Discussion Paper No. 18-019

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April 2018

Abstract:

We employ an event study methodology to investigate the stock price reaction around the day of the political decision to include a country-by-country reporting obligation for EU financial institutions. We do not find significant abnormal returns for the banks affected. Sample splits according to the effective tax rate and the degree of B2C orientation do not reveal a more pronounced negative investor response for banks engaging more strongly in tax avoidance or being potentially more concerned about reputational risks, respectively. We conclude that the implementation of a CbCR requirement for EU financial institutions did not trigger a noticeable investor response. Contrary prior findings regarding other public tax disclosure obligations might be driven by the distinct motivation of the rules and the way the information is presented. We contend that capital market reactions to an upcoming increase in tax transparency are not generalizable to other industries and settings, but that consideration must be given to the context and the exact design of the rule.

JEL Classification: H25, H26, G21, G28

Keywords: Tax Avoidance, Profit Shifting, Country-by-Country Reporting, Financial Institutions, Market Reaction

* We thank the participants of the Mannheim Taxation (MaTax) Science Campus Meeting in Mannheim (December 2017) for their helpful suggestions and comments. We gratefully acknowledge financial support from the MaTax Science Campus and the German Research Foundation sponsored Graduate School of Economic and Social Sciences of the University of Mannheim.

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1. Introduction

A couple of recent studies suggest that investors perceive a mandatory increase in tax transparency as a potent tool in curbing tax avoidance. More precisely, Johannesen & Larsen (2016), Chen (2017) and Hoopes et al. (2018) document negative stock price reactions around key dates of two legislative procedures that introduced new public tax disclosure obligations for certain companies. They interpret their findings as evidence of investors expecting the disclosure of new information to be costly for firms, mainly due to an anticipated increase in scrutiny by the public and by tax authorities, resulting in a potential reduction of profit shifting opportunities under the new disclosure rules. In order to provide a more general understanding of the way tax reporting requirements – and in particular country-by-country reporting (CbCR) – are perceived by investors, we analyze the introduction of the public CbCR obligation for EU financial institutions enacted in 2013.

Since the tax planning strategies of large multinational firms have moved into the focus of public and political attention, several initiatives of the EU and the OECD have discussed potential measures to limit extensive profit shifting activities. One of these action points aims at improving tax transparency, in particular by mandating companies to disclose a CbCR which contains certain tax-related information on a per-country basis. The data is supposed to help tax authorities in detecting abusive tax sheltering and – in case it is made public – to exert public pressure on the firms inducing them to pay their "fair share of taxes" in the countries where

they operate. As one of the first CbCR initiatives[1], Article 89 of the Capital Requirements Directive (CRD) IV[2] requires EU financial institutions to publicly disclose reports for financial years 2014 onwards.

In theory, several channels could drive investors' reaction to the adoption of this new rule. On the one hand, investors could appreciate the upcoming enhancement in tax transparency. The additional information may serve as a tool to better monitor the tax avoidance activities of managers and to limit their related possibilities to extract private benefits (Desai & Dharmapala, 2006; Desai et al., 2007). This potential decrease in information asymmetry could trigger a positive stock price response. On the other hand, investors might react negatively in anticipation of reduced future after-tax profits. Banks may cut back their tax planning to some extent due to increased scrutiny by the tax authorities and the general public (Graham et al., 2014; Dyreng et al., 2016). Besides, the new disclosure requirement might come along with substantial direct and implicit costs. Empirical evidence from similar settings suggests a negative response of the capital market. Chen (2017) and Hoopes et al. (2018) investigate a new public tax disclosure rule in Australia issued in 2013. Johannesen and Larsen (2016) exploit the introduction of the CbCR requirement for EU companies in the extractive industries by the EU Accounting Directive 2013[3]. All three studies find significant stock price declines for the companies most affected on several event dates in the respective legislative procedure. Comparing the items to be reported according to the different rules, the CbCRs of EU financial institutions contain more information on companies' profit shifting activities than the disclosures of Australian firms and

[1] Other initiatives providing for a public CbCR – albeit only for firms in the extractive industries – are Section 1504 of the Dodd-Frank Wall Street Reform and Consumer Protection Act 2010 and Chapter 10 of the EU Accounting Directive (Directive 2013/34/EU). The OECD proposes a CbCR for all multinational firms with consolidated revenues of at least 750 mio. EUR which most OECD jurisdictions have already implemented (OECD, 2015). While under this disclosure requirement, the reports shall only be submitted confidentially to tax authorities, the European Commission has developed a draft directive which resembles the OECD proposal but provides for a public disclosure of the reports (European Commission, 2016; European Parliament, 2017).
[2] Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013.
[3] Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013.

of EU firms in the extractive industries. Consequently, we expect to observe a more pronounced negative reaction in our setting.

We employ an event study methodology to examine the stock price reaction around the day of the rather surprising political decision to include a CbCR obligation in the CRD IV proposal. Our results suggest that this decision did not have a significant effect on the stock returns of the banks affected. As the investor reactions might differ between different kinds of banks and concurring positive and negative effects could cancel each other out on average, we try to exploit potential cross-sectional variation by two sample splits. First, we separate our sample into banks with low and high effective tax rates (ETR). Banks that engage strongly in tax avoidance (proxied by a low ETR) should suffer more from increased scrutiny. Second, we distinguish according to the degree of B2C orientation of a bank group, assuming that banks with a stronger focus on B2C transactions are more concerned about reputational risks. However, we do not find any evidence in support of our hypotheses. Our results remain unchanged when considering two additional event dates and throughout various robustness checks.

We conclude that, contrary to our expectations, the implementation of a CbCR requirement for EU financial institutions did not trigger a noticeable investor response. While the items according to Article 89 of the CRD IV should generally convey more information regarding profit shifting activities, the significant effect in Australia might result from the higher salience, accessibility and perceived credibility of the data. Unlike the CbCRs which are published separately by each bank, the disclosure of the Australian Tax Office happens simultaneously in a uniform database. The discrepancy between our null result and the strong effect in the setting of EU firms in the extractive industries might be explained by the different goals and motivations of the respective CbCR rules. While the reporting obligation in the extractive industries aims at preventing corruption by disclosing payments to governments, the objective in the banking sector is to increase transparency against the backdrop of the financial crisis and to reveal

where profits are generated compared to where real economic activity occurs. Consequently, the negative stock price reaction observed for the extractive industries might not be due to an anticipated reduction in tax avoidance. It may rather reflect investors' belief that this kind of CbCR disclosure effectively fights corruption and that companies have to increase their (legitimate) compensation to their host countries for extracted resources.

We make several contributions to the growing literature on tax transparency. First, our analysis provides evidence on the impact of tax transparency on the capital market. Some extant studies examine how investors value the publication of tax-related information about companies, focusing on the event of disclosure itself (Brooks et al., 2016; Chen, 2017; Gallemore et al., 2014; Hanlon & Slemrod, 2009; Hoopes et al., 2018; Huesecken et al., 2017; O'Donovan et al., 2017). However, little is known about how investors react to changes in rules requiring the disclosure of additional information, i.e. an increase in tax transparency. Chen (2017), Hoopes et al. (2018) and Johannesen & Larsen (2016) find significant stock price declines around key dates of two legislative procedures that introduced new public tax disclosure obligations. We aim to investigate whether the negative investor reactions documented in their studies are generalizable to other industries and settings, namely to the introduction of a public CbCR requirement for EU financial institutions. This is of special importance in light of the proposal of the European Commission and the European Parliament to adopt a public CbCR requirement for all multinational firms with profits above a certain threshold (European Commission, 2016; European Parliament, 2017). When taking together the findings of Chen (2017), Hoopes et al. (2018), Johannesen & Larsen (2016) and our study, we argue that the capital market reaction to a new tax disclosure requirement is likely to depend on the motivation of the rule and on the way the information is presented. The European Commission suggests that companies shall not only publish the CbCRs on their website, but that the data shall also be disclosed in a publicly available register of the European Commission. This could enhance the

accessibility of the information and hence be crucial when it comes to assessing how the proposal will be perceived by investors and, ultimately, how it will affect tax avoidance.

Second, our paper sheds light on the impact and effectiveness of a particular tax transparency measure, which is CbCR. Up to now, there are mostly normative contributions on possible costs and benefits of the disclosure requirement (e.g. Cockfield & McArthur, 2015; Evers et al., 2017) and some upcoming empirical analyses of its impact on corporate tax avoidance (Overesch & Wolff, 2017). We aim to complement this by providing evidence on how investors perceive the new legislation. Again, this question is important in light of the current debates on CbCR in the EU.

The remainder of this paper is structured as follows: Section 2 provides information on the CbCR requirement for EU financial institutions, the legislation procedure, and prior literature related to our study. Section 3 describes the data and the research design. Section 4 presents the results of our analysis which are complemented by robustness checks and further analyses in Section 5. Section 6 concludes.

2. Background and hypotheses

2.1. The CbCR requirement for EU financial institutions

The political intention to oblige EU financial institutions to publicly disclose CbCR information emerged quite as a surprise on 27 February 2013, which marks the key event date of our study. In a trilogue between the Presidency of the European Council, the European Parliament and the European Commission on this day, it was decided to incorporate this new reporting obligation in the Capital Requirements Directive (CRD) IV. The main purpose of the CRD IV and the accompanying Capital Requirements Regulation (CRR)[4] was to implement the Basel III

[4] Regulation EU No 575/2013 of the European Parliament and of the Council of 26 June 2013.

standards into EU law, including i.a. capital, liquidity and leverage requirements and new provisions regarding corporate governance and remuneration. While the legislative procedure had already started in 2011 and most key features had been publicly debated, the idea of a CbCR obligation did not appear in any of the proposals or public discussions before the trilogue. It was only a spontaneous initiative of some members of the European Parliament which triggered this mandatory increase in tax transparency. Parliamentarians argued that, given the central role of banks and the large amount of public subsidies they have received during the financial crisis, EU citizens should be able to assess whether they are paying their "fair share of taxes" in the countries where they operate. Due to the unpredicted nature of the decision in the trilogue on 27 February 2013, we expect to observe an investor reaction around this date.

On 26 June 2013, the CRD IV was finally signed by the president of the European Parliament and the president of the European Council. The CbCR rule contained in Article 89 requires EU credit institutions and investment firms to publicly disclose turnover, the number of employees, profit or loss before tax, tax on profit or loss, and public subsidies received on a per-country basis as well as the name, location and nature of activities of their subsidiaries and branches. The disclosure obligation applies to financial years 2014 onwards.[5] Groups headquartered in the EU have to provide a CbCR with respect to the whole group, whereas groups headquartered outside the EU only have to disclose information for their EU entities, including their subsidiaries and branches.

2.2. Prior literature and hypotheses

The CbCR introduction for EU financial institutions constitutes an increase in the volume of publicly available tax-related information. To assess the consequences for the future profits

[5] In a transition period from 1 July 2014 to 1 January 2015, only turnover, the number of employees and the name, nature of activities and geographical location of entities had to be reported by all institutions under the scope of Article 89 CRD IV. Global systemically important institutions, however, had to submit to the European Commission the complete information on a confidential basis. Based on this data, the European Commission conducted an assessment as regards potential negative economic consequences of the public disclosure of such information.

of the companies affected, investors have to predict how managers, the tax authorities, consumers and the public sentiment will react to the new disclosure requirement. From a theoretical point of view, there are different channels which could drive the response of the capital market. On the one hand, investors might predict a reduction of the costs of capital for the affected banks. The capital market might appreciate the upcoming increase in transparency as the CbCRs could provide more certainty regarding banks' tax positions as well as additional information on the geographical distribution of activities and earnings. Ultimately, this can help to increase the accuracy of analysts' forecasts. Prior evidence suggests that tax-related information can be useful in forecasting future earnings (Hanlon et al, 2005; Bratten et al., 2017; Demere, 2017). Moreover, the CbCR information might serve as a tool for investors to better monitor managers' tax planning activities. As Desai & Dharmapala (2006) have found, tax avoidance and the extraction of private benefits by managers are complementary. In the same vein, Desai et al. (2007) have documented that an increase in tax enforcement reduces managers' possibilities of rent extraction. Consequently, the new disclosure requirement might decrease the information asymmetry between managers and shareholders, resulting in a positive response of the capital market.

On the other hand, investors could expect a decrease of banks' future profits. First, banks might reduce their extent of profit shifting since tax authorities have more information at hand to audit tax-aggressive banks more efficiently. As Bozanic et al. (2017) have shown, tax authorities actually make use of tax-related disclosures in financial statements in case they contain incremental information to the tax return data. Second, increased public scrutiny might induce banks to voluntarily pay their "fair share of taxes". Several studies have documented that companies adjust their tax planning activities due to reputational concerns (Graham et al., 2014; Dyreng et al., 2016; Austin & Wilson, 2017). Consistently, Overesch & Wolff (2017) provide early evidence that the effective tax rates of EU financial institutions indeed increased after the

introduction of Article 89 CRD IV. Finally, investors might also expect the new disclosure rule to impose additional costs on the companies. Apart from direct costs for an initial adjustment of the reporting system and for the annual compilation of the reports, companies may also face considerable indirect costs in the form of reputational damages from being potentially blamed to engage in aggressive tax planning (Evers et al., 2017).

While theory does not provide an unambiguous prediction about how investors will assess the introduction of public CbCR for EU financial institutions, three recent empirical studies examine the stock price reaction in similar settings. First, Hoopes et al. (2018) and Chen (2017) both exploit a new rule in Australia issued in 2013. It requires the Australian Taxation Office to publicly disclose certain items from corporate tax returns (i.a. taxable income and income tax payable) of large private and public companies. Hoopes et al. (2018) focus on a major date in the legislative procedure on which the details of the intended rule, including the disclosure threshold and the tax return items to be reported, were announced for the first time. They find a negative capital market reaction for all firms affected by the new rule, whereby stock prices of firms expected to be disclosed as paying zero taxes experienced a significantly stronger decline. Chen (2017) extends their analysis by three additional decisive dates in the legislative procedure which revealed new information and/or increased the probability of the passage of the law. After accounting for the peculiarity of the Australian dividend imputation system, Chen (2017) also observes a small but significant negative reaction across the four event dates for firms that have a stronger incentive to minimize their corporate tax burden.

Considering this recent evidence from Australia, we would expect to find a rather more pronounced negative investor response to the introduction of a public CbCR obligation for European banks. As described by Chen (2017), the main purpose of the new Australian rule was to fight tax-motivated income shifting and to provide the public with information on the tax planning behavior of large multinational firms. However, it has to be noted that the report of

the Australian Taxation Office contains only items with respect to the Australian tax base. More precisely, it does not reveal any information on the economic activities carried out in and the profits allocated to other countries. Thus, the CbCR data prepared on a per-country basis including all tax havens should be considerably more informative about firms' profit shifting and should consequently trigger a stronger investor reaction.

Second, Johannesen & Larsen (2016) analyze the capital market response around four key dates in the legislation process of the EU Accounting Directive[6] that introduced a CbCR requirement for EU companies in the extractive industries. They find significant decreases in firm value around two of their event dates, with a remarkable overall effect amounting to 5-10%. Johannesen & Larsen (2016) interpret their result as evidence for tax planning creating additional profits for the firms considered and financial transparency being a potentially powerful tool to restrict this behavior. Due to the common features of the settings, this study is closely related to ours. Both the Accounting Directive and the CRD IV are EU Directives which mandated companies of a specific industry to publicly disclose a CbCR. Nevertheless, while the disclosure requirement for the extractive industries is more focused on payments from companies to governments, the rule applicable to financial institutions provides additional data on the extent of economic activities conducted in each country. Article 89 of the CRD IV which we examine in our study should therefore convey more information on firms' tax planning activities than the corresponding rule in Chapter 10 of the EU Accounting Directive. Moreover, given the mobile character of banks' business models, they might have better opportunities to conduct profit shifting than firms in the extractive industries. Consistently, recent findings by Merz & Overesch (2016) and Langenmayr & Reiter (2017) suggest that banks do engage in tax

[6] Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013.

avoidance and that they exhibit a higher tax sensitivity compared to other industries.[7] Assuming that profit shifting is more prevalent among financial institutions and that banks' CbCRs convey more information about these activities, we would expect to find a negative effect which is even stronger than the relative stock price decline of 5-10% documented by Johannesen & Larsen (2016).

3. Data and methodology

We employ an event study methodology as laid out by Kothari & Warner (2007) and applied by Johannesen & Larsen (2016) to estimate the impact of the CbCR introduction on the stock returns of the institutions affected. In particular, we investigate whether the capital market reacted to the proposed introduction of the new disclosure regulation around our key event date, 27 February 2013. Our event window covers three trading days centered on the event day. Due to the generally quick dissemination of information we expect to observe a market reaction on the next trading day after the news at the latest. The inclusion of one day prior to the event allows to capture any potential effect of information available to the market before the event.

For our main specification, we use ownership information provided by the Orbis Bank Focus database to construct a sample of listed entities of bank groups whose global ultimate owner is located in the EU.[8] For these banks, the CbCR requirement should be of highest relevance since the report must be provided by the global ultimate owner for the whole group, hence revealing all profit shifting opportunities of the group. We limit our sample to banks where at least one shareholder, subsidiary or branch is located in a different country than the bank itself. The underlying reason is that a purely domestic group has no possibility and incentive to shift profits cross-border, and therefore the CbCR does not provide any incremental information on

[7] These studies document a tax semi-elasticity of banks' overall reported profits of about 2.4 (Merz & Overesch, 2016) and of certain trading gains of about 3.4 to 4.0 (Merz & Overesch, 2016; Langenmayr & Reiter, 2017). This effect is quite large compared to the consensus estimate of Heckemeyer & Overesch (2017) of 0.8.
[8] I.e., the listed entity can either be a subsidiary of such a bank group or the global ultimate owner itself.

the appropriateness of taxes paid in light of the economic activity. We merge the ownership information with daily stock prices from Datastream/Eikon for the period from January 2012 to December 2014. Banks with insufficient price information and banks with constant zero returns over time are dropped.[9] To avoid possible distortions by confounding events, we also exclude banks located in countries where a major election took place as well as banks explicitly targeted by major ECB announcements within one week before or after the event date.[10] Our final main sample includes 155 listed banks. Table 1 shows descriptive statistics for the treatment group and the control group. The sample mean of the stock returns is 0.070% with a standard deviation of 0.706.

For each treated bank i, we calculate the daily abnormal return $AR_{i,t}$ as the difference between the actual realized return $R_{i,t}^{act}$ and the expected return $R_{i,t}^{exp}$ on trading day t.

$$AR_{i,t} = R_{i,t}^{act} - R_{i,t}^{exp} \tag{1}$$

We use different approaches for calculating the expected return. First, we estimate the market model for a time horizon of one year, ending six days before the event, where $R_{i,t}^{act}$ denotes the actual firm return, $R_{m,t}$ denotes the market return, and $\varepsilon_{i,t}$ is a zero mean disturbance term (MacKinlay, 1997).

$$R_{i,t}^{act} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \tag{2}$$

We consider two different market indices, namely S&P Global 1200 (following Johannesen & Larsen, 2016) and MSCI World Banks. While S&P Global 1200 proxies the market portfolio, MSCI World Banks is better tailored to the banking sector, hence absorbing industry

[9] In particular, we require the price information to be available for at least 80% of trading days in the event and pre-event period to estimate the expected returns. We keep only banks with a non-zero return in more than 30% of the estimation and event period to capture those firms that are actively traded and thus do not have constant zero returns over time. The sample is very insensitive to any variation of these thresholds.
[10] Due to this restriction, we have to drop one bank located in Cyprus and 21 banks located in Italy.

specific shocks. The estimated coefficients are then applied to the market return on each day of the event period to compute the expected returns for each firm and day. As an alternative, we construct a control group of banks not directly affected by the CbCR requirement, i.e. entities of bank groups whose global ultimate owner is located in a non-EU country.[11] The daily expected returns – which under this alternative are identical across the treatment firms – equal the average realized returns of the control group firms on the respective days.

For each abnormal return specification and firm, we then compute the cumulative abnormal return CAR_i over the three-day event window.

$$CAR_i = \sum_{t=1}^{T} AR_{i,t} \tag{3}$$

Finally, we calculate the cumulative average abnormal return $CAAR$ by taking the average of the cumulative abnormal returns across all firms.

$$CAAR = \frac{1}{N} \sum_{i=1}^{N} CAR_i \tag{4}$$

In order to test the statistical significance of the $CAARs$, we employ a t-test which is constructed as the ratio of the event $CAAR$ and the standard deviation of the pre-event $CAARs$. The latter are defined as the $CAARs$ for each three-day window in the pre-event period (similar to Johannesen & Larsen, 2016). In the absence of abnormal returns, the test statistic is typically assumed to follow a unit normal distribution (Kothari & Warner, 2007).

[11] Strictly speaking, the control group banks may also fall under the scope of Article 89 CRD IV if they have subsidiaries and/or branches in EU countries. Still, in this case, the report covers only the EU entities and their subsidiaries and branches instead of being provided at the level of the global ultimate owner, thus revealing only part of the group structure. This allows groups to structure their operations in such a way that tax haven operations, for example, are not evident from the CbCRs of their EU entities. We therefore assume no (or at least a considerably smaller) investor reaction for our control group banks. Besides, we address the issue of the (perceived) scope of the CbCR regulation in the robustness tests in Section 5.2.

4. Results

4.1. Baseline results

The results of our baseline model are presented in Table 2. Around the key event date, 27 February 2013, all specifications yield negative cumulative average abnormal returns for the treatment group of banks headquartered in the EU. However, the returns are very small in size (between 0.0% and 0.6%) and insignificant throughout all three specifications. This does not provide any evidence of an investor reaction to the proposed disclosure obligation.

As described above, the trilogue on 27 February 2013 marks the date of the first political agreement upon requiring EU financial institutions to publish CbC reports. Since the previous drafts of the CRD IV and CRR did not contain such a rule, it is reasonable to assume that the decision of the co-legislators during the trilogue contains a surprise component for investors. However, the lack of a significant reaction could possibly be due to a dissemination of information to the market shortly before the event window. On 25 February 2013, three members of the European Parliament (so-called "shadow rapporteurs") collectively signed an open letter to all ECOFIN ministers calling for support for their initiative to implement a CbCR obligation in the CRD IV[12]. It is possible that this incident already raised investors' expectations of the new disclosure rule and that consequently, stock prices reacted immediately. To address this concern, Table 3 Panel A shows the daily abnormal returns for the period from 25 to 28 February 2013 and Figure 1 graphically illustrates the daily average abnormal returns for 15 trading days before and after the event date. We do not find any evidence of a stock price reaction on the day of the open letter, 25 February 2013. What we do observe is a relative stock price decline on 26 February 2013 ranging from 0.4% to 1.1% which is significant (marginally significant) in the specification based on the S&P Global 1200 index (based on the control group). However,

[12] Open letter to all ECOFIN Ministers as of 25 February 2013, text available at https://guildford-libdems.org.uk/en/article/2013/0662792/sharon-signs-open-letter-to-ecofin-ministers-calling-for-country-by-country-reporting (access on 23 January 2018).

considering that 26 February 2013 is already included in our event window, the decline is not even strong and persistent enough to appear as significant in a three-day window.

Besides, the effect is most probably driven by the capital market processing the result of the Italian general election looming on this day. While Italian banks are already excluded due to our sample selection criteria (see Section 3), it is likely that the stock prices of other European banks were also affected at least to some extent. The inconclusive election outcome was largely perceived as a "surprise turn for the worse"[13], reinforcing concerns about the European debt crisis. Research in Bloomberg and Factiva databases yielded several articles that explicitly emphasized the negative stock market reactions caused by the Italian election.[14] For comparison, we relax our restrictions and do not drop observations due to the concurrence of elections or ECB announcements. This is largely equivalent to extending the sample by banks located in Italy which should be affected the most by the election outcome. We repeat our analysis and indeed find that the negative daily abnormal return on 26 February 2013 becomes considerably larger in size (0.8% to 1.5%) and stronger in terms of significance (Table 3 Panel B). However, as depicted in Table 3 Panel C, there is still no significant effect observable in the conventional three-day window. Even though the proximity to the Italian election in general and an inclusion of Italian banks in particular should work in favor of (spuriously) detecting a negative investor reaction to the CbCR introduction, the results do not document such an effect. Contrary to the expectations derived from the findings of Chen (2017), Hoopes et al. (2018) and Johannesen & Larsen (2016), we conclude that the proposed increase in tax transparency for EU financial institutions did not trigger a (negative) capital market response.

[13] Joe Manimbo, senior market analyst at Western Union Business Solutions, quoted from Financial Times (25 February 2013).
[14] E.g. "Emerging ETF Sinks as Italy Election Concern Curbs Risky Assets" (Bloomberg News, 25 February 2013); "Emerging Stocks Tumble to Two-Month Low on Europe Concern" (Bloomberg News, 26 February 2013); "Hong Kong Stocks Fall on Euro Debt Concern" (Bloomberg News, 26 February 2013).

4.2. Analysis of cross-sectional variation

As theory provides arguments for both positive and negative investor reactions to additional tax disclosure requirements, the absence of an effect on average in the whole sample might be due to the concurrence of both reactions for different kinds of banks cancelling each other out. For example, investors may predict a stronger decrease in after-tax earnings due to reduced profit shifting opportunities and additional costs for certain banks, while for other banks, they may place more weight on the expected benefits from reduced information asymmetry. In this vein, Chen (2017) and Hoopes et al. (2018) provide some evidence on heterogeneity in the capital market response in the Australian setting.

To examine potential cross-sectional variation in the sample of EU financial institutions, we conduct two sample splits. First, consistent with Hoopes et al. (2018), banks that are perceived to engage strongly in tax planning would need to reduce their tax planning activities to a higher extent or should suffer more reputational costs due to enhanced transparency than banks that are assumed to pay their "fair share of taxes". We calculate the effective tax rate (ETR) for each bank based on the consolidated financial statements and use the median ETR to partition our sample into banks with a high vs. a low level of (assumed) tax avoidance.[15] Table 4 shows the cumulative average abnormal returns for the three-day window, separately for high and low ETR banks. Surprisingly, the abnormal returns are even slightly positive for the subsample of low ETR banks and negative for the subsample of high ETR banks, albeit none of the coefficients are significant. In contrast to the findings of Chen (2017) and Hoopes et al. (2018) in Australia, there is no evidence of a more pronounced negative reaction for banks that can be assumed to engage in tax avoidance more strongly.

[15] As investors have to rely on the information available on the event date to estimate banks' tax aggressiveness, we use the 2011 financial statements to calculate the ETR. This approach is consistent with Abernathy et al. (2013).

Second, we aim to split our sample according to banks' sensitivity to reputational concerns. Graham et al. (2014) and Austin & Wilson (2017) have recently documented the influence of reputational costs on companies' tax planning activities. We hypothesize that banks with a higher fraction of their total earnings depending on transactions with private customers should suffer more from a potential consumer backlash than banks that are largely focused on business customers. Thus, we try to distinguish between wholesale (i.e. B2B) and retail banks (i.e. B2C). However, a clear allocation to the two groups is tricky as most large financial institutions are active in both business segments and the share of revenues or profits derived from these segments is largely unavailable. The conventional industry classification codes are also not suitable as they do not offer sufficient and selective subcategories for the financial industry. While the Orbis Bank Focus financials database contains several variables proposed to capture details on banks' main activities and customer groups[16], the only one that is sufficiently covered and specified consistently across different institutions is the "specialization" variable. After inspecting several examples of banks allocated to the different categories of this variable, we uniquely assign each category either to B2C or B2B.[17] This information is stored in a dummy variable taking the value of 1 if classified as B2C and 0 if classified as B2B. As the specialization variable and, consequently, the dummy variable are available at the entity level, we match all entities that belong to the same group according to their global ultimate owner. For each bank group, we then calculate the fraction of B2C orientation as the simple average of the dummy variable of all entities in the same group. This B2C fraction is attributed to each publicly listed

[16] E.g. the variables labelled "Primary business line", "Main activity", "Main products and services", and "Main customers".

[17] The detailed assignment of the different categories to the B2C and B2B groups is illustrated in the notes to Table 5. Some categories had to be treated as missings as they do not allow an unambiguous assignment or do not belong to either category.

entity that belongs to this group. Finally, we partition our sample according to the mean value of the B2C fraction.[18]

Table 5 documents the results of our sample split. While the stock price reaction in the three-day event window is more negative for the group of banks classified as having a higher B2C orientation, it is still rather small in size and insignificant. Thus, we do not find evidence of a negative investor reaction to the proposed increase in tax transparency for banks that are assumed to face higher reputational risks. However, we note several caveats to our approach. First, the Bank Focus financials database only contains information (including the specialization variable) for those subsidiaries of bank groups which have a bank license.[19] As this covers only a small fraction of subsidiaries, the actual B2C orientation of a bank group might differ from what we calculate based on the information available. Second, the different categories of the specialization variable do not always allow a clear distinction between B2C and B2B. Thus, several entities might be allocated imprecisely which can add noise to our results.

Nevertheless, both approaches to examine potential cross-sectional variation in the investor reaction did not confirm our expectations. The absence of a market reaction on average does not seem to be caused by opposing effects balancing each other out. The result rather corroborates our inferences that investors did not respond to the upcoming CbCR introduction for EU financial institutions. This is also reflected in the fact that the discussion about banks' CbCR barely even appeared in the financial news.[20]

[18] The partitioning at the mean results in a relation of B2C to B2B bank groups that is roughly in line with the relation of B2C to B2B banks in the sample on the entity level.
[19] See Merz & Overesch (2016) for more information regarding the corresponding limitation of the Bankscope database.
[20] Research in the Bloomberg and Factiva databases for stock market news with relevance for financial institutions around our event date yielded only one article featuring the CbCR introduction in the headline and one article mentioning the discussion about the new disclosure obligation as a side note to the CRD IV and CRR.

4.3. Interim Conclusion

Considering the recent findings for large Australian firms and for EU companies in the extractive industries, it is surprising that we do not observe a capital market response in our setting. As the CbCR rule for EU financial institutions can be assumed to convey more information regarding companies' profit shifting activities compared to the disclosure by the Australian Tax Office and to the CbCRs of EU firms in the extractive industries, we expected to observe even larger stock price declines.

However, the significant effect in Australia documented by Chen (2017) and Hoopes et al. (2018) might be due to a higher salience and accessibility of the disclosure of the Australian Tax Office. For all affected companies, the data items are published exactly at the same point of time at the same place – more precisely, in the same excel sheet on the website of the Australian government. This salient disclosure also generates substantial media attention (as documented by Hoopes et al., 2018). On the contrary, the CbCR data of EU financial institutions have to be published by the companies themselves, either as a separate document or within the annual report. This implies that the reports of all banks are disclosed separately at different points of time. If the CbCR items are included in the annual report (as done by many companies), they form only a minor part of a document often amounting to several hundreds of pages. In this case, the focus of the investors as well as the public will likely be on the key financials rather than on the CbCR data. Moreover, due to the difference in the way of disclosure, the tax information published by the Australian Tax Office might also be perceived as more credible and more comparable across firms. The report is compiled based on official data from the Australian tax authorities, using the same framework and definitions of the items for all firms. The CbCRs of European banks, however, are prepared and filed by the banks themselves. Although the reports have to be audited, an exemplary inspection of several reports reveals considerable

differences in design and content, suggesting that banks have some scope for discretion. This impairs the comparability of the CbCRs.

Furthermore, the media and the general public might find it easier to draw conclusions on the extent of tax avoidance from the information disclosed by the Australian Tax Office than from CbCR data. In the Australian setting, it is a single number, i.e. the income tax payable, from which information on profit shifting could be deduced (e.g. a zero tax liability, unless for firms generating an overall loss, could regularly be taken as evidence for tax avoidance). The relevant information in CbCRs, however, is disseminated over a list of all countries where a bank operates, sometimes amounting to more than 70. This list needs to be inspected with great care in order to detect any discrepancy between profits declared or taxes paid and real economic activity as reflected by the number of employees. Hence, due to its condensed way of presentation and its allegedly easier interpretability, the Australian disclosure rule presumably goes along with a higher reputational risk, which investors, again, consider as costly. Taken together, investors might perceive the way and the issuer of the disclosure as well as the way the information is presented as crucial when assessing the effectiveness of new tax disclosure rules.

Nevertheless, these considerations cannot explain the difference between our null result and the rather strong negative reaction found by Johannesen & Larsen (2016) as both settings are very similar regarding when, where and by whom the data are disclosed. However, it is possible that the introduction of a public CbCR requirement does not have the same effects across all industries. Banks and firms operating in the extractive industries obviously differ in many aspects. Since the financial sector is highly regulated and banks have already been subject to several disclosure obligations before the implementation of CbCR, investors might have assumed that the new rule would not reveal substantial incremental information on banks' tax planning strategies. The extent of potential reputational costs and the influence of reputational

concerns on management's approach to tax may also vary between financial institutions and the extractive industries.

More importantly, the discrepancy between our results and Johannesen & Larsen (2016) can arise from the different motivations and goals of the respective CbCR rules. The idea of requiring firms in the extractive industries to publish certain information on a by-country basis dates back to the Extractive Industries Transparency Initiative (EITI) launched in 2003. Its primary goal is to fight corruption, which has been identified as a major problem in the extractive industries and as a main driver of the so-called "resource curse". As a consequence, the main focus of these disclosure obligations is on payments between resource-extracting firms and governments (including tax payments). In contrast, the CbCR requirement for EU financial institutions follows the goal of rebuilding trust in the financial institutions which were accused of being co-responsible for the financial crisis and which have received enormous public subsidies in the crisis years.[21] By imposing a CbCR obligation on banks, the public should be given the opportunity to assess whether they are paying their "fair share of taxes" in the countries where they operate. Following this motivation, the items to be reported by banks (as described in detail in Section 2) contain additional indicators of economic activity in each country.

The distinct motivations and implications of both CbCR rules adopted in the EU provide a plausible explanation for the differences in the empirical findings. The negative stock price reaction for the extractive industries observed by Johannesen & Larsen (2016) might in fact not be driven by the expectation of reduced tax planning opportunities or of tax-related reputational costs. Instead, it could result from investors' belief that the mandatory disclosure of payments

[21] See Open letter to all ECOFIN Ministers as of 25 February 2013, text available at https://guildford-libdems.org.uk/en/article/2013/0662792/sharon-signs-open-letter-to-ecofin-ministers-calling-for-country-by-country-reporting (access on 23 January 2018).

between firms and governments effectively fights corruption and that companies have to increase their (legitimate) compensation to their host countries for extracted resources. This is also consistent with Rauter (2017) who documents corresponding real effects on payments of EU firms in the extractive industries after the CbCR introduction. For banks, however, this channel does not apply (and is not targeted by the legislators). In a synopsis, the findings of Johannesen & Larsen (2016), Rauter (2017) and our study suggest that the reporting requirement introduced for the extractive industries was anticipated by investors to be efficient in raising companies' payments to resource-rich countries. The CbCR rule implemented for EU financial institutions, however, was not expected by investors to reduce banks' tax avoidance opportunities or to come along with substantial reputational costs.

5. Further analyses

5.1. Additional event dates

Prior studies have demonstrated the importance of considering multiple event dates, especially when investigating a legislative procedure (Donohoe & McGill, 2011; Abernathy et al., 2013; Chen, 2017). For this reason, we extend our analysis by two additional events, although noting some caveats regarding these dates.

Our first additional event is the publication of the CRD IV and the CRR in the Official Journal of the EU on 27 June 2013. This marks the final passage of the legislative package, removing any potential doubts whether the proposed CbCR rule would actually be incorporated into EU law. Table 6 shows the cumulative average abnormal returns for the three-day window centered on this alternative event date. Again, we do not find a significant stock price reaction for the banks affected by the new disclosure rule. However, as the CRD IV and the CRR contain a multitude of novel regulations for EU financial institutions (i.a. capital, liquidity and leverage requirements), different investor reactions to different kinds of rules might cancel each other out on average. Moreover, the final act of signing and publishing the law was probably not

perceived as a surprise by investors as all relevant items had already been agreed upon in the months before.

Second, we exploit the fact that the CbCR obligation in Article 89 of the CRD IV was placed under the proviso that the European Commission conducts an impact assessment regarding potential negative economic consequences of the public disclosure of such information. Global systemically important institutions were required to confidentially report the CbCR items for the financial year 2013 to the Commission, providing a basis for their evaluation. The impact assessment study was prepared in September 2014 by PricewaterhouseCoopers on behalf of the European Commission (PricewaterhouseCoopers, 2014). On 30 October 2014, the European Commission reported to the European Council and the European Parliament that the public CbCR obligation was not expected to have a negative economic impact and could thus be implemented as foreseen in the Directive (European Commission, 2014). This represents our second additional event. As also depicted in Table 6, we do not observe a significant investor reaction in the three-day window centered on 30 October 2014. It seems questionable whether the result of the impact assessment was really perceived as a surprise by investors. Investors might have expected that the CbCR rule would actually come into effect once it was included in the CRD IV, irrespective of the proviso.

Besides, it has to be noted that on 26 October 2014 (i.e. shortly before the event window), the results of the first comprehensive stress test of European banks conducted by the European Central Bank (ECB) and the European Banking Authority (EBA) were released (ECB, 2014; EBA, 2014). Due to our sample selection criteria, the 25 banks that failed the test are excluded (see Section 3). However, Andrea Enria, the chairman of the EBA, gave a related speech in Berlin on 30 October 2014. He expressed a rather skeptical view of the stress test and pointed out that European banks still had a lot of work to do, which was perceived as a negative surprise

regarding European banks in general.[22] Although the concurrence of this speech and our second additional event should work in favor of (spuriously) finding a negative stock price response to the result of the CbCR impact assessment, the results do not suggest such an effect. We conclude that the examination of both additional events – though keeping their caveats in mind – does not change our inferences.[23]

5.2. Robustness tests

We conduct a series of robustness tests to increase the confidence in our results. First, we modify the event window and use a four-day window starting at the event date as well as a five-day window centered on the event date (Table 7 Panel A). Second, we replace the cumulative average abnormal returns by buy-and-hold abnormal returns, calculated as the average returns of a buy and hold strategy with geometric growth of returns. As buy-and-hold returns tend to be right-skewed (Kothari & Warner, 2007), we apply the skewness-adjusted t-test developed by Johnson (1978) as our relevant test statistic for this approach (Table 7 Panel B). Third, we rerun our analysis with an alternative sample (Table 7 Panel C). Our baseline sample of treated firms described in Section 3 contains only entities of bank groups whose global ultimate owner is located in the EU. Only these institutions are obliged to issue a CbCR for the whole group, revealing all tax haven subsidiaries and branches. In contrast, financial institutions headquartered in third countries only have to publish a report for their EU establishments, which makes it impossible to judge their worldwide tax planning activities. Nevertheless, investors might not have completely comprehended this difference in the scope of the new rule and might just have associated a bank's EU nexus with an upcoming CbCR requirement. We take account of this concern and adjust our sample so that the treatment group contains all banks listed in the EU

[22] See "European Stocks Tumble as Banks Decline After Enria's Comments" (Bloomberg News, 30 October 2014).
[23] We also conduct the sample splits according to banks' ETR and B2C fraction (as described in Section 4.2) for both additional event dates and do not find evidence of cross-sectional variation (results untabulated).

(irrespective of the location of the global ultimate owner). The control group used to calculate abnormal returns is adapted accordingly.

Throughout all these robustness tests, the results remain qualitatively similar and our main inferences do not change.[24] We do not find a significant stock price reaction around the event day that we can trace back to the CbCR introduction.

6. Conclusion

In recent years, several initiatives have proposed and implemented CbCR requirements for multinational firms. This new disclosure obligation is supposed to curb extensive tax avoidance by providing additional information to tax authorities and – if reports are made publicly available – by exerting public pressure on companies. Due to the recent nature of all CbCR rules, empirical evidence on their effectiveness is still scarce. In our study, we examine how investors evaluate the mandatory increase in tax transparency. On the one hand, investors could expect that the affected companies will subsequently reduce the extent of their tax avoidance activities due to increased scrutiny by the tax authorities and the general public and/or will face substantial reputational costs. On the other hand, investors might appreciate the upcoming enhancement in tax transparency, providing them with incremental information about the firms. Prior studies by Chen (2017), Hoopes et al. (2018) and Johannesen & Larsen (2016) document a negative capital market reaction to a new legislation on the disclosure of tax information by the Australian Tax Office and on a CbCR requirement for EU firms in the extractive industries, respectively. With our study, we aim to answer the question whether investor reactions to an increase in tax transparency are generalizable to other industries and settings, namely the introduction of CbCR for EU financial institutions (Article 89 CRV IV).

[24] For the sake of brevity, Table 7 only shows the main results for each robustness test. Nevertheless, the results for the daily abnormal returns, for the inclusion of Italian banks, and for the sample splits also remain qualitatively similar throughout all the robustness tests.

We employ an event study methodology to analyze the stock price reaction around the day of the rather surprising political decision to introduce a CbCR obligation for EU financial institutions. Our results suggest that this decision did not have a significant effect on the stock returns of the banks affected. Sample splits according to the effective tax rate and the degree of B2C orientation do not reveal a more pronounced negative investor response for banks engaging more strongly in tax avoidance or being potentially more concerned about reputational risks, respectively. Our results remain unchanged when considering two additional event dates and throughout various robustness checks.

We conclude that, contrary to our expectations, the implementation of a CbCR requirement for EU financial institutions did not trigger a noticeable investor response. We take a closer look at the similarities and differences between the disclosure requirements investigated by Chen (2017), Hoopes et al. (2018) and Johannesen & Larsen (2016), respectively, and the CbCR obligation for EU financial institutions. We contend that the reaction to a new tax disclosure requirement is likely to depend on the motivation of the rule and on the way the information is presented. Hence, reactions to an increase in tax transparency are not per se generalizable to other industries and settings, but consideration must be given to the context and the exact design of the rule. This caveat should be kept in mind in the on-going political discussions about further tax disclosure requirements, such as the proposal of the European Commission and the European Parliament to introduce a public CbCR requirement for large multinational firms across all industries.

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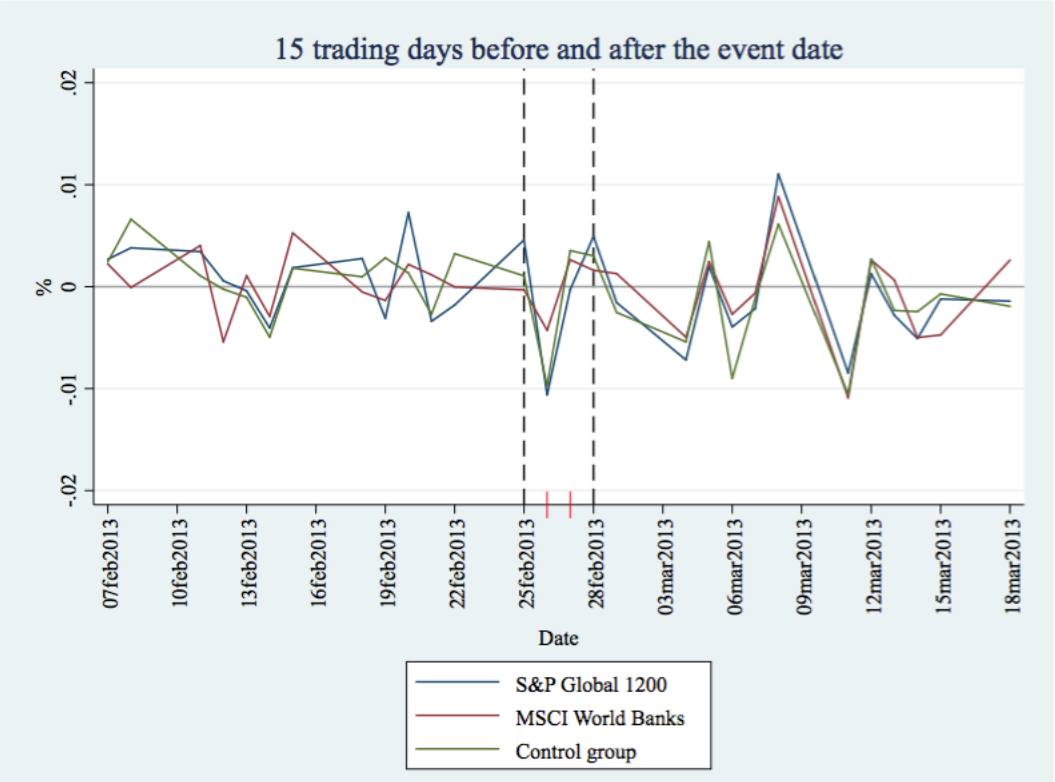
Figures

Figure 1: Average abnormal returns around the event date



Notes: The dashed lines frame the dates around the event date (25/02/2013 to 28/02/2013). The red marks represent the consecutive days within this window.

Tables

Table 1: Descriptive statistics of daily stock returns for different groups of banks

Realized return	N	Mean	Standard deviation	1st percentile	99th percentile
Treated banks	155	0.070	0.706	-1.755	1.929
Control group	537	0.072	0.437	-1.172	1.134

Notes: Treated banks are entities of bank groups whose global ultimate owner is located in the EU. Banks in the Control group are entities of bank groups whose global ultimate owner is located outside the EU. The descriptive statistics are calculated for the period from 1 January 2012 to 31 December 2014. All values, except for the number of banks N, are stated in percent.

Table 2: Cumulative average abnormal returns – three-day window centered on event date

	(1)	(2)	(3)
Expected return:	S&P Global 1200	MSCI World Banks	Control group
27/02/2013	-0.006 (-0.777)	-0.000 (-0.005)	-0.003 (-0.354)

Notes: The 155 treated banks are entities of bank groups whose global ultimate owner is located in the EU.
t-test statistic in parenthesis. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

Table 3: Average abnormal returns – around event date

	(1)	(2)	(3)
Expected return:	S&P Global 1200	MSCI World Banks	Control group
Panel A: Daily average abnormal returns – around event date			
25/02/2013	0.005	-0.000	0.001
	(0.961)	(-0.083)	(0.195)
26/02/2013	-0.011**	-0.004	-0.010*
	(-2.226)	(-1.127)	(-1.788)
27/02/2013	-0.000	0.003	0.004
	(-0.059)	(0.695)	(0.651)
28/02/2013	0.005	0.002	0.003
	(1.035)	(0.425)	(0.556)
Panel B: Daily average abnormal returns without sample adjustment – around event date			
25/02/2013	0.006	0.000	0.001
	(1.047)	(0.035)	(0.213)
26/02/2013	-0.015***	-0.008**	-0.015**
	(-2.858)	(-1.972)	(-2.361)
27/02/2013	-0.001	0.002	0.004
	(-0.135)	(0.605)	(0.615)
28/02/2013	0.003	-0.001	0.001
	(0.599)	(-0.143)	(0.233)
Panel C: Cumulative average abnormal returns without sample adjustment – three-day window centered on event date			
27/02/2013	-0.013	-0.006	-0.010
	(-1.448)	(-0.903)	(-0.907)

Notes: Panel A displays the daily average abnormal returns around the event date. The 155 treated banks are entities of bank groups whose global ultimate owner is located in the EU. Panel B presents the corresponding figures after relaxing the sample restrictions described in Section 3. The resulting sample without these adjustments still includes Italian and Cypriot banks (N=177). Panel C displays the cumulative average abnormal returns for a three-day window centered on the event date without the sample adjustments (N=177).
t-test statistic in parenthesis. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

Table 4: ETR sample split

	(1)	(2)	(3)
Expected return:	S&P Global 1200	MSCI World Banks	Control group
Banks with ETR below median ETR in the EU			
27/02/2013	0.005	0.010	0.004
	(0.428)	(0.863)	(0.296)
Banks with ETR above median ETR in the EU			
27/02/2013	-0.012	-0.005	-0.007
	(-1.175)	(-0.607)	(-0.549)

Notes: The table displays the cumulative average abnormal returns for a three-day window centered on the event date. We use the 2011 financial statements to calculate the ETR for our event. We split all listed banks according to the median ETR and then perform the data cleaning procedure described in Section 3. This can lead to slight numerical inequalities between the two ETR groups. The sample adjustment leaves us with 48 (56) banks with an ETR below (above) the median ETR.
t-test statistic in parenthesis. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

Table 5: B2B/B2C sample split

	(1)	(2)	(3)
Expected return:	S&P Global 1200	MSCI World Banks	Control group
Banks with a below-average B2C orientation			
27/02/2013	-0.003	0.001	0.001
	(-0.359)	(0.159)	(0.092)
Banks with an above-average B2C orientation			
27/02/2013	-0.009	-0.003	-0.008
	(-0.933)	(-0.305)	(-0.625)

Notes: The table displays the cumulative average abnormal returns for a three-day window centered on the event date. Banks are classified according to the specialization code in Bank Focus: Commercial banks, Investment & Trust corporations, Investment banks, Private banking/ Asset management companies and Securities firms are assumed to be mainly B2B-oriented. Cooperative banks, Finance companies, Real Estate & Mortgage banks, Savings banks and Specialized governmental credit institutions are regarded to be mainly B2C-oriented. Central banks, Clearing and Custody institutions, Group finance companies, Islamic banks, Micro-financing institutions, Multilateral government banks and Other non-banking credit institutions are not considered. Consequently, 178 of 940 entities in the complete sample of banks listed on a stock market are categorized as B2C-oriented. At the group level, bank groups are classified to have a high or low B2C orientation depending on the fraction of affiliates with B2C orientation. We split all bank groups at the mean of the B2C fraction (about 20%). In the complete sample, about 30% of the bank groups are classified to have an above-average B2C orientation. Roughly in line with the ratio in the raw data, we have categorized 78 (43) banks as part of a group with a low (high) B2C orientation in our sample of bank groups with a global ultimate owner located in the EU.
t-test statistic in parenthesis. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

Table 6: Cumulative average abnormal returns – three-day window centered on alternative event dates

	(1)	(2)	(3)
Expected return:	S&P Global 1200	MSCI World Banks	Control group
27/06/2013	-0.003	-0.001	-0.012
	(-0.350)	(-0.159)	(-1.150)
30/10/2014	-0.004	0.002	-0.014
	(-0.505)	(0.388)	(-1.512)

Notes: At the second (third) event date, 177 (165) banks are in the sample of treated firms. Treated banks are entities of bank groups whose global ultimate owner is located in the EU.
t-test statistic in parenthesis. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

Table 7: Robustness tests

	(1)	(2)	(3)
Expected return:	S&P Global 1200	MSCI World Banks	Control group
Panel A: Modified event windows (27/02/2013)			
4-day window starting at event date	-0.004	0.001	-0.001
	(-0.465)	(0.076)	(-0.137)
5-day window centered on event date	-0.003	0.001	-0.005
	(-0.292)	(0.111)	(-0.409)
Panel B: Buy-and-hold average abnormal returns – three-day window centered on event date			
27/02/2013	-0.007	-0.001	-0.004
	(-0.902)	(-0.087)	(-0.424)
Panel C: Cumulative average abnormal returns for banks listed in the EU – three-day window centered on event date			
27/02/2013	-0.008*	-0.003	-0.006
	(-1.175)	(-0.549)	(-0.691)

Notes: The 155 treated banks are entities of bank groups whose global ultimate owner is located in the EU. Panel A displays the cumulative average abnormal returns for alternative event windows. Panel B displays the buy-and-hold average abnormal returns ($BHAAR = \frac{1}{N}\sum_{i=1}^{N}\left[\prod_{t=1}^{T}\left(1 + R_{i,t}^{act}\right) - \prod_{t=1}^{T}\left(1 + R_{i,t}^{exp}\right)\right]$) around the event date. The t-test statistic for this panel is skewness adjusted. Panel C displays the cumulative average abnormal returns for a three-day window centered on the event date for 219 treated banks that are listed in the EU.
t-test statistic in parenthesis. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.