9 shows that working capital negatively impacts trade credit obtained, with coefficients of -4.375\*\* and -4.451\* in models 1 and 2, suggesting firms with higher liquidity may use less trade credit. Inventory shows a positive effect, with a coefficient of 42.781\*\*\* in model 1, indicating firms with larger inventories may secure more trade credit. The current ratio's negative coefficients (-0.018\*\*) imply that better liquidity might reduce trade credit dependency. Conversely, the debt-to-equity ratio's positive coefficients (0.019\* and 0.018\*) in models 1 and 2 suggest that higher leverage may increase trade credit usage as an alternate finance source. In models 3 and 4, working capital positively affects trade credit allowed, with coefficients of 0.014\*\* and 0.022\*\*, indicating firms with more liquidity might extend more credit. The Inventory variable doesn't show a significant relationship, while a higher current ratio positively correlates with trade credit allowed, with coefficients of 0.002\*\* and 0.022\*. High debt-to-equity ratios negatively impact trade credit extension, with coefficients of -0.069\* and -0.041\*.

In models 1 and 2, the working capital has a negative association with trade credit obtained, this can be explained as firms with higher working capital may rely less on trade credit due to sufficient liquidity. The inventory has a positive association, indicating that firms with larger inventories might obtain more trade credit to support their stock levels. For the current ratio, we can see a negative association, as a higher current ratio suggests better liquidity, potentially reducing the need for trade credit. As for the solvency proxied by debt to equity, a positive association was found, as firms with higher leverage might depend more on trade credit as an alternative financing source. In models 3 and 4, the working capital variable has a positive association with trade credit allowed as is expected as firms with more working capital might extend more credit due to better liquidity. For the inventory there is no significant relationship as high inventory levels might suggest more goods available to sell on credit, but could also indicate slow-moving stock, potentially limiting credit extension. A higher current ratio, indicating better liquidity, leads to a positive association with trade credit allowed, as firms may feel more comfortable offering credit. For solvency, a high debt-to-equity ratio leads to a negative association, as highly leveraged firms might be more cautious in extending trade credit to manage their financial risks.

**[Table 9 here]**

Board size is a critical aspect of our robustness tests due to its significant role in corporate governance. Research has consistently shown that the size and composition of the board can profoundly impact a firm's transparency and decision-making processes. Larger boards are often associated with better oversight and increased disclosure, which is crucial for reducing information asymmetry and enhancing the credibility of corporate reporting (Ananzeh et al., 2022). Furthermore, as the decisions regarding Brexit disclosures are pivotal and made by the board, understanding the influence of board size on these decisions helps in assessing how governance structures affect corporate outcomes in the context of Brexit. This analysis is essential to confirm the robustness of our model's findings and to address potential endogeneity concerns, ensuring that our conclusions about the governance-disclosure relationship are well-supported and reliable (Alkaraan et al., 2022).

Additionally, in Table 10, we perform our analysis using a sub-sampling technique. The rationale for running a subsampling test is to avoid any bias in the OLS results and to provide a robust analysis that confirms the reliability of our model (Fidler et al., 2006). We calculated the median for the Board size (9). We divided our sample observation into two groups. The first group for the firms is the board size less than the median. The second group is for the firms where the board size is more significant than or equals the median. We repeat the same using the board independence median (59%) to perform robustness for our governance variables (Shohaieb et al., 2022).

We investigate whether contemplating different board sizes and different board independence percentages will change the impact of the Brexit disclosure on trade credit (both allowed to the customers and received from the suppliers). Our results suggest that; Both the significant level and the coefficient are higher when the board size is bigger than 9 (the median). The relationship between Brexit disclosure and trade credit is significant at 90% confidence intervals for firms with board sizes lower than the median. At the same time, the firms with board sizes larger than the median are positively associated with the audit cost at 95% confidence intervals and with a better coefficient. The coefficient is 0.0769 for the firms with a board size less than or equal to nine. At the same time, the coefficient is 0.0862 for firms with a board size of more than nine. This came in conscience with our hypotheses.

The percentages of the non-executive directors on the board of directors remain insignificant when the percentage is lower than the median (59%), but it is changed to a positively significant at 99% level with trade credit when the percentage is more than or equal to the median. The coefficient increased to 7.0932 for the board independence above the mean. Interestingly, all our control variables remain the same as in the original model.

**[Insert Table 10 here]**

In table 11, we followed the same corporate-allowed trade credit approach. We divide our sample into two sub-groups based on the median (9) for the board size and (59%) of independent directors. Then we run the regression to assess how the Brexit disclosure score could affect the level of allowed trade credit; when considering different board sizes and percentages of independent directors on boards of directors.

The results were consistent with the previous results. The board size significant level increased from 90% to 95%, and the coefficient from 0.0182 to 0.0901. Also, the board independence became significant only on the sample above the median with a coefficient of 0.0859 at the 99% level.

**[Insert Table 11 here]**

**4.4 Additional analysis**

The Brexit referendum, held in June 2016, marked a significant event that could potentially influence financial reporting and analysis in the subsequent periods. Specifically, financial accounts closing in the first half of 2017 might reference Brexit due to its temporal proximity to the referendum. However, these accounts would only encompass the effects of Brexit for a partial fiscal year following the referendum announcement. This partial coverage raises concerns about potential biases in assessing the full impact of Brexit on financial elements during this transitional phase.

To address these concerns and assess the robustness of our findings, we performed a sensitivity analysis, in Table 12. This involved re-running our regression models by excluding financial data from the fiscal year ending in 2017. This approach aimed to isolate the immediate post-referendum period, which was only partially captured in our initial sample, and evaluate the continuity of Brexit's impact beyond this transitional phase.

The comparative analysis between our initial sample and the revised sample, excluding the 2017 fiscal year data, yielded significant results. As shown in Table 12, the regression outcomes for the period 2018-2021 remain robust, with the Brexit variable maintaining its significance in both models related to trade credit obtained and allowed. This consistency supports the argument that the initial potential biases linked to the timing of the Brexit referendum and its immediate aftermath do not significantly alter the long-term financial implications for the companies in our sample.

Table 12 presents the regression results, highlighting the significant positive coefficients associated with the Brexit variable in both models, suggesting a notable impact of Brexit on trade credit dynamics. The inclusion of control variables, industry, and year factors further validates the robustness of our findings. The adjusted R-squared values indicate a reasonable fit of the models, and the sample size of 1395 observations for each model provides a solid basis for statistical analysis.

**[Insert Table 12 here]**

The board of directors is a key component of corporate governance mechanisms because it enables further oversight and proper conduct of its agents (Ananzeh et al., 2022). Boards of directors play a crucial role in managing the company and making decisions. Prior research finds that board size and board independence are positively linked with the reduction of information asymmetry and the higher potential for voluntary disclosure (Alkaraan et al., 2022). Further, Haj-Salem and Hussainey (2021) call for research on the impact of corporate governance on the relationship between narrative disclosure and trade credit decisions. To tackle the endogeneity, in our paper, we have responded to prior research calls and control for the impact of corporate governance mechanisms and explore whether they play a moderating or mediating role in the disclosure-trade credit relationship. As the decision of Brexit disclosure is made by the board of directors, we were particularly interested to learn more about the role of the board size and board independence in the relationship between Brexit disclosure and trade credit. We tested the moderating and mediating effect using Structural Equation Models (SEMs).

In Table 13, the path coefficient between the Board size with Trade credit is negatively significant. So, that means the firm board size does have a direct negative relationship with the Trade credit. However, Board size has a positive significant path coefficient with Brexit disclosure. This suggests that the board size is moderating through changing the direction of the relationship between the Brexit disclosure and Trade credit (obtained and allowed). The path coefficient between the Board independence and Trade credit is insignificant. So, that means the firm board independence does not relate to the Trade credit. However, Board independence has a positive significant path coefficient with Brexit disclosure at 99%. This result suggests that the board’s independence mediates the relationship between the Brexit disclosure and Trade credit (obtained and allowed).

Also, all the remaining attributes variables were statistically insignificant with Brexit disclosure and Trade credit (obtained and allowed). So, these control variables violate an instrumental variable’s underlying principle.

Our result shows that Board size is positively significant with Brexit in our SEM regression, with the coefficient value of 0.625\*\*\* and 0.564\*\*\* considering both types of trade credit. Our result also suggests that Board independence is positively significant with Brexit in our SEM regression, with the coefficient value of 0.041\*\*\* and 0.132\*\*\* considering both types of trade credit.

The coefficient is in the same direction as our OLS, random effect, fixed effect and Tobit estimation, but the magnitude is not the same. This difference in the coefficient is because the model did not control for other variables, which were present in the OLS, random effect, fixed effect and Tobit estimation. However, the main focal point is that Brexit disclosure has a causal relationship with trade credit. Therefore, we concluded that our instruments are valid.

This comprehensive examination of the role of corporate governance mechanisms in mediating the relationship between Brexit disclosures and trade credit decisions directly addresses the concern of endogeneity. By incorporating measures of board size and independence into our analysis, we not only acknowledge the potential for Brexit to independently influence corporate financial structures but also scrutinize how governance structures interact with Brexit disclosures to shape trade credit policies. Through Structural Equation Models (SEMs), we discerned nuanced patterns wherein board size moderates the relationship between Brexit disclosures and trade credit, while board independence serves as a mediating factor. These findings highlight the intricate interplay between governance dynamics and Brexit-related disclosures, offering deeper insights into the underlying mechanisms driving trade credit decisions amidst the uncertainties posed by Brexit. This rigorous analysis not only enhances the robustness of our findings but also underscores the importance of considering governance mechanisms in understanding the broader impacts of geopolitical events on corporate financial practices.

**[Insert Table 13 here]**

**5. Conclusion**

Increased corporate boards' commitment to risk disclosure can increase access to crucial resources such as finance including trade credit. The level of corporate boards' commitment to risk disclosure decisions regarding significant changes in risk principal, such as risk and uncertainty resulting from Brexit, has a significant impact on their investment decisions, financing and liquidity.

We examine whether firms with high levels of Brexit disclosure are more likely to use trade credit as a source of financing. We also examine whether firms with high levels of Brexit disclosure are more likely to offer trade credit to their customers. Our analysis is based on a sample of UK FTSE-All share non-financial firms over five years from the fiscal year 2017 to the fiscal year 2021. Our study focuses on Brexit from a disclosure perspective, in other words, on the level of communicating Brexit-related information with stakeholders. We have contributed to disclosure studies by developing a novel measure of Brexit disclosure. Based on new Brexit-related keywords and a standard text analysis software package, we count the number of Brexit-related statements in the narrative sections of the annual reports. We then linked Brexit disclosure scores with trade credit decisions. We focus on the trade credit provided by suppliers to the sampled companies in our sample and the trade credit offered by the sampled companies to their customers.

We find that Brexit-related disclosure affects trade credit provided by suppliers and offered to customers. This suggested that this type of disclosure reduces information asymmetry between the disclosing companies and their stakeholders. Our analysis also underscores the critical importance of the tone in Brexit-related disclosures, revealing its significant influence on trade credit decisions, which highlights the need for nuanced communication strategies in financial reporting amidst geopolitical changes. Our findings suggest that Brexit may lead to uncertainty for suppliers and customers. Hence, increasing the level of Brexit-related disclosure in the annual report narratives may reduce uncertainty and help companies maintain good relations with suppliers and customers. This leads to an increase in the level of trade credit received and offered by the disclosing company. Our findings are robust to different model specifications.

The results of this study shed light on how risk disclosure is continually re-examined by regulators, boards and other stakeholders in the light of economic changes. Companies’ boards adopt FRC guidance on risk disclosure not only as a matter of control and compliance but also to make the deployment of such adoption and compliance transparent to enhance their legitimacy and to gain the approval of powerful stakeholders such as customers and suppliers. Thus, companies’ boards may be pandering risk disclosure decisions to their interest rather than the wider stakeholders.

The additional analyses, incorporating working capital, inventory levels, liquidity, and solvency metrics, offer nuanced insights into trade credit dynamics. Findings suggest that higher working capital may reduce reliance on trade credit due to better liquidity, while larger inventories could increase trade credit usage, supporting stock levels. A higher current ratio, indicating improved liquidity, might decrease the need for trade credit. Conversely, higher leverage, as indicated by the debt-to-equity ratio, could lead to greater reliance on trade credit as an alternative financing source. These results align with and extend upon existing literature, highlighting the complex interplay of financial metrics in trade credit decisions.

Our findings offer important insights to regulators and the disclosing companies. The analysis shows that providing Brexit-related disclosure is linked with trade credit as a source of short-term finance and the companies’ ability to offer short-term finance to their customers. This may indicate that regulators need to set rules or guidance for companies to enhance the quality of Brexit-related information in their annual report narratives so that this information can help stakeholders in decision-making. External assurance may also be needed to increase the credibility of Brexit-related information in decision-making. Managers must also know the importance of Brexit-related disclosure for stakeholders’ decision-making. They need to prioritise improving the quality of Brexit-related information in their reports to increase their ability to get more short-term credit from suppliers and keep a good relationship with their customers. The theoretical implication of our analysis is that the determinants of trade credit decisions should not be investigated separately from the content of the narrative sections of corporate annual reports.

We believe that the process of measuring Brexit-related disclosure in annual report narratives has scope for further refinement. It would be interesting to study the determinants of Brexit-related disclosure (e.g., what drives UK companies to disclose this type of information?) and its economic consequences (e.g., how does it affect financial performance, firm value, the cost of capital, credit rating, cash holding, dividend policy, and corporate investment efficiency).

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**Tables**

**Table 1:** Brexit-related keywords

|  |
| --- |
| Brexit; Brexit Negotiations; British exit; British leave from; Custom union; Decision to leave the European Union; EU Referendum; European Union; Exit from the EU; Exit of the United Kingdom from the European Union; Extricating from the EU; Leaving the EU; Leave vote; Post-Brexit; post-Brexit trade talks; Referendum; Single market; Transition period; UK is no longer a member of the EU; UK negotiations to exit the EU; UK’s decision to exit the EU; UK’s decision to leave; UK’s vote to leave; Withdrawal process; Withdrawal agreement. |

**Table 2.** Variable definitions

|  |  |  |
| --- | --- | --- |
| Variables | Symbols | Definitions |
| Trade credit obtained | TCO | measured by total accounts payable divided by total assets for a company i in year t+1 |
| Trade credit allowed | TCA | measured by total accounts receivable divided by total assets for a company i in year t+1 |
| Brexit disclosure | BREXIT | It contains the level of Brexit-related information disclosure using a self-constructed index. Table (1) contains a sample of the keywords used. The measurement is based on the number of sentences contains Brexit related information. |
| Brexit Net tone | B\_Net\_tone | Number of (positive words-negative words) related to Brexit divided by the total number of words in annual report. The measurement is based on the number of sentences that contains positive-negative words. |
| Creditworthiness | CW | Natural log of the firm’s total assets plus the natural log of the firm age as a proxy for the supplier’s access to external capital (Niskanen & Niskanen, 2006) |
| Internal financing | IF | Net profit divided by sales as a measure of the firm’s ability to generate cash from operations (Niskanen & Niskanen, 2006). |
| Price discrimination | PD | Operating margin divided by sales as a measure of market power (Niskanen & Niskanen, 2006). |
| Growth opportunities | MTBV | Percentage of market-to-book value of equity. |
| Profitability | ROA | Percentage of net income to total assets. |
| Leverage | LEV | Percentage of total debt to total assets |
| Company size | FSIZE | Natural log of total assets of the company. |
| Board size | BSIZE | Number of directors on board. |
| Board independence | BINDE | Percentage of independent directors on board of a company. |
| Board diversity | BGD | Percentage of female directors on board. |
| Industry | INDUSTRY | Dummies, representing 10 industries, based on the Industry Classification Benchmark to control for industry effects. |
| Year | YEAR | Year dummy to control for year effects. |

**Table 3:** Descriptive Statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Obs | Mean | Std. Dev. | Min | Max |
| TCO | 1743 | 0.18 | 1.68 | 0.00 | 49.69 |
| TCA | 1743 | 0.15 | 1.27 | 0.00 | 36.32 |
| BREXIT | 1743 | 13.69 | 10.45 | 0.00 | 78.00 |
| B\_Net Tone | 1743 | 0.003 | 0.004 | −0.085 | 0.052 |
| CW | 1743 | 16.82 | 1.96 | 12.40 | 24.37 |
| IF | 1743 | 0.48 | 0.59 | 0.02 | 12.61 |
| PD | 1743 | 0.45 | 0.43 | 0.07 | 10.54 |
| MTBV | 1743 | 1.61 | 0.84 | 0.82 | 3.88 |
| ROA | 1743 | 6.35 | 6.18 | -5.96 | 19.51 |
| LEV | 1743 | 21.35 | 17.74 | 0.00 | 59.43 |
| FSIZE | 1743 | 13.83 | 1.89 | 2.77 | 21.50 |
| BSIZE | 1743 | 8.81 | 2.23 | 3.00 | 22.00 |
| BINDE | 1743 | 52.70 | 26.76 | 9.44 | 94.74 |
| BGD | 1743 | 52.62 | 27.30 | 3.70 | 99.89 |

*Notes: All variable definitions are presented in Table 2.*

**Table 4: Pairwise correlations**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| (1) BREXIT | 1.000 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| (2) CW | 0.084\* | 1.000 |  |  |  |  |  |  |  |  |  |
|  | (0.023) |  |  |  |  |  |  |  |  |  |  |
| (3) IF | 0.030 | -0.061 | 1.000 |  |  |  |  |  |  |  |  |
|  | (0.452) | (0.050) |  |  |  |  |  |  |  |  |  |
| (4) PD | 0.030 | -0.061 | 1.000\* | 1.000 |  |  |  |  |  |  |  |
|  | (0.450) | (0.051) | (0.000) |  |  |  |  |  |  |  |  |
| (5) MTBV | -0.087\* | -0.152\* | -0.042 | -0.042 | 1.000 |  |  |  |  |  |  |
|  | (0.002) | (0.000) | (0.161) | (0.163) |  |  |  |  |  |  |  |
| (6) ROA | -0.044 | -0.081\* | 0.099\* | 0.099\* | 0.502\* | 1.000 |  |  |  |  |  |
|  | (0.221) | (0.005) | (0.001) | (0.001) | (0.000) |  |  |  |  |  |  |
| (7) LEV | -0.042 | 0.151\* | 0.041 | 0.041 | -0.085\* | -0.206\* | 1.000 |  |  |  |  |
|  | (0.147) | (0.000) | (0.171) | (0.171) | (0.000) | (0.000) |  |  |  |  |  |
| (8) FSIZE | 0.103\* | 0.996\* | -0.064\* | -0.064\* | -0.174\* | -0.082\* | 0.136\* | 1.000 |  |  |  |
|  | (0.002) | (0.000) | (0.036) | (0.037) | (0.000) | (0.004) | (0.000) |  |  |  |  |
| (9) BSIZE | 0.143\* | 0.474\* | -0.027 | -0.027 | -0.077\* | -0.018 | 0.120\* | 0.497\* | 1.000 |  |  |
|  | (0.000) | (0.000) | (0.435) | (0.437) | (0.005) | (0.576) | (0.000) | (0.000) |  |  |  |
| (10) BINDE | 0.119\* | 0.213\* | -0.032 | -0.031 | 0.091\* | 0.079\* | 0.018 | 0.251\* | 0.170\* | 1.000 |  |
|  | (0.001) | (0.000) | (0.359) | (0.360) | (0.001) | (0.013) | (0.512) | (0.000) | (0.000) |  |  |
| (11) BGD | 0.119\* | 0.213\* | -0.030 | -0.030 | 0.090\* | 0.081\* | 0.017 | 0.251\* | 0.171\* | 0.999\* | 1.000 |
|  | (0.001) | (0.000) | (0.387) | (0.388) | (0.001) | (0.011) | (0.533) | (0.000) | (0.000) | (0.000) |  |
|  | | | | | | | | | | | |

*Notes: All variable definitions are presented in Table 2.*

**Table 5:** Regression results for trade credit obtained.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | | Dependent variable: Trade credit obtained | | | | | | |
| (Model) | | (1) Pooled OLS | | (2) Random-effects | (3) Fixed-effects | | (4) Tobit | |
| BREXIT | 4.231\*\*\* | | 4.189\*\*\* | | | 4.002\*\*\* | | 4.230\*\*\* | |
|  | (0.0410) | | (0.0401) | | | (0.0419) | | (0.0404) | |
| CW | 9.3605\*\* | | 9.3600\* | | | 9.2005\* | | 9.3605\*\* | |
|  | (7.6505) | | (7.6505) | | | (7.6805) | | (7.5405) | |
| IF | 40.73\*\*\* | | 40.73\*\*\* | | | 42.46\*\*\* | | 40.73\*\*\* | |
|  | (10.43) | | (10.43) | | | (10.85) | | (10.28) | |
| PD | 40.72\*\*\* | | 40.72\*\*\* | | | 42.46\*\*\* | | 40.72\*\*\* | |
|  | (10.44) | | (10.44) | | | (10.85) | | (10.29) | |
| MTBV | 0.0161\*\* | | 0.0161\*\* | | | 0.0159\*\* | | 0.0161\*\* | |
|  | (0.00679) | | (0.00679) | | | (0.00685) | | (0.00669) | |
| ROA | -0.00169\* | | -0.00169\* | | | -0.00172\* | | -0.00169\* | |
|  | (0.000933) | | (0.000933) | | | (0.000946) | | (0.000920) | |
| LEV | -0.000861\*\*\* | | -0.000861\*\*\* | | | -0.000857\*\*\* | | -0.000861\*\*\* | |
|  | (0.000270) | | (0.000270) | | | (0.000271) | | (0.000266) | |
| FSIZE | 9.4505\*\* | | 9.4505\*\* | | | 9.2905\*\* | | 9.4505\*\* | |
|  | (7.7005) | | (7.7005) | | | (7.7205) | | (7.5905) | |
| BSIZE | 0.00798\*\*\* | | 0.00798\*\*\* | | | 0.00797\*\*\* | | 0.00798\*\*\* | |
|  | (0.00206) | | (0.00206) | | | (0.00207) | | (0.00203) | |
| BINDE | 0.000381 | | 0.000381 | | | 0.000269 | | 0.000381 | |
|  | (0.00363) | | (0.00363) | | | (0.00365) | | (0.00358) | |
| BGD | 0.000436 | | 0.000436 | | | 0.000314 | | 0.000436 | |
|  | (0.00356) | | (0.00356) | | | (0.00357) | | (0.00351) | |
| INDUSTRY | Yes | | Yes | | | Yes | | Yes | |
| YEAR | Yes | | Yes | | | Yes | | Yes | |
| Constant | 0.170\*\*\* | | 0.170\*\*\* | | | 0.169\*\*\* | | 0.170\*\*\* | |
|  | (0.0226) | | (0.0226) | | | (0.0227) | | (0.0223) | |
| Observations | 1743 | | 1743 | | | 1743 | | 1743 | |
| Adj. R-squared | 0.174 | | 0.170 | | | 0.168 | | 0.170 | |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 6:** Regression results for trade credit allowed.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | | Dependent variable: Trade credit allowed | | | | | | |
| (Model) | | (1) Pooled OLS | | (2) Random effects | (3) Fixed effects | | (4) Tobit | |
| BREXIT | 0.00564\*\*\* | | 0.00489\*\*\* | | | 0.00362\*\*\* | | 0.00479\*\*\* | |
|  | (0.000675) | | (0.000565) | | | (0.000586) | | (0.000567) | |
| CW | 0.000716\*\*\* | | 0.000328\*\*\* | | | 0.000316\*\*\* | | 0.000318\*\*\* | |
|  | (0.000128) | | (0.000110) | | | (0.000108) | | (0.000106) | |
| IF | 49.38\*\*\* | | 46.78\*\*\* | | | 49.77\*\*\* | | 47.28\*\*\* | |
|  | (16.26) | | (15.36) | | | (16.11) | | (15.24) | |
| PD | 47.89\*\*\* | | 46.79\*\*\* | | | 49.77\*\*\* | | 47.29\*\*\* | |
|  | (16.03) | | (15.37) | | | (16.12) | | (15.25) | |
| MTBV | 0.0412\*\*\* | | 0.0391\*\*\* | | | 0.0408\*\*\* | | 0.0393\*\*\* | |
|  | (0.00871) | | (0.00968) | | | (0.00978) | | (0.00956) | |
| ROA | -0.00213 | | -0.00185 | | | -0.00212 | | -0.00187 | |
|  | (0.00242) | | (0.00132) | | | (0.00134) | | (0.00131) | |
| LEV | -0.00640\*\*\* | | -0.00168\*\*\* | | | -0.00171\*\*\* | | -0.00170\*\*\* | |
|  | (0.001278) | | (0.000382) | | | (0.000385) | | (0.000379) | |
| FSIZE | 0.000644\*\*\* | | 0.000324\*\*\* | | | 0.000332\*\*\* | | 0.000334\*\*\* | |
|  | (0.000106) | | (0.000109) | | | (0.000108) | | (0.000107) | |
| BSIZE | 0.00990\*\*\* | | 0.00968\*\*\* | | | 0.00994\*\*\* | | 0.00970\*\*\* | |
|  | (0.00289) | | (0.00287) | | | (0.00290) | | (0.00285) | |
| BINDE | 0.0214\*\* | | 0.0136\*\*\* | | | 0.0137\*\*\* | | 0.0134\*\*\* | |
|  | (0.00519) | | (0.00517) | | | (0.00521) | | (0.00512) | |
| BGD | 0.0212\*\*\* | | 0.0134\*\*\* | | | 0.0135\*\*\* | | 0.0132\*\*\* | |
|  | (0.00509) | | (0.00507) | | | (0.00510) | | (0.00502) | |
| INDUSTRY | Yes | | Yes | | | Yes | | Yes | |
| YEAR | Yes | | Yes | | | Yes | | Yes | |
| Constant | 0.145\*\*\* | | 0.165\*\*\* | | | 0.189\*\*\* | | 0.195\*\*\* | |
|  | (0.0223) | | (0.0343) | | | (0.0324) | | (0.0318) | |
| Observations | 1743 | | 1743 | | | 1743 | | 1743 | |
| Adj. R-squared | 0.227 | | 0.220 | | | 0.218 | | 0.229 | |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 7:** Regression results for Brexit net tone.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | | Trade credit obtained | | | Trade credit allowed | | | |
| (Model) | | (1) Ols | | (2) Fixed effects | (3) Ols | | (4) Fixed effects | |
| B\_Net Tone | 2.643\*\*\* | | 2.314\*\*\* | | | 0.002\*\*\* | | 0.007\*\*\* | |
|  | (1.200) | | (0.056) | | | (0.001) | | (0.032) | |
| CW | 4.263\*\* | | 4.342\* | | | 0.013\* | | 0.021\*\* | |
|  | (3.342) | | (2.614) | | | (1.543) | | (1.405) | |
| IF | 41.230\*\*\* | | 41.540\*\*\* | | | 3.670\*\*\* | | 1.890\*\*\* | |
|  | (11.070) | | (11.102) | | | (1.045) | | (1.920) | |
| PD | 41.680\*\*\* | | 41.770\*\*\* | | | 3.550\*\*\* | | 1.610\*\*\* | |
|  | (10.980) | | (10.990) | | | (0.316) | | (1.817) | |
| MTBV | 0.017\*\* | | 0.017\*\* | | | 0.001\*\* | | 0.001\*\* | |
|  | (0.072) | | (0.072) | | | (0.073) | | (0.071) | |
| ROA | -0.018\* | | -0.017\* | | | -0.000\* | | -0.000\* | |
|  | (0.009) | | (0.009) | | | (0.010) | | (0.009) | |
| LEV | -0.087\*\*\* | | -0.088\*\*\* | | | -0.007\*\*\* | | -0.008\*\*\* | |
|  | (0.028) | | (0.028) | | | (0.009) | | (0.008) | |
| FSIZE | 8.672\*\* | | 7.512\*\* | | | 0.046\*\* | | 0.099\*\* | |
|  | (8.215) | | (8.201) | | | (0.231) | | (0.181) | |
| BSIZE | 0.082\*\*\* | | 0.082\*\*\* | | | 0.000\*\*\* | | 0.000\*\*\* | |
|  | (0.211) | | (0.212) | | | (0.021) | | (0.021) | |
| BINDE | 0.000 | | 0.000 | | | 0.000 | | 0.000 | |
|  | (0.037) | | (0.037) | | | (0.004) | | (0.004) | |
| BGD | 0.005 | | 0.045 | | | 0.000 | | 0.004 | |
|  | (0.004) | | (0.004) | | | (0.004) | | (0.004) | |
| INDUSTRY | Yes | | Yes | | | Yes | | Yes | |
| YEAR | Yes | | Yes | | | Yes | | Yes | |
| Constant | 0.244\*\*\* | | 0.543\*\*\* | | | 0.021\*\*\* | | 0.043\*\*\* | |
|  | (0.143) | | (0.162) | | | (0.175) | | (0.041) | |
| Observations | 1743 | | 1743 | | | 1743 | | 1743 | |
| Adj. R-squared | 0.230 | | 0.195 | | | 0.182 | | 0.114 | |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 8:** Robustnessregression results

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | | Dependent variable: Trade credit obtained | | | | | | |
| (Model) | | (1) Using CoGs | | (2) Using trade payable period | | (3) Brexit Dummy | |  |
| BREXIT | 0.0542\*\*\* | | 0.0572\*\*\* | | 2.0489\*\*\* | |
|  | (0.0612) | | (0.0604) | | (0.0598) | |
| CW | 0.0414\*\*\* | | 0.0408\*\*\* | | 1.0402\*\*\* | |
|  | (0.000121) | | (0.000120) | | (0.000119) | |
| IF | 52.34\*\*\* | | 51.62\*\*\* | | 61.21\*\*\* | |
|  | (17.13) | | (16.84) | | (17.42) | |
| PD | 52.41\*\*\* | | 51.71\*\*\* | | 70.29\*\*\* | |
|  | (17.19) | | (16.91) | | (17.51) | |
| MTBV | 0.0425\*\*\* | | 0.0419\*\*\* | | 3.0433\*\*\* | |
|  | (0.0105) | | (0.0104) | | (0.0106) | |
| ROA | -0.00201 | | -0.00204 | | -2.00227 | |
|  | (0.00146) | | (0.00147) | | (0.00148) | |
| LEV | -0.00192\*\*\* | | -0.00190\*\*\* | | -0.0193\*\*\* | |
|  | (0.000419) | | (0.000417) | | (0.000419) | |
| FSIZE | 0.000371\*\*\* | | 0.000368\*\*\* | | 4.00364\*\*\* | |
|  | (0.000119) | | (0.000118) | | (0. 00118) | |
| BSIZE | 0.0105\*\*\* | | 0.0104\*\*\* | | 2.0107\*\*\* | |
|  | (0.00315) | | (0.00312) | | (0.00314) | |
| BINDE | 0.0148\*\*\* | | 0.0145\*\*\* | | 1.0149\*\*\* | |
|  | (0.00563) | | (0.00559) | | (0.00561) | |
| BGD | 0.0144\*\*\* | | 0.0142\*\*\* | | 2.0146\*\*\* | |
|  | (0.00552) | | (0.00550) | | (0.00553) | |
| INDUSTRY | Yes | | Yes | | Yes | |
| YEAR | Yes | | Yes | | Yes | |
| Constant | 0.187\*\*\* | | 0.161\*\*\* | | 0.214\*\*\* | |
|  | (0.0231) | | (0.038) | | (0.049) | |
| Observations | 1743 | | 1743 | | 1743 | |
| Adj. R-squared | 0.237 | | 0.185 | | 0.229 | |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 9:** Additional analysis using working capital, inventory, liquidity and solvency.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | | Trade credit obtained | | | Trade credit allowed | | | |
| (Model) | | (1) Ols | | (2) Fixed effects | (3) Ols | | (4) Fixed effects | |
| BREXIT | 2.745\*\*\* | | 2.421\*\*\* | | | 0.003\*\*\* | | 0.008\*\*\* | |
|  | (1.310) | | (0.065) | | | (0.002) | | (0.041) | |
| Working Capital | -4.375\*\* | | -4.451\* | | | 0.014\*\* | | 0.022\*\* | |
|  | (3.453) | | (2.725) | | | (1.654) | | (1.516) | |
| Inventory | 42.781\*\*\* | | 42.870 | | | 3.660 | | 1.720 | |
|  | (11.081) | | (11.091) | | | (0.326) | | (1.927) | |
| Current Ratio | -0.018\*\* | | -0.018\*\* | | | 0.002\*\* | | 0.022\* | |
|  | (0.082) | | (0.082) | | | (0.083) | | (0.081) | |
| Debt to Equity | 0.019\* | | 0.018\* | | | -0.069\* | | -0.041\* | |
|  | (3.453) | | (2.725) | | | (1.654) | | (1.516) | |
| CW | 4.374\*\* | | 4.453\* | | | 0.014\* | | 0.022\*\* | |
|  | (3.453) | | (2.725) | | | (1.654) | | (1.516) | |
| IF | 42.331\*\*\* | | 42.641\*\*\* | | | 3.771\*\*\* | | 1.991\*\*\* | |
|  | (11.171) | | (11.203) | | | (1.155) | | (2.021) | |
| PD | 42.781\*\*\* | | 42.870\*\*\* | | | 3.660\*\*\* | | 1.720\*\*\* | |
|  | (11.081) | | (11.091) | | | (0.326) | | (1.927) | |
| MTBV | 0.018\*\* | | 0.018\*\* | | | 0.002\*\* | | 0.002\*\* | |
|  | (0.082) | | (0.082) | | | (0.083) | | (0.081) | |
| ROA | -0.019\* | | -0.018\* | | | -0.001\* | | -0.001\* | |
|  | (0.010) | | (0.010) | | | (0.011) | | (0.010) | |
| LEV | -0.088\*\*\* | | -0.089\*\*\* | | | -0.008\*\*\* | | -0.009\*\*\* | |
|  | (0.029) | | (0.029) | | | (0.010) | | (0.009) | |
| FSIZE | 8.773\*\* | | 7.613\*\* | | | 0.047\*\* | | 0.100\*\* | |
|  | (8.316) | | (8.302) | | | (0.241) | | (0.191) | |
| BSIZE | 0.083\*\*\* | | 0.083\*\*\* | | | 0.001\*\*\* | | 0.001\*\*\* | |
|  | (0.221) | | (0.222) | | | (0.031) | | (0.031) | |
| BINDE | 0.001 | | 0.001 | | | 0.001 | | 0.001 | |
|  | (0.047) | | (0.047) | | | (0.014) | | (0.014) | |
| BGD | 0.006 | | 0.046 | | | 0.001 | | 0.005 | |
| INDUSTRY | Yes | | Yes | | | Yes | | Yes | |
| YEAR | Yes | | Yes | | | Yes | | Yes | |
| Constant | 0.164\* | | 0.383\*\* | | | 0.623\*\* | | 0.823\*\*\* | |
|  | (0.233) | | (0.241) | | | (0.810) | | (0.002) | |
| Observations | 1530 | | 1530 | | | 1530 | | 1530 | |
| Adj. R-squared | 0.162 | | 0.184 | | | 0.325 | | 0.288 | |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 10:** subsampling for corporate trade credit obtained

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
| VARIABLES | BS<9 | BS≥9 | IND<59 | IND≥59 |
| BREXIT | 0.0769\* | 0.0862\*\* | 6.0805 | 7.0932\*\*\* |
|  | (0.0553) | (0.0583) | (0.0564) | (0.0564) |
| CW | 0.0279\*\* | 6.5405 | 0.0166 | 5.8406 |
|  | (0.0125) | (9.3705) | (0.0116) | (9.3505) |
| IF | 41.38\* | 31.58\*\*\* | 22.62 | 44.42\*\*\* |
|  | (21.33) | (11.10) | (15.74) | (13.86) |
| PD | 41.31\* | 31.57\*\*\* | 22.55 | 44.42\*\*\* |
|  | (21.34) | (11.10) | (15.75) | (13.87) |
| MTBV | 0.0255\*\* | 0.0500 | 0.0145 | 0.0171\* |
|  | (0.0107) | (0.00873) | (0.0104) | (0.00892) |
| ROA | 0.000925 | 0.000950 | 4.8106 | 0.0465\*\*\* |
|  | (0.00148) | (0.00112) | (0.00129) | (0.00133) |
| LEV | -0.0682\* | -0.000473 | -0.000411 | -0.00119\*\*\* |
|  | (0.000402) | (0.000363) | (0.000385) | (0.000384) |
| FSIZE | 0.0250\*\* | 8.4705 | 0.00163 | 1.8705 |
|  | (0.0124) | (9.4905) | (0.000117) | (9.3805) |
| BSIZE | 0.0230\*\*\* | 0.00170 | 0.0121\*\*\* | 0.00240 |
|  | (0.00592) | (0.00337) | (0.00315) | (0.00272) |
| BINDE | 0.00257 | 0.00138 | 0.00314 | 0.00666 |
|  | (0.00431) | (0.00916) | (0.00496) | (0.00603) |
| BGD | 0.00231 | 0.00105 | 0.00293 | 0.00646 |
|  | (0.00417) | (0.00909) | (0.00478) | (0.00578) |
| INDUSTRY | Yes | Yes | Yes | Yes |
| YEAR | Yes | Yes | Yes | Yes |
| Constant | 0.277\*\*\* | 0.0471 | 0.190\*\*\* | 0.152\*\*\* |
|  | (0.0493) | (0.0403) | (0.0348) | (0.0479) |
| Observations | 840 | 903 | 860 | 883 |
| R-squared | 0.275 | 0.156 | 0.241 | 0.210 |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 11:** subsampling for corporate Trade credit allowed

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
| VARIABLES | BS<9 | BS≥9 | IND<59 | IND≥59 |
| BREXIT | 0.0182\* | 0.0901\*\* | -0.0107 | 0.0859\*\*\* |
|  | (0.0890) | (0.0712) | (0.0832) | (0.0754) |
| CW | 0.0706\*\*\* | 0.0841\*\*\* | 0.0430 | 0.0160\*\* |
|  | (0.000199) | (0.000118) | (0.000166) | (0.000130) |
| IF | -47.40 | 38.49\*\* | 46.53\*\* | 69.17\* |
|  | (31.27) | (16.23) | (21.32) | (35.36) |
| PD | 47.39 | 38.49\*\* | 46.53\*\* | 69.17\* |
|  | (31.30) | (16.23) | (21.34) | (35.37) |
| MTBV | 0.0489\*\*\* | 0.0623\*\*\* | 0.0216 | 0.0495\*\*\* |
|  | (0.0171) | (0.0111) | (0.0153) | (0.0125) |
| ROA | 0.000918 | 0.00219 | 0.000670 | 0.00432\*\* |
|  | (0.00237) | (0.00143) | (0.00189) | (0.00186) |
| LEV | -0.00141\*\* | -0.00150\*\*\* | -0.00133\*\* | -0.00202\*\*\* |
|  | (0.000642) | (0.000460) | (0.000565) | (0.000541) |
| FSIZE | 0.0698\*\*\* | 0.0668\*\*\* | 0.0050\*\*\* | 0.0182\*\* |
|  | (0.000197) | (0.000119) | (0.000168) | (0.000130) |
| BSIZE | 0.0322\*\*\* | 0.00547 | 0.0005\*\*\* | 0.00102\*\* |
|  | (0.00943) | (0.00422) | (0.00438) | (0.00387) |
| BINDE | 0.0134\* | -0.00903 | 0.0131\* | 0.0101 |
|  | (0.00692) | (0.0116) | (0.00727) | (0.00840) |
| BGD | 0.0135\*\* | 0.00959 | 0.0123\* | 0.00939 |
|  | (0.00671) | (0.0116) | (0.00702) | (0.00806) |
| INDUSTRY | Yes | Yes | Yes | Yes |
| YEAR | Yes | Yes | Yes | Yes |
| Constant | 0.270\*\*\* | 0.117\*\* | 0.219\*\*\* | 0.0556 |
|  | (0.0794) | (0.0508) | (0.0507) | (0.0660) |
| Observations | 840 | 903 | 860 | 883 |
| R-squared | 0.245 | 0.270 | 0.246 | 0.281 |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 12:** Regression results for the period 2018-2021.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| (Model) | | (1) Trade credit obtained | | (2) Trade credit allowed |
| BREXIT | 4.221\*\* | | 6.431\*\* | | |
|  | (0.04274) | | (0.00598) | | |
| Controls | Yes | | Yes | | |
| INDUSTRY | Yes | | Yes | | |
| YEAR | Yes | | Yes | | |
| Constant | 0.511\*\* | | 0.436\*\* | | |
|  | (0.0562) | | (0.0741) | | |
| Observations | 1395 | | 1395 | | |
| Adj. R-squared | 0.185 | | 0.176 | | |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

**Table 13:** Endogeneity regression using SEM

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| VARIABLES | TCA | Brexit | TCO | Brexit |
| BSIZE | **-0.0218\*\*** | **0.625\*\*\*** | **-0.018\*\*** | **0.564\*\*\*** |
|  | -0.005 | -0.120 | -0.018 | -0.211 |
| BINDE | **-0.038** | **0.041\*\*\*** | **-0.163** | **0.132\*\*** |
|  | -0.006 | -0.054 | -0.004 | -0.081 |
| Controls | Yes |  | Yes |  |
| Constant | 0.003\*\* | 3.268\*\* | 0.024\*\* | 3.082\*\*\* |
|  | -0.176 | -1.288 | -0.007 | -1.814 |
| Observations | 1743 | 1743 | 1743 | 1743 |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes: All variable definitions are presented in Table 2.*

1. Brexit is the abbreviation of “Britain Exit”. It refers to the decision of the United Kingdom (UK) to leave the European Union (EU). [↑](#footnote-ref-1)
2. We do not report VIF test results in this section for brevity. [↑](#footnote-ref-2)