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Article

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Abstract
Which companies gain and which companies lose from trade agreements? In contrast to a view that sees the largest companies as the main beneficiaries of trade agreements, we argue that medium-sized companies gain the most from them. Moreover, we examine whether more capital-intensive and more diversified companies benefit more than other firms. Our empirical test relies on a dataset with daily firm-level stock price data for close to 4,000 US companies over the period 2009–2016. Concretely, we assess how the shares of different types of firms reacted to the news on the (lack of) progress of the negotiations aimed at concluding the TPP and TTIP. We find support for the view that medium-sized and diversified companies win the most from trade agreements. Besides speaking to the literature on the distributional effects of trade agreements, the article contributes to recent research on the role of firms in the international political economy and the stock market consequences of political events. It also presents a novel approach to measuring progress and stagnation in international trade negotiations using computational text analysis.

1. Introduction

Developed countries currently witness a backlash to globalization. After many years of moving towards ever more liberal trade and economic relations, we now see at least a partial reversal of these policies. In Europe, Brexit and strong opposition to the TTIP, a potential trade agreement between the US and the EU that did not materialize, epitomize this globalization backlash (Dür et al., 2020). In the US, the election of Donald Trump as president and the decision to withdraw from the TPP are mentioned as examples of this reaction to globalization.

Many researchers and observers use the distributional consequences of trade policy choices to explain this development (Rodrik, 2018; Saval, 2017). The deep trade agreements that countries conclude, the argument goes, mainly benefit the already wealthy, while hurting the relatively less well-off. As a result, the latter increasingly turn against globalization in general and trade agreements in particular. But what are the actual distributive consequences of trade policy choices? We contribute to answering this question by focusing on which companies gain or lose from trade agreements.

Building on the so-called "new–new trade theory" (Ciuriak et al., 2015; Melitz & Redding, 2014), we present three expectations on the relationship between firm characteristics and trade agreements. The first argument deals with differences in company sizes. Critics of trade agreements see the largest multinational companies as their main beneficiaries. Some academic research supports this view (Baccini et al., 2017; Breinlich, 2014). Others take a more benign view. Illustratively, supporters

of TTIP predicted that this agreement would mainly benefit small and medium-sized companies. The United States Trade Representative Mike Froman (as cited in Workman, 2014, p. ii), for example, stated: "Among the many beneficiaries of TTIP, perhaps small businesses stand to gain the most." We side with the second view in arguing that the largest companies engage in international trade even with the existing barriers. These barriers, however, are prohibitive for slightly smaller companies. The reduction of barriers, then, mainly benefits these medium-sized companies, by allowing them to become active participants in international trade. Furthermore, we expect that capital-intensive and diversified companies gain more from the conclusion of trade agreements than other companies.

We test our argument with a stock market event study that relies on daily firm-level stock price data for 3,926 US companies, over the period of 2009–2016. Specifically, we assess how the shares of different types of firms reacted to the news on the (lack of) progress of the negotiations aimed at concluding the TPP and TTIP. TPP was supposed to be a trade agreement among 12 countries in the Pacific region, including the US. It failed when the last decided to withdraw its signature from the agreement in early 2017. TTIP aimed to facilitate trade between the US and the EU. Formal negotiations for TTIP started in 2013 but stalled in 2016.

Our study is not the first to examine the stock market impact of trade agreements. More than two decades ago, Thompson (1993, 1994) analyzed how the Canada–US Free Trade Agreement affected the market value of Canadian companies. Breinlich (2014) reanalyzed the same agreement from within the framework of the new–new trade theory. Whereas these studies just focused on a single country, Rodriguez (2003) investigated the (sectoral-level) stock market impact of the North American Free Trade Agreement in all three participating countries. Moving to a quite different context, Parinduri and Thangavelu (2013) studied the impact of the US–Singapore free trade agreement. Looking at a disintegration event, Davies and Studnicka (2018) assessed the impact of the exit of the UK from the EU on stock prices. Finally, Moser and Rose (2014) studied the impact of a large number of preferential trade agreements on aggregate national stock market indices.

We make several contributions to this state-of-the-art. First, whereas all the studies that looked at firm-level effects focused on a single trade agreement, we included two agreements in our analysis. This increases the robustness of our results and allows us to check for any differences depending on agreement characteristics. Second, we study both "positive" (i.e., pro-integration) and "negative" (i.e., disintegration) events in a single study. Doing so allows for a much better empirical test of our expectations. Third, we use automated text analysis to identify the relevant events. Most previous studies either only considered a single event (mainly the signature of a trade agreement) or very few, manually

selected events. The approach used in these studies faces the problem that investors may already become convinced that an agreement is very likely before the agreement is signed. The effect of the news on the signature may therefore be very small. By focusing on a larger number of events throughout the process of negotiations, we managed to remedy this problem.

In making and testing our argument, the article also contributes to a broader strand of research that uses stock market data to assess the impact of political events (Bechtel & Schneider, 2010; Schneider & Troeger, 2006; Wolfers & Zitzewitz, 2018). Furthermore, we contribute to a growing literature on the role of firms in international political economy (Jensen et al., 2015; Milner, 1988; Osgood, 2018). Finally, in terms of policy implications, our study suggests that recent policies that have the potential to reduce global openness under the banner of "economic security," such as the EU's European Economic Security Strategy (European Commission, 2023), may negatively affect mid-sized firms in particular, which find it more difficult to adjust to new circumstances than the largest firms. If such policies really favor the largest players, they may reduce rather than enhance countries' resilience to shocks.

2. Argument

In line with what has been called "new new trade theory" (Ciuriak et al., 2015; Melitz & Redding, 2014), recent research has shown much variation in the consequences of trade liberalization or other trade policies across firms within the same industry (Baccini et al., 2017; Breinlich, 2014; Melitz & Redding, 2014; Osgood, 2017). Increased trade leads to a reallocation of production within the same sector from firms with relatively low productivity (which also tend to be smaller companies) to firms with higher productivity (which tend to be the largest companies in a sector, see e.g., Leung et al., 2008). We draw on this strand of literature when proposing a set of hypotheses on the distributional effect of trade agreements at the level of firms.

Throughout the following discussion, we build on the assumption that investors—which tend to be of the institutional type, that is, professionals investing the money of others—are aware of the effects of trade (agreements) on different firms. To make informed investment decisions, they follow the news on trade negotiations. Given that most investments in stock markets are undertaken by institutional investors, the assumption that they are well-informed about trade negotiations is plausible. For the argument, it does not matter whether they get this information via media or through another channel.

When the news indicates that the chances for a successful conclusion of a negotiation increase, they buy shares of companies that they expect to benefit from the agreement and sell shares of companies that they expect to be hurt by the agreement. If the news indicates that the chances for a successful conclusion of

the negotiations decrease, the investors will do just the opposite—sell the shares of the companies that would benefit from the agreement and buy the shares of the companies that would lose from the agreement. Selling means that the price of the shares decreases, whereas buying means that the price of the shares increases. At any time, therefore, the value of a stock internalizes all the information available to investors and, hence, takes into account expected future changes in profitability.

The starting point for our argument is that, across all sectors, relatively few firms engage in international trade. Illustratively, for the US, Bernard et al. (2007, p. 109) showed that less than a fifth of all firms in the manufacturing sector export goods. This value is similar for other industrialized countries (World Trade Organization, 2008, p. 53). Improved access to foreign markets then benefits only a subset of firms within each sector. The same applies to importing: Once again, only a minority of companies source imports abroad and hence benefit from lower domestic trade barriers. As there is much overlap across the two sets of firms—those that export and those that import—most companies cannot directly benefit from trade liberalization.

Of course, modern trade agreements do more than just liberalize trade. They also protect FDI and intellectual property rights and even affect domestic regulations via regulatory cooperation (Dür et al., 2014). From the home country perspective, the protection of FDI mostly matters for a small number of companies, as only a few companies tend to produce abroad. In the host country, a larger number of companies may face increased competition from FDI because of a trade agreement. In an agreement between developed countries, provisions concerning the protection of intellectual property rights generally do not matter much, but they can affect firms in agreements with countries at lower levels of development. Regulatory cooperation can have a broader impact, but in practice regulatory cooperation does not actually change domestic rules, but at most offers some form of mutual recognition.

Moreover, via several mechanisms, trade agreements can indirectly matter for companies that neither engage in international trade nor invest abroad. Companies lose from trade liberalization if they now face competition from abroad for the goods they produce or the services they provide. Or they can benefit from trade liberalization if their output is used as input in new exports. Trade liberalization also affects the costs of factors of production, which matter for all firms in an economy. In fact, in the model put forward by Melitz and Redding (2014), the reallocation of resources across companies that results from trade liberalization mainly works via an increase in the price of labor.

Finally, trade agreements matter for all companies via their impact on economic growth. The deep agreements that currently are negotiated generally increase participating countries' gross domestic product. However, the macroeconomic impact of many trade agreements is small, especially those that are signed among minor trading partners. In any case, this impact via economic growth should be relatively homogenous across firms.

Keeping all of this in mind, what are the firms that benefit most from a new trade agreement? An argument could be made that the benefits should mainly accrue to the largest firms in an economy. As stated previously, only a minority of firms export their goods or services. Those that do tend to be larger and more innovative than those that do not. For example, manufacturing exporters from the US are more than twice as large in terms of employment than otherwise equal firms that do not export (Bernard et al., 2007, p. 110). The most prominent explanation for this observation is that firms pay a fixed entry cost when they want to export. Only for the most profitable companies is it worthwhile to pay this entry cost. Just as exporting, sourcing abroad is mainly undertaken by large companies (Bernard et al., 2007). This is so because the fixed costs of establishing a supply chain are relatively high, not least because the relationship-specific investments for both buyers and sellers of intermediates are high (Antràs & Staiger, 2012, p. 3141). Finding a seller then is a tricky task. Only for large firms, the lower variable costs of foreign suppliers outweigh the higher fixed costs of establishing an international supply chain (Helpman et al., 2004). The same logic applies to FDI: Once again, only the largest companies tend to invest abroad. What is more, these large companies also have the political clout to shape the contents of trade agreements (Anderer et al., 2020; Sell, 2003). Overall, one might expect large firms to benefit from trade agreements and smaller ones to lose (or at least the former to benefit more than the latter).

However, there also is an alternative perspective on the impact of firm size on the benefits of trade agreements. Proponents of such agreements tend to argue that they mainly benefit small and medium-sized companies (European Commission, 2013; Persin, 2011; Workman, 2014). The logic of this argument is straightforward: Although the fixed costs of exporting, importing, or investing abroad under normal trading conditions are high, the largest and most productive companies can engage in all these activities even in the absence of a trade agreement. By reducing competition, barriers that keep fixed costs high can even benefit them. Trade agreements not only reduce variable costs such as tariffs, but also fixed costs, such as customs formalities, regulatory barriers, or risks to FDI. The reduction of these fixed costs should mainly benefit the mid-sized companies that in the absence of a trade agreement are barred from directly participating in international trade and investments. In the words of Workman (2014, p. 6): "A TTIP agreement that eliminates duplicative regulatory requirements and harmonizes equivalent standards would have an outsized positive impact on SMEs [small and medium-sized enterprises]." In fact, trade liberalization might allow some firms that previously only

produced for the domestic market to become exporters; and others that so far only sourced their inputs domestically to become importers.

Independent of whether this increase in exports and imports is due to trade creation or trade diversion, these firms are likely to reap some gains from doing so, as firms that engage in trade have been shown to grow more rapidly (Bernard et al., 2003; Kasahara & Lapham, 2013). What is more, the productivity gains from moving from non-exporting to exporting are greatest for plants that were relatively less productive at the starting point (Lileeva & Trefler, 2010). Finally, the chances of survival are higher for firms that engage in trade (Wagner, 2012, pp. 256–261). A trade agreement thus creates particularly large benefits for firms that manage to become exporters or importers. As we expect that, medium-sized companies, in particular, change from buying and selling locally to operating internationally, the benefits should be particularly visible for the latter group. Considering that in the context of a study on stock market reactions, the relatively smaller companies are medium-sized (because really small companies are not listed on stock markets), our first hypothesis reads as follows:

H1: The positive (negative) effect on share prices of events that make the conclusion of a trade agreement more (less) likely is larger for relatively smaller companies.

Recent research has also shown that international trade is inherently more capital-intensive than the supply of goods to the domestic market (Bernard et al., 2007; Ciuriak et al., 2015; Matsuyama, 2007). This contradicts traditional theories of trade, which expected that some countries (namely capital-rich ones) export capital-intensive goods and other countries (namely, labor-rich ones) export labor-intensive goods. It is also in line with this observation that much international trade is of an intra-industry nature, where countries exchange products within the same industry. With trade inherently biased towards capital-intensive goods and services, more capital-intensive companies should reap greater gains from trade agreements. We thus also expect:

H2: The positive/negative effect on share prices of events that make the conclusion of a trade agreement more/less likely is larger, the more capital-intensive a company is.

Finally, we expect that the companies that will be best situated to gain from a new trade agreement are those that are active across several sectors. Companies with high product diversification have a greater ability to take advantage of new opportunities that open up as a result of such agreements, or to shift focus away from products where trade agreements increase foreign competition. Indeed, research on multiproduct firms shows that companies that face tariff reductions tend to lower the number of products they produce (Bernard et al., 2011), which in turn increases their productivity (Nocke & Yeaple, 2014). Alternatively, it might be argued that companies that are more diversified in terms of the number of products they produce are less dependent on trade agreements, meaning that their share prices react less to news about trade agreements. As we expect the former effect to dominate, however, our third hypothesis reads:

H3: The positive/negative effect on share prices of events that make the conclusion of a trade agreement more/less likely is larger, the more diversified a company is.

3. Research Design

We test our argument relying on the negotiations for TPP and TTIP. The former involved up to 12 countries, including highly developed countries such as Japan and the US, and developing countries such as Malaysia and Vietnam. The negotiations started in 2008 and continued until 2015 when a draft agreement was reached after 19 negotiation rounds. A very broad agreement, covering everything from tariff reductions to the protection of intellectual property rights and investments, was signed in 2016. In late 2016, then-President-elect Donald Trump announced that he would withdraw the signature by the US. The 11 remaining countries eventually moved ahead without the US. The TTIP negotiations between the US and the EU started with the establishment of a High-Level Working Group on Jobs and Growth in November 2011. Based on the report produced by this working group, formal negotiations for an agreement started in early 2013. Despite many negotiation rounds, no agreement could be reached on TTIP, and the negotiations were suspended when the Trump administration took over from the Obama administration in early 2017.

Both negotiations went through many ups and downs, making it possible to assess the impact of news on their progress or failure on companies' share prices. These ups and downs were not only produced by the willingness of the negotiation parties to make concessions but also by the reaction of the public. Both TPP and TTIP faced considerable public opposition in some countries, with this opposition contributing to their final demise. The two negotiations are also ideal for testing our argument as they are sufficiently important for it to be plausible that they had a detectable impact on stock prices. All trade agreements should matter at least for some companies (as otherwise they are unlikely to be signed), but an event study is not able to estimate these effects if only a few companies are affected, for example, because the agreement is between two countries with only weak trade links between them. For reasons of data availability, we focus on companies that have their headquarters in the US. Since the depth of the American

capital market is unrivaled, concentrating on the US also has substantive benefits.

3.1. Dependent Variable

The dependent variable captures the abnormal returns for companies—that is the difference between their actual stock price change and the one expected given previous performance or overall market movement—around a series of important events characterizing the TPP and TTIP negotiations. Worldscope provides data on 3,926 companies that have their headquarters in the US and that are listed on a stock exchange (mainly NASDAQ and the New York Stock Exchange). To generate a company's abnormal returns, three standard event-study methodologies exist: market-adjusted models with within-sample estimation, market-adjusted models with out-of-sample estimation, and mean-adjusted models (MacKinlay, 1997). In our baseline model, we rely on the market-adjusted approach with in-sample estimation, but we employ the other two methodologies in robustness checks.

The market-adjusted models are calculated with the share price as the dependent variable and a broad-based stock index as a predictor:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \beta_{e,i} E_t + \epsilon_{i,t}$$

Where $R_{i,t}$ is the return for a specific firm i at time t, $R_{m,t}$ is the return on the market portfolio at that same time, and E_t represents a dummy that is 1 if t falls into the estimation window and 0 otherwise. We take the S&P 500 to measure the market return, that is $R_{m,t}$. The event dummy is only relevant in the within-sample estimations, where we concatenate the estimation period ($t - 120$ to $t - 2$) and the event period ($t - 1$ to $t + 5$). Starting the estimation period at $t - 120$ makes sense given the double objective of having sufficient information to estimate the model and not introducing too much noise in the model. We use a 7-day event period since markets are unlikely to efficiently price in new information in a single day. The coefficient $\beta_{e,i}$ then represents the (cumulative) abnormal return measure ($CAR_{i,t}$), which is the value of the dependent variable for firm i and event T. The advantage of using this model is that we get significance levels for the event coefficient $\beta_{e,i}$, which informs us whether a company's returns during the event period were statistically significantly different from its expected returns.

For the out-of-sample estimation, we also use the period from 120 days before an event until two days before an event as an estimation window. The α_i and β_i that we receive from this model then allow us to calculate the expected return for a firm at time t. The abnormal return for each company is the difference between the observed return at time t and the expected return at time t. We again cumulate these abnormal returns starting one day before an event and ending five days after the event.

3.2. The Predictors

The main explanatory variable that we are interested in captures events that indicate progress or stagnation/failure of the TPP and TTIP negotiations. Rather than manually selecting some events, we decided to rely on the automated analysis of newspaper reports. For this purpose, we retrieved newspaper reports published in the US from LexisNexis. We found 2,359 newspaper articles on TPP published between 1 January 2009 and 31 December 2017 and 1,193 newspaper articles on TTIP that were published between 1 January 2013 and 31 December 2017. We then used computational text analysis to classify progress and stagnation events (more information on the exact approach is available in section A in the Supplementary File). Concretely, we relied on the support vector machine and random forest machine learning algorithms, as they outperformed alternative approaches after being trained on 400 manually coded texts. If these two algorithms agreed, we took the respective value; if not, we used the value of the algorithm that was certain with a probability greater than 80%. We experimented with other probability thresholds (65, 70, 75, 85, 90, 95, 100) but the 80% threshold offered the best performance results in terms of recall and precision. In case both algorithms were certain with a probability greater than 80% and calculated different results or if both algorithms were uncertain with a probability lower than 80% and disagreed, we assigned a value of 0, which is our neutral category. To aggregate values for newspaper articles to values for event dates, we first weighted newspaper-article-values by their probability and then used these weighted values to calculate the average per day. Events with a time difference of seven or fewer days are treated as one event, where we calculated the weighted value across all these days and flagged the result with the minimum date.

We then selected all negative events, which were three, and filled up the positive events to match the distribution in the manual coding sample. We ended up with seven positive events for TTIP and TPP. See Table 1 for the respective dates. Most of these events and their coding as indicating progress or stagnation are plausible given the available evidence. In October 2015, for instance, the TPP negotiations were concluded and in February 2016 TPP was signed formally. Both events are classified as indicating progress in our sample. In September 2016, Vietnam decided to delay the ratification of TPP. This event signals stagnation in the dataset. In November 2014, the first protests on TTIP emerged and we see a stagnation event in our data. Yet, we are surprised by the progress classification of 4 December 2014, which is the date when one million signatures were reached by the anti-TTIP campaign.

Figure AA.2 from the Supplementary File shows how these events affected the stock market returns of firms. For both agreements, the strongest reactions happened toward the end of the negotiation phase. Stocks of

Table 1. Positive and negative events.

Date	Agreement	Value
14-11-2009	TPP	1
14-11-2010	TPP	1
9-12-2011	TPP	1
14-12-2011	TPP	1
5-12-2014	TPP	1
19-12-2014	TPP	−1
6-10-2015	TPP	1
4-2-2016	TPP	1
29-9-2016	TPP	−1
22-11-2016	TPP	−1
18-10-2013	TTIP	−1
26-11-2013	TTIP	1
21-2-2014	TTIP	1
18-11-2014	TTIP	−1
4-12-2014	TTIP	1
12-11-2015	TTIP	1
7-12-2015	TTIP	1
18-2-2016	TTIP	−1
9-11-2016	TTIP	1
17-11-2016	TTIP	1

560 firms reacted strongly to the signature of TPP on 3 February 2016. Surprisingly, the majority of companies experienced a negative effect on their stock market returns. Contrarily, in December 2014, when the US government spoke up for fast-tracking TPP, stock market returns of nearly 400 companies increased. At the end of 2015, when the EU presented its new trade and investment policy strategy entitled Trade for All, stocks of 206 US companies reacted negatively. Similarly on 9 November 2016, when EU policy representatives announced a break in the TTIP negotiations, stock returns of 131 companies dropped. At the same time, however, the stocks of 1,302 companies gained in value.

To answer the question of who gains and who loses from progress on trade agreements, in the following analysis we interact the progress versus stagnation dummy with several firm characteristics. H1 makes us expect that the impact of these events on firms differs depending on the firms' size. We use the (natural logarithm of) firms' market value (from Worldscope) as a proxy for a firm's size (market value). Since our sample only includes companies listed on the stock market, the "small" firms in our sample are actually medium-sized. Illustratively, approximately 80% of all firms included had a market value of more than $100 million in 2016. Nevertheless, we have considerable variation in terms of company size in our dataset, with the top 10% of firms having a market value of over $12.6 billion in 2016.

In H2 we refer to the capital intensity of firms. Capital intensity means how much capital a company uses relative to labor in its production process. Using data from Worldscope, we measure this variable by dividing a company's market value by its number of employees (capital intensity). Finally, H3 draws attention to the extent to which the companies are diversified. To operationalize this variable, we use the number of sectors at the 4-digit level of the Standard Industry Classification in which the companies are active (as coded in the Worldscope database; diversification). This variable ranges from 1 to 8, which is the maximum number of codes assigned by Worldscope, with the modal value being 2. In 2010, Microsoft was coded 8 on this variable (including "prepackaged software" and "computer peripheral equipment"), whereas Nvidia was coded 1 ("semiconductors and related devices") in the same year. The correlation between market value and diversification is 0.33. Larger firms hence are also more diversified, but the two variables are sufficiently distinct to empirically distinguish their effects.

3.3. Control Variables

In the models that we present in Table 2, we also include a dummy variable that captures whether a company had any foreign sales in the year of analysis. Data come from Worldscope, with missing values multiply imputed. For the year 2016, our data indicate that 56% of the firms in our sample had no foreign sales. Moreover, we include sector, year, and day of the week, and, in models 1 and 2, the agreement fixed effects. Doing so, controls for heterogeneity across industry sectors, time, day of the week (where Sunday announcements might be different to, for example, Tuesday events), and agreement. The sector fixed effects are at the top level of the Standard Industrial Classification.

3.4. Estimation

We estimate our model relying on ordinary least squares regression but using the method of alternating projections to get rid of multiple group effects. We also cluster standard errors by firm to account for correlations across events. Despite the control variables included in our models, we face the problem (common to all event studies) of ascertaining that the abnormal returns that we establish are really caused by the events that we single out rather than other information that investors receive. For example, news about the presidential campaign in the US during 2016 had an impact on the stock market returns of companies (Wolfers & Zitzewitz, 2018). We offer three responses to this concern. First, we have a relatively large number of both positive and negative events. The probability that other, random events are driving our results declines as the number of events that

we study increases. Second, we are testing interactions between events and firm characteristics. Other events that matter for stock prices thus only are a concern if they also matter conditionally in the same way we hypothesize the trade negotiation news to matter. Third, in robustness checks, we present models for which we re-estimate our models for randomly chosen dates. If we do not find the same associations as for our event dates, the plausibility of the conclusion that our event dates capture a real effect increases.

4. Findings

In model 1 (see Table 2), which includes three interaction terms, the coefficient for the progress × market value term is negative and statistically significant (Section B in the Supplementary File shows that we get very similar results when we run the analysis separately for the

Table 2. Regression models.

	Model 1	Model 2
Market value (log)	0.0018 ***	0.0020 ***
	(0.0004)	(0.0006)
Progress	−0.0060 *	−0.0070
	(0.0030)	(0.0047)
Capital intensity	−0.0041 **	−0.0041 **
	(0.0015)	(0.0015)
Diversification	−0.0003	−0.0003
	(0.0003)	(0.0003)
Progress × Market value (log)	−0.0025 ***	−0.0022 ***
	(0.0004)	(0.0006)
Progress × Capital intensity	0.0012	0.0010
	(0.0017)	(0.0017)
Progress x Diversification	0.0013 ***	0.0013 ***
	(0.0003)	(0.0003)
Foreign sales of total sales (dummy)	—	0.0012
	—	(0.0051)
Market value × Foreign sales	—	−0.0003
	—	(0.0007)
Progress x Foreign sales	—	0.0008
	—	(0.0057)
Progress x Market value × Foreign sales	—	−0.0004
	—	(0.0008)
Number of observations	49,796	49,796
R^2 (full model)	0.0799	0.0801
R^2 (project model)	0.0099	0.0101
Adjusted R^2 (full model)	0.0794	0.0795
Adjusted R^2 (project model)	0.0094	0.0095
Number of groups: Sector	10	10
Number of groups: Year	6	6
Number of groups: Agreement	2	2
Number of groups: Weekday	5	5

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

two agreements). This is in line with H1. As our dataset excludes small companies that are not listed on the stock market, this result suggests that medium-sized companies benefit disproportionally more from progress in TTIP and TPP negotiations than large companies. Figure 1 supports this finding. The larger a company, the less it benefits from positive news on TTIP and TPP. In fact, a company with a market value of $127 million experiences on average a 0.74% higher increase in its stock market value than a company with a market value of $2,651 million.

H2 suggests that capital-intensive firms profit more from progress in trade negotiations than labor-intensive firms. In model 1, the coefficient for the interaction between progress and capital intensity is positive but fails to meet the required significance level. Figure 2 shows this effect graphically. This evidence runs counter to H2. Moreover, in model 1, we take up the expectation that news that trade negotiations are progressing well and are particularly beneficial for the stock market value of diversified companies. As expected in H3, the coefficient for the interaction term is positive and statistically significant. The substantive effect, however, is quite small: With one additional operating sector, a company earns 0.001 in cumulative abnormal returns.

We further explore the effect of market value in model 2, where we add a triple interaction term covering progress, market value, and foreign sales. The expectation that we presented in the argument is that medium-sized companies that did not yet export ben-

efit the most from a trade agreement. This is so as moving from non-exporting to exporting status comes with the highest growth opportunities. This should be less pronounced for large companies that can afford export expansion in the absence of trade agreements. Indeed, the coefficient of progress x market value, which represents large companies with no sales, is negative and significant. Keeping foreign sales constant at zero, therefore, we find that large companies lose more than medium-sized companies. In other words, size does not matter in the presence of foreign sales, but it does make a difference for firms with larger export opportunities. Medium-sized firms with no foreign sales seem to be the main winners of progress in trade agreements. This finding supports our causal argument, which emphasizes trade agreements allowing medium-sized companies to move from being non-participants to being participants in international trade.

4.1. Sectoral Effects

The effects of trade agreements also likely differ across sectors. To investigate this possibility, we interacted with the progress events in the sector and the three predictors discussed above. Contrary to the expectation of sectoral effects, Figure 3 suggests that the differences across sectors are generally relatively small. Large companies in all sectors lose in case of progress events. Diversification is significant and positive in all industries,
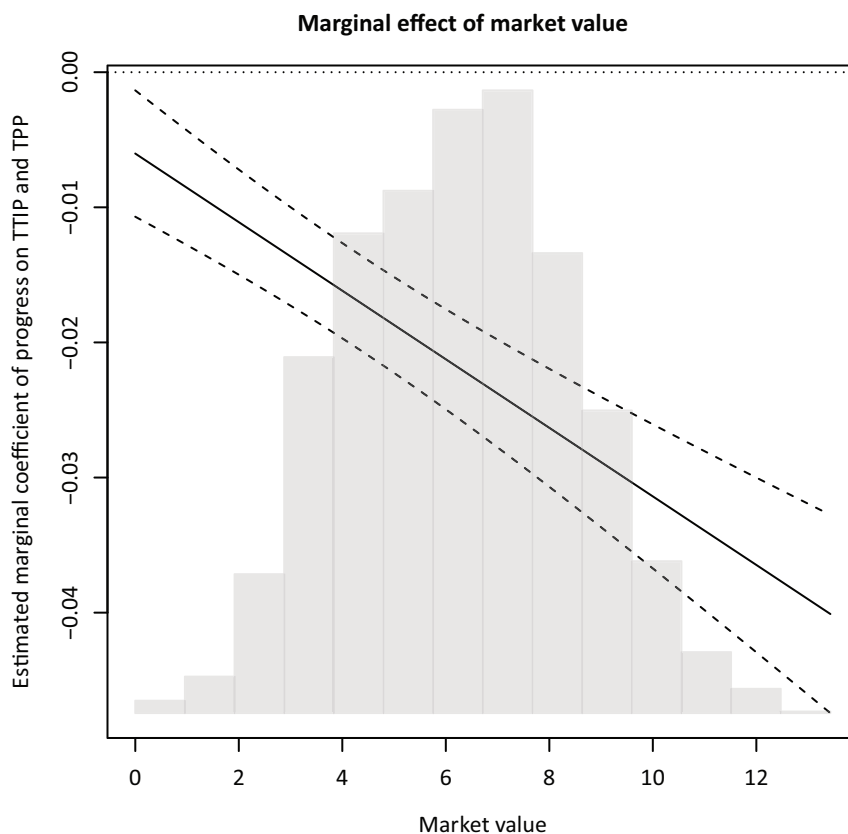

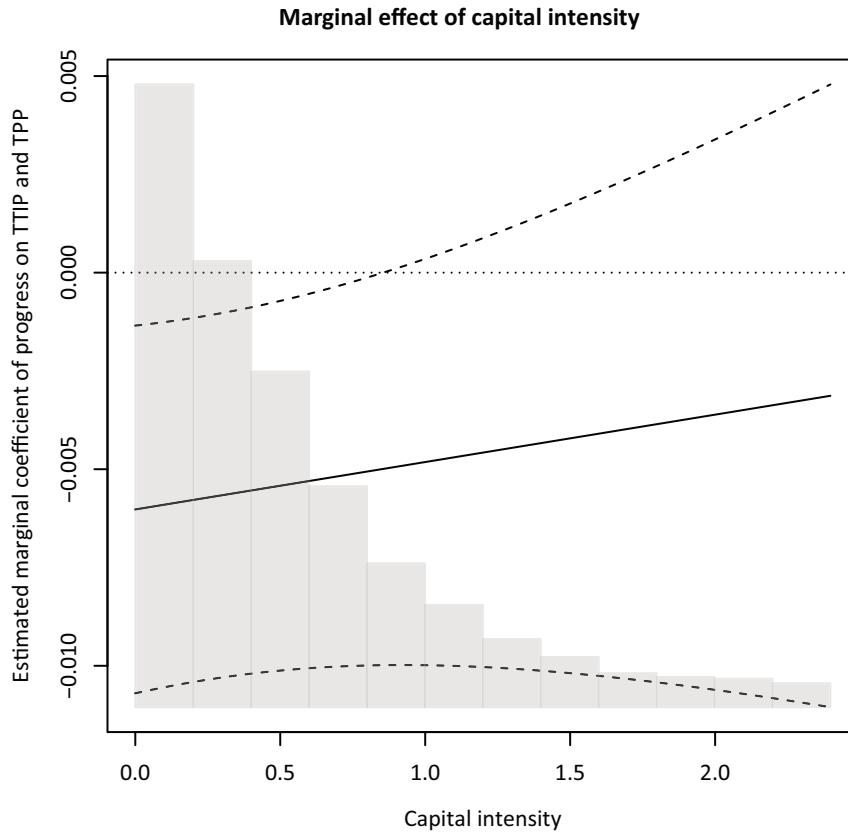**Figure 1.** The interaction between progress and market value (based on Model 1 in Table 2).

Marginal effect of capital intensity

Figure 2. The interaction between progress and capital intensity (based on model 1 in Table 2).
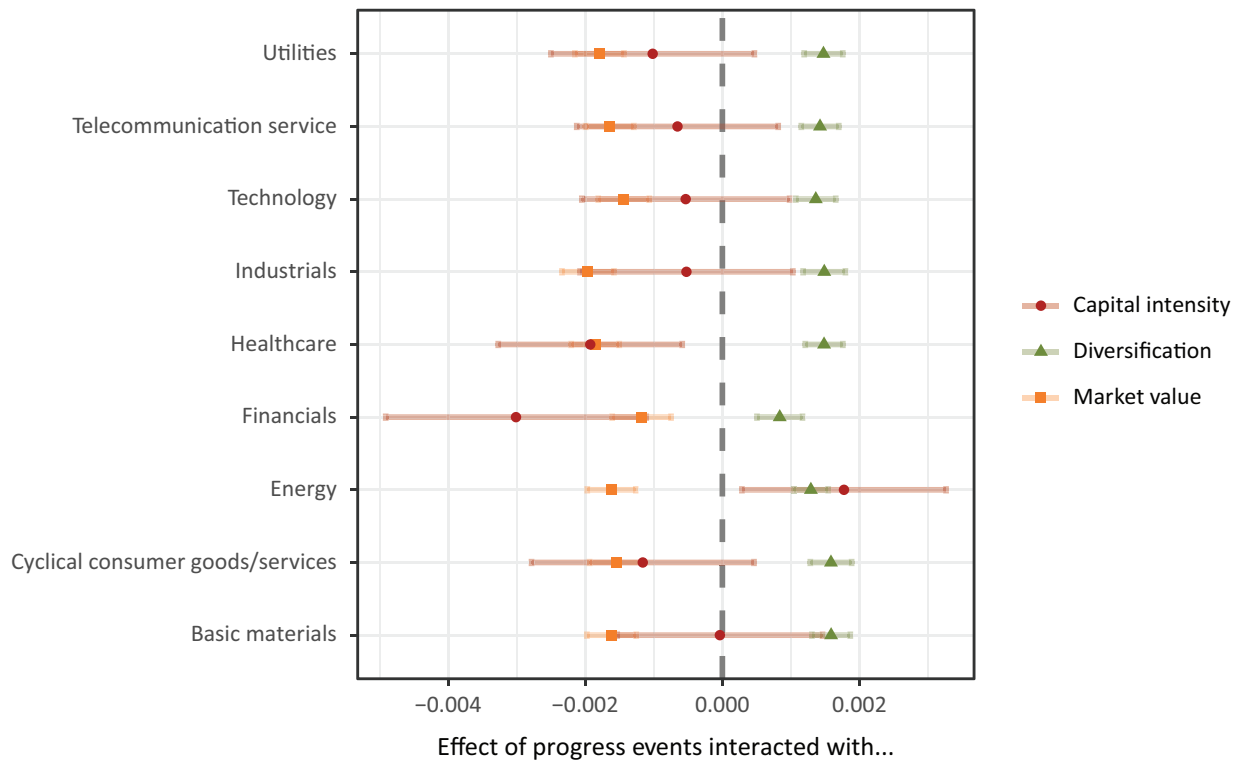

Figure 3. Progress events interacted with firm characteristics by sector.

but less pronounced in the financial services sector. Capital intensity comes with the largest standard errors. This coefficient is highest for companies in the energy and basic materials sectors and lowest for firms in the healthcare sector.

4.2. Robustness Checks

We conducted several robustness checks to see to which extent our findings are driven by specific decisions in terms of operationalization (see section C in the Supplementary File). First, we use bootstrapped errors in addition to clustered errors to ensure that the uncertainty contained in the generated dependent variable does not affect the results. Second, we calculated our dependent variable using the two alternative metrics that we presented in the research design section: an out-of-sample market-adjusted model and a mean-return model. Third, we varied the length of the event window for which we calculated the cumulative abnormal returns. Instead of a 5-day window, we used a 3 and a 1-day window. Fourth we dropped all firms that are not listed on any stock market in the US. Fifth, we dropped the 9 November 2016 event, which caused significant reactions from more than 1,300 firms in the sample. By dropping this event, we can make sure that our results are not driven by a single, particularly strong event. For all these tests, the results are similar to those presented above.

We also ran the models separately for the two agreements. The direction of the effects is generally the same in the two models. This suggests that the same mechanisms are at work for TTIP and TPP: large non-exporters lose, and medium-sized firms, as well as diversified firms, gain. Yet, Figures AB.3 to AB.5 in the Supplementary File show that the effects are more pronounced for TTIP than TPP. In general, progress in TTIP seems to generate lower stock market losses than progress in TPP. This may be a consequence of the greater differences in levels of development among TPP member states. These differences may lead to trade driven by comparative advantage, which tends to have greater distributional consequences than the intra-industry trade resulting from a trade agreement among countries at the same level of development.

Lastly, we ran a placebo test with 15 randomly chosen event windows (excluding events related to TPP or TTIP), which we treated as if they indicated progress in trade negotiations. For these events, we do not find support for our hypotheses. The interaction between a firm's size and the event dummy is statistically significant but positive. On the randomly chosen trading dates, therefore, larger firms won more than smaller firms. This result is plausible, as on average (given their greater productivity), one might expect large firms to see greater stock market gains than smaller firms. In light of this finding, the effects found for the event windows related to trade agreements appear even stronger, as the appropriate

comparison seems to be a positive effect and not a zero effect as assumed in the interpretation above. The interactions between the random event dummy and capital intensity and diversification, respectively, are not statistically significant. These results make it more plausible that our results above are really related to the TPP and TTIP negotiations.

5. Conclusions

Discussions over trade agreements circle the question of their distributional consequences: Who gains and who loses from them? Do large companies gain more than small ones? Are diversified firms better off than firms with a narrow product range? To answer these questions, we have assessed how the stock prices of US companies reacted to the news on the progress and stagnation of two major trade negotiations. A dataset on 3,926 companies and their characteristics has allowed us to investigate factors that explain varying reactions to news on the progress or stagnation of trade talks. Our empirical analysis has focused on negotiations over TPP and TTIP. These are ideal cases to study, as plenty of ups and downs characterize the negotiations over both agreements.

The central finding is much variation in the effects of the negotiations on the stock prices of companies even when controlling for the sector in which they are active. Our analysis suggests that medium-sized companies in particular (that did not yet engage in exports) were expected to gain from the two agreements. The effects that we find for capital intensity and product diversification are relatively small.

Overall, the findings of this article support the increasingly dominant view that sectoral models of trade policymaking are no longer sufficient to explain the impact of trade agreements. This should matter for analyses of trade preferences, both of firms and individuals. Regarding firms, our results indicate that trade agreements may broaden the set of winners to also include medium-sized companies, when compared to a situation in which trade is already quite liberal, but some important barriers to trade remain. At the individual level, because of trade agreements' heterogeneous effects across firms, citizens should not only differ in their preferences towards trade agreements depending on their skill levels or the sector in which they are employed, but also depending on the firm by which they are employed. The distributional effects of trade agreements for firms and individuals, therefore, are complex.

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Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the authors (unedited).

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