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Arising borders and the value of logistic companies: Evidence from the Brexit referendum in Great Britain

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ABSTRACT

The Brexit referendum may result in new border controls and a separation of Great Britain from the EU and Continental Europe. These consequences will impede the import and export of goods and can therefore have a strong effect on the valuation of logistic companies. We employ event study methodology and regression analysis, examining 107 logistic companies from continental EU countries and Great Britain. While the results indicate an overall negative value effect, UK based companies have a significantly poorer performance than logistic companies from Continental Europe. Companies that focus on the road transport as well as diversified firms are less affected.

1. Introduction

On 23 June 2016 the British citizens (surprisingly) decided to instruct their government to detach their country from the European Union. This process can have a major impact on the logistics sector when border controls are installed and impede the import and export of goods from and to Great Britain. British companies have to expect additional VAT (value added taxes) and duties. Both factors negatively affect the overall economy in Great Britain and Continental Europe but specifically the logistics sector.

Logistics industry is of course not the only industry affected by the Brexit but it is perhaps the most obvious one. According to the UK government, 44 per cent of all British exports are transported to EU countries. It can be expected that the Brexit will create borders over time which will have an impact on the logistics efficiency because of slower movement of goods. Moving goods across borders within the EU is easy and cheap at present. The only documentation needed for transporting goods from one country in the EU to another is a copy of the packing list or commercial invoice and the travel document (waybill, bill of landing or CMR note). At the moment, there is no customs clearance process and no duties applied. VAT doesn't have to be handed over before the goods can be moved from the receiving port or airport. After the Brexit additional administrative burdens will apply and if the UK is treated like other countries from outside the EU, it will also be necessary to submit customs declarations to the authorities for goods leaving and entering the UK. As transportation follows production, logistics industry can be considered as an indicator and a concentrated aggregate of the overall consequences

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the Brexit has on manufacturing. Therefore, we expect to find sustainable negative stock price reactions for logistic firms in the aftermath of the Brexit referendum. As documented by Pastor and Veronesi (2012) changes in government policy affect stock prices and the magnitude of negative returns is large if uncertainty in government policy is high.

We choose the Brexit event mainly for three reasons: (i) the outcome was unpredictable until the final day as both sides competed head-to-head (ii) the impact of the referendum result has to be significant as never before an EU member wanted to leave the European Union[1] and the conclusions are not assessable yet (iii) a vote for "leave" implies an increase of uncertainty especially in the logistics sector as it is not clear what changes will come up regarding border controls, duties and taxes.

There is already considerable empirical evidence indicating that political changes, such as elections, affect overall stock markets. Santa-Clara and Valkanov (2003), for example, examine stock returns in the U.S. presidencies elections. Further, Nippani and Medlin (2002) observe negative stock market reactions on the delay in the declaration of the U.S. presidential election winner of 2000 on the domestic stock market. Indeed, most of the empirical evidence deals with politics in the U.S, but there are also studies with broader perspective or a different regional focus. Białkowski et al. (2008) investigate the stock market volatility surrounding national elections in 27 OECD countries and find that the country-specific component of index return variance can increase significantly, if several factors such as the political orientation of the government change are controlled for. Pantzalis et al. (2000) find positive abnormal returns in the two weeks before elections across 33 countries. In particular, when the incumbent government loses the election, they find positive reactions in the market. And Döpke and Pierdzioch (2006) investigate the impact of political changes in Germany and find only weak evidence for an impact on the stock market. Our analysis tries to derive a more differentiated picture of political change by analyzing single stocks of a heavily affected industry instead of general stock market indices.

2. Sample construction and methodology

We focus our analysis on the day after the EU referendum in the United Kingdom, when the national declaration of the result took place at breakfast time the following day. We set the event date accordingly to Friday, 24 June 2016.

Since we focus on stock price reactions of logistic companies, we first collect all exchange-listed logistics stocks in the European Union. Then, we drop all firms and observations with illiquid trading patterns and check for confounding events (M&A; ad hoc announcements). This leaves us with a final sample of 107 observations - 21 for British enterprises and 86 companies headquartered in the rest of the 27 member countries of the EU.

Table 1 summarizes the sample firms by country (Panel A) and by SIC Code (Panel B).

We employ the methodology of the standard market model event study, as introduced by Dodd and Warner (1983) and Brown and Warner (1985). The cumulative abnormal return (CAR) for stock i during the event window $[\tau\ 1;\ \tau\ 2]$ surrounding the event day t = 0 is calculated as follows:

$$\mathrm{CAR}_{i,[\tau 1,\tau 2]} = \sum_{t=\tau_1}^{\tau_2} (R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{M,t}) \tag{1}$$

where $\mathrm{CAR}_{i,\,[\tau 1,\tau 2]}$ is the CAR i during the event window, $\mathrm{R}_{i,t}$ is the actually realized return of company i on day t, $\mathrm{R}_{m,t}$ is the return of the benchmark index of company i on day t, and $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the regression coefficients from an ordinary least squares (OLS) regression using a 252 trading day estimation period. As benchmark indices we use the Datastream's value-weighted total return national stock market index of stock i's country.

Finally, the average CAR (ACAR) for a sample of N firms is calculated as follows:

$$\mathrm{ACAR}_{[\tau 1,\tau 2]} = \frac{1}{N}\sum_{i=1}^{N} \mathrm{CAR}_{i,\,[\tau 1,\tau 2]} \tag{2}$$

ACARs are calculated for the interval $[\tau 1;\ \tau 2] \in [-4;\ +10]$. In order to test the significance of the ACARs, we apply the parametric test statistic following Boehmer et al. (1991), the BMP-test, and the nonparametric rank test following Corrado (1989), which was later refined by Corrado and Zivney (1992), the CZ-test.

Finally, we perform a cross-sectional regression analysis to identify the logistic specific drivers of the CARs. The multivariate ordinary least squares (OLS) regression in its full specification takes the following form:

$$\begin{aligned}\mathrm{CAR}_{i,[\tau 1;\tau 2]} = {} & \beta_0 + \beta_1 SIZE + \beta_2 MTBR + \beta_3 PERFORMANCE + \beta_4 DIVERSIFICATION + \beta_5 ROAD + \beta_6 WATER + \beta_7 AIR \\ & + \beta_8 UK + \beta_9 UK * AIR + \epsilon \end{aligned} \tag{3}$$

where $\mathrm{CAR}_{i,[\tau 1;\tau 2]}$ is the dependent variable, SIZE is the logarithm of the market value of a company in EUR in 2015, the year prior the event, MTBR is the market-to-book-ratio in 2015, PERFORMANCE is the past stock performance of the year before the event. DIVERSIFICATION is the amount of 4-digit SIC codes a firm has, ROAD is set to 1, if the company's primary SIC

[1] In fact, Greenland left the predecessor of the EU, the EWG, in 1985.

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