



Supervisory arbitrage and real effects[☆]

Thorsten Beck^{a,b}, Consuelo Silva-Bustón^{c,d}, Wolf Wagner^{e,b,*}

^a European University Institute, Italy

^b CEPR, United Kingdom

^c School of Management, Pontificia Universidad de Católica de Chile, Chile

^d CGCUC, Chile

^e Rotterdam School of Management, The Netherlands

ARTICLE INFO

Editor: R Iyer

JEL classification:

G1

G2

Keywords:

Supervisory arbitrage

Cross-border banking

Corporate lending

ABSTRACT

We examine the effects of cross-border supervisory arbitrage on corporate lending and firm performance. We show that subsidiaries of banking groups improve loan conditions for firms when the group's opportunities to take risks in other countries are curbed. The expansion in lending is targeted towards firms of higher quality and firms that the group is already familiar with. The improved lending conditions have positive real effects, allowing recipient firms to increase capital spending and leading to higher profits. Taken together, our results suggest that there can be benefits for firms in countries that receive lending inflows due to the supervisory arbitrage.

1. Introduction

Extensive literature has shown that financial institutions arbitrage gaps and differences in regulatory and supervisory frameworks to shift risks to environments with less scrutiny.¹ This is particularly pronounced in a cross-border context, as countries differ in their supervisory approaches and cooperate only in a limited way in supervising banks. Prior literature has identified several channels through which such arbitrage takes place, by examining international banking flows (Houston et al., 2012), trust-preferred securities (Boyson et al., 2016), international bank M&As Karolyi and Taboada (2015), subsidiaries of U.S. Bank Holding Companies (Frame et al., 2020) and syndicated lending (Demirgüç-Kunt et al., 2019).² This paper focuses on the effects of cross-border supervisory arbitrage on the real sector, namely on firms' financing and real activities.

Theory and previous empirical literature provide contrasting predictions on the real effects of supervisory arbitrage. On the one hand, stronger cross-border flows can improve capital allocation and result in higher firm growth (Forbes, 2007). On the other hand, supervisory arbitrage can result in excessive risk-taking rather than value-supporting lending activities (Carbo-Valverde et al., 2012). However, observing a significant relationship between supervisory arbitrage and corporate lending and firm performance does not allow causal inference, as causality could flow either way, or a third factor could drive such a relationship. To address

[☆] Silva-Bustón acknowledges funding from ANID Fondecyt Regular #1231630. We gratefully acknowledge comments and suggestions by the editor and an anonymous reviewer without implicating them.

* Corresponding author at: Rotterdam School of Management, The Netherlands.

E-mail addresses: Thorsten.Beck@eui.eu (T. Beck), consuelosilva@uc.cl (C. Silva-Bustón), wagner@rsm.nl (W. Wagner).

¹ Regulation refers to the rules and laws that govern the operations of financial institutions, while supervision refers to the monitoring and examination of financial institutions to ensure they comply with regulations and operate in a safe and sound manner.

² This relates to a broader literature that shows that banks respond to higher regulatory standards, for example, by lowering domestic credit (Aiyar et al., 2014b), cross-border credit (e.g., Aiyar et al., 2014a; Forbes et al., 2017), foreign lending standards (Ongena et al., 2013) and shift risks to business lines or countries with less stringent regulation (Buch and DeLong, 2008).

<https://doi.org/10.1016/j.jcorpfin.2025.102861>

Received 3 February 2025; Received in revised form 4 August 2025; Accepted 4 August 2025

Available online 29 August 2025

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the identification challenge, we exploit variation in whether a third country has signed a supervisory cooperation agreement with the parent supervisor of a global banking group operating in that country. This serves as a shock to supervisory arbitrage and is plausibly exogenous to local economic conditions and credit demand.

We show that subsidiaries of banking groups improve loan conditions for firms when the group's opportunities to take risks in other countries are reduced due to cross-border supervisory cooperation. The expanded lending is targeted toward higher-quality firms and those with which the group is already familiar. The improved lending conditions have positive real effects, allowing recipient firms to increase capital spending and profits. Taken together, our results suggest that there can be benefits for firms in countries that receive lending inflows due to supervisory arbitrage.

In an integrated global financial system, cross-country differences in bank regulation and supervision create opportunities for regulatory and supervisory arbitrage, weakening the effectiveness of safeguards designed to ensure financial stability. It can also lead to risks ending up in places with little oversight, which may allow the build-up of risks.

Despite the negative implications for financial stability, supervisory arbitrage can have negative or positive repercussions for the real sector. On the one hand, countries with weaker supervisory standards may receive capital inflows that allow firms to borrow more, potentially alleviating financial constraints (Forbes et al., 2017; Beck et al., 2005; Laeven, 2003). This may be particularly beneficial if countries with less developed financial systems (and hence more constrained firms) are also countries with relatively lower supervisory standards.³ On the other hand, such benefits are conditional on whether the additional lending is targeted towards well-managed, efficient, and profitable firms, as a purely risk-motivated reallocation might result in negative NPV projects being funded. Supervisory arbitrage can thus also lead to excessive risk-taking and misallocation of resources (Ranci ere and Tornell, 2016). The theoretical and empirical literature thus provides contrasting hypotheses on the effect of supervisory arbitrage in recipient countries. This paper aims to fill this gap.

Examining the effect of supervisory arbitrage on domestic lending, firm behavior and performance is empirically challenging. First, supervisory differences are clearly endogenous to lending, both domestically and abroad.⁴ Second, supervisory standards typically apply to all domestic banks, making it difficult to identify the effect within a country, controlling for other, possibly unobservable factors. This paper, therefore, leverages subsidiary-specific variation in supervisory stringency that arises from changes in cross-border supervisory cooperation originating outside the country in question.

Countries frequently cooperate in the supervision of their cross-border banks. This makes it more difficult for banks to take risks in these countries because the exchange of information makes it more difficult to hide risk and because cooperation may increase the strictness of domestic supervisors.⁵ However, the coverage of such cooperation (in terms of countries) is incomplete, creating the potential for supervisory arbitrage. As reported in Beck et al. (2025), cooperation agreements typically cover only about a one-fourth of the operations of affected banking groups. Consequently, banking groups shift activities into parts of the group that are less covered by cooperation agreements.

Specifically, we examine changes in stringency that arise when third countries sign cooperation agreements with the parent supervisor of a banking group. Limiting the group's possibilities of taking risks in third countries creates pressure to expand lending domestically. Importantly, two banking groups are differentially affected by third-country cooperation as they will differ in their geographical footprint. This provides us with a tighter identification than simply focusing on bilateral country capital flows.

We use the syndicated loan market as a laboratory to explore the effect of supervisory arbitrage on lending terms, as well as firm behavior and performance. We show that a subsidiary of a bank group extends larger loans to firms when the extent to which cooperation covers the group's global operations (excluding the subsidiary country itself) increases (for example, as a result of the parent country of the group forming a cooperation agreement with another country in which the group has subsidiaries). The effect is economically significant: a one-standard-deviation increase in cooperation coverage increases lending by nearly two standard deviations. We also find that when cooperation elsewhere increases, the subsidiary offers lower lending rates to firms. Thus, lending conditions improve on both the quantity and price margin.

We next investigate which types of firms benefit from the improvement in lending conditions. On the one hand, a risk-reallocation motive would suggest that banks target firms that allow them to increase the value of their implicit "put" option. On the other hand, since increased cooperation does not constitute an overall shock to the bank's risk appetite, it is not clear whether the bank should seek specifically riskier exposures. In addition, the literature has shown that foreign banks face a disadvantage in making new loans compared to incumbent local banks, because of inferior access to local information (Mian, 2006; Beck et al., 2018). This argument would suggest that incremental lending is targeted at firms where private information matters less, which would speak for safer firms. The evidence points towards the latter: We find that the firms that benefit most from improved lending conditions are high-quality firms that are less likely to fail and firms with which the bank is less at an informational disadvantage, as it has an existing relationship with them.

Finally, we consider whether there are real benefits arising from the shift in lending conditions. We show that firms that borrow from banks that receive positive shocks to relative supervisory stringency in third countries expand their activities. They increase

³ The existence of such benefits may also explain the desire of some countries to maintain standards that are lower than the ones set by other countries.

⁴ For instance, country B may respond to risk changes of a group operating in A and B by tightening supervision, which makes lending in A correlated with supervisory standards in B.

⁵ Beck et al. (2025) shows that supervisory strictness increases following cooperation, consistent with theoretical predictions (e.g., Dell'Ariccia and Marquez, 2006; Colliard, 2020; Dell'Ariccia and Marquez, 2006; Kara, 2016) and Beck et al. (2023) show that banking groups become less risky when their operations are more covered by cooperation agreements.

their asset base, have higher capital expenditures, do more R&D and see their profits increase. This is consistent with financing constraints being eased at such firms.

Overall, this points towards positive real effects arising from supervisory arbitrage. In particular, the fact that the additional lending seems targeted towards high-quality and safe firms, coupled with the fact that financial constraints are likely to be tighter in countries with weaker supervisory standards (and hence the ones receiving the inflows), allows for the possibility that a reallocation of lending between countries on net alleviates financial constraints, resulting in more desirable projects being funded. However, this does not imply that supervisory arbitrage is desirable overall; rather, it highlights trade-offs between increased lending and financial stability. The uneven distribution of its costs and benefits – where countries with looser standards may gain from higher domestic lending – may help explain persistent cross-country differences in regulation and limited supervisory cooperation.

Our paper contributes to several strands of the literature. First, it contributes to the empirical literature on regulatory arbitrage, including [Houston et al. \(2012\)](#), [Ongena et al. \(2013\)](#), [Gao and Jang \(2021\)](#), [Karolyi et al. \(2023\)](#), and [Frame et al. \(2020\)](#). While most papers in the literature find a negative effect of regulatory arbitrage-induced bank lending on financial stability, [Karolyi et al. \(2023\)](#) show that regulatory arbitrage reduces systemic risk in target countries, and improves banking sector profitability, asset quality and efficiency. Our paper contributes to this literature by focusing (i) on supervisory rather than regulatory arbitrage and (ii) on firms' financing conditions, behavior, and performance. Compared to previous work, we also use a unique and tighter identification strategy by exploiting changes in supervisory stringency resulting from third-country cross-border supervisory cooperation, which differs across foreign subsidiaries within countries.

Second, our paper is motivated by and contributes to the literature on a regulatory and supervisory race to the bottom or to the top. [Dell'Ariccia and Marquez \(2006\)](#) find that uncoordinated regulation leads to too low capital adequacy standards, as individual national regulators do not take into account the benefits of higher capital adequacy standards for other countries. [Haufler and Maier \(2019\)](#), [Gersbach et al. \(2020\)](#), and [Bahaj and Malherbe \(2024\)](#), on the other hand, argue that uncoordinated supervision may result in a race-to-the-top. Our results suggest that supervisory arbitrage-induced lending by subsidiaries of cross-border banking groups can help deepen financial systems in countries with less stringent supervisory frameworks.

Third, our paper also contributes to the literature on lending by foreign banks and which firms benefit from it ([Cull et al., 2018](#)). Our finding that safer firms benefit from supervisory arbitrage is consistent with prior literature that shows foreign banks “cherry pick” borrowers, meaning they tend to select the best borrowers and lend more to transparent firms ([Dell'Ariccia and Marquez, 2004](#); [Degryse et al., 2012](#); [Beck and Brown, 2015](#)).

Finally, our paper relates to a small but growing literature on cross-border supervisory cooperation and its effect on financial stability.⁶ [Beck et al. \(2023\)](#) show that supervisory cooperation reduces cross-border banking groups' riskiness, also consistent with stricter supervision. Closely related to this paper, [Beck et al. \(2025\)](#) show that banking groups reallocate lending activities and risk into third-country subsidiaries when cooperation agreements cover their operations in other countries. Unlike [Beck et al. \(2023\)](#) and [Beck et al. \(2025\)](#), and this paper, which focus their analysis on the subsidiary rather than on the bank group level. While [Beck et al. \(2025\)](#) focus on the effect of risk reallocation on subsidiaries, this paper considers the effect of such supervisory arbitrage on loan conditionality for the corporate sector and firm performance. Together, both studies suggest that there is a trade-off between financial stability and easing firms' financing constraints in environments with less supervisory scrutiny.

The remainder of the paper is organized as follows. The next section presents data and descriptive statistics. Section 3 discusses the methodology, and Section 4 the results. Section 5 concludes.

2. Data and descriptive statistics

Our main analysis takes place at the syndicated loan facility level. We obtain loan data from Thomson Reuters's Dealscan database, which contains loan-level information on a large number of syndicated loans across the globe. As we want to measure the effect of cross-border supervisory arbitrage, we constrain ourselves to loans issued by subsidiaries of multinational banking groups. We manually match subsidiaries in Dealscan with Bankscope (for the years 1995 to 2013) and Bankfocus (for the years 2014 to 2020) to obtain banks' balance sheet information. We additionally match with Compustat to add borrower balance sheet data to our database.⁷

2.1. Cross-border supervisory cooperation and supervisory arbitrage

For each subsidiary in the lending syndicate, we create an index of supervisory arbitrage pressure originating from abroad. This index will represent the extent to which cooperation agreements cover the home-host country operations of its banking group (excluding the subsidiary's host country itself). To calculate this index, we first need data on supervisory cooperation agreements among supervisors. We use hand-collected data on supervisory cooperation agreements from [Beck et al. \(2023, 2025\)](#). The dataset contains information on cooperation at the country-pair level, starting from 1995, though such cooperation may also originate from a multilateral agreement. The data spans 93 countries that headquarter banking groups in Europe, the Americas, Africa, and Oceania. The data were collected primarily using information provided by the relevant domestic financial authorities (from their websites and

⁶ Several papers have examined theoretically how banks may adjust their behavior following cooperation. [Calzolari et al. \(2018\)](#) show that cooperation between national supervisors increases monitoring of banks, while [Loranth et al. \(2022\)](#) show that a supranational architecture allows for voluntary support within a banking group, affecting banks' ex-ante incentives to take risks.

⁷ We thank ([Chava and Roberts, 2008](#)) for sharing their data link between Dealscan and Compustat.

annual reports), complemented with direct web searches for cooperation agreements. Cooperation can cover various elements, such as joint supervision of banks, joint on-site inspections (or inspection rights in other countries), information exchange, and/or joint approaches to crisis resolution. More information on these agreements is provided in the online Appendix.⁸ We focus on supervisory pressure arising from the presence of such cooperation agreements. These cooperation agreements are typically unlimited in time, and we are not aware that countries have formally rescinded such agreements.

To calculate the cooperation index, we also require information about the ownership of subsidiaries (defined as majority ownership). We obtain this information from Bankfocus for the years 2014 to 2020 and hand-collect it for prior years (1995–2013).⁹ We use the Claessens and Van Horen (2014) database to identify and focus on the banking groups headquartered in one of the 93 countries in the cooperation database.¹⁰ We drop banking groups that have only (foreign) subsidiaries in a single country and subsidiaries with loan growth exceeding 200%.

After these steps and merging the cooperation and ownership data with loan-level data, we have 4595 loan facilities in our sample, provided to 2130 borrowers by 66 banking groups. Those groups lend through 163 subsidiaries spanning 53 host countries and 24 home countries.¹¹

Using the cooperation and ownership information, we can calculate for each subsidiary in the syndicate a supervisory-pressure-index. This index is at the *group × host-country* level and measures cooperation coverage for group *g* excluding subsidiaries located in the subsidiary's host country *i* in year *t*:

$$\text{Group cooperation}_{g,t} = \sum_{k \neq i} w_{g,k,t} \cdot \text{Subsidiary Cooperation}_{k,j,t},$$

where $w_{g,k,t} = \frac{\text{Assets}_{g,k,t}}{\sum_l \text{Assets}_{g,l,t}}$. $\text{Subsidiary Cooperation}_{k,j,t}$ is a dummy variable indicating the existence of cooperation between the home country *j* and a specific subsidiary host country *k*. The data on the banking group's foreign subsidiaries' assets are obtained from Bankscope/Bankfocus.

In all our regressions, we include a set of subsidiary-level control variables, including *Subsidiary cooperation*, defined above; $\text{Log}(\text{assets})$, the natural logarithm of total assets in US dollars; *Capital-ratio* as a measure of bank capitalization; *Loan loss provisions over total loans (LLP/TL)* as an indicator of lending quality, and *Loan growth*. This follows the literature examining the determinants of bank lending (e.g., Aiyar et al., 2014a). All bank controls and the *Group cooperation* index are aggregated at the loan level by computing the weighted averages of the corresponding variables, where the weights are each participating bank's contribution to the loan.¹²

Panel A of Table 1 provides summary statistics at the loan facility level. The final sample consists of 1617 loan facilities due to missing observations in the control variables; these loans are to 797 borrowers. The *Group Cooperation* mean is 7%; that is, on average, about 7% of the foreign assets of the group outside the subsidiary country are covered by a cooperation agreement. The panel also shows that the mean of *Subsidiary Cooperation* (that is, cooperation between the subsidiary's host country and its home country) is 10%. The correlation between the two variables is 64%.^{13,14}

2.2. Loan and firm characteristics

Our first dependent variable is $\text{log}(\text{amount})$, the natural logarithm of the facility amount in USD. In our analysis, we control for a wide range of loan characteristics. Similar to Hale et al. (2019) and Shan et al. (2019), we include as controls the natural logarithm of the loan spread in basis points ($\text{Log}(\text{spread})$), the maturity of the loan expressed in months ($\text{Log}(\text{maturity})$), the number of lenders in the loan facility (*#lenders*), a set of dummy variables indicating the purpose of the loan (*Corporate*, *Refinancing*, *Acquisitions*, *Backup line*), and dummy variables indicating whether the loan is a term loan (*TERM*) and whether it is secured (*Secured*). We also present regressions with $\text{Log}(\text{spread})$ as a dependent variable.

The descriptive statistics in Panel A show a mean loan amount of 230 million USD (natural logarithm of 19.25) and a mean loan spread of 162 basis points (natural logarithm of 5.088). More than half of the loan tranches are secured, nearly half are term loans, and the average maturity is 44 months. On average, there are 15 lenders in each syndicate.

In the second part of our analysis, we study how group cooperation is associated with investment and growth outcomes for the borrower. In these regressions, we collapse our loan database at the borrower-year level, which corresponds with available balance sheet data frequency.

⁸ In the online Appendix we provide background information and examples of these agreements (for an MoU for information sharing, a College of Supervisors and an MoU on crisis management and resolution). Beck et al. (2023) discusses the development of cross-border supervisory cooperation over time and across regions.

⁹ Ownership frequently changes due to M&As. To minimize measurement errors, we employed a data collection process where two research assistants independently collected ownership data, and a third one checked in case of any discrepancies.

¹⁰ The Claessens and Van Horen (2014) data accounts for more than 90 percent of the assets of the banking systems considered in the database.

¹¹ Online Appendix C lists the host and home countries in our sample.

¹² We allocate missing loan shares on a pro-rata basis, following, e.g., De Haas and Van Horen (2013).

¹³ One may use *Subsidiary Cooperation* to construct a measure of relative supervisory pressure (i.e., *Group cooperation-Subsidiary cooperation*). However, we refrain from doing so because *Subsidiary Cooperation* is endogenous to risk-taking and lending; one may expect the subsidiary country to start cooperation with the parent country when there are significant lending activities by the group into this country. We, hence, mainly view the variable as a control variable. Nonetheless, the results remain unchanged when this control is excluded from the regressions.

¹⁴ The lower mean of these variables, compared to Beck et al. (2025), results from aggregation at the facility level.

Table 1
Descriptive statistics.

	N	Mean	sd	p25	p50	p75
<i>Panel A: Loan-level</i>						
Log (amount)	1617	19.251	1.612	18.421	19.380	20.366
Group cooperation	1617	0.069	0.096	0.011	0.038	0.086
Subsidiary cooperation	1617	0.103	0.146	0.008	0.062	0.125
Log(assets)	1617	1.454	1.595	0.540	0.965	1.737
Loan growth	1617	0.005	0.047	-0.011	0.002	0.017
LLP/TL	1617	0.001	0.003	0.00009	0.0004	0.001
Capital ratio (%)	1617	3.278	4.386	0.952	2	3.978
Log (spread)	1617	5.088	0.776	4.605	5.165	5.617
Secured	1617	0.525	0.500	0	1	1
Log (maturity)	1617	3.785	0.674	3.584	4.094	4.094
TERM	1617	0.466	0.499	0	0	1
Corporate	1617	0.542	0.498	0	1	1
Refinancing	1617	0.105	0.306	0	0	0
Acquisitions	1617	0.103	0.304	0	0	0
Backup line	1617	0.010	0.099	0	0	0
# lenders	1617	14.993	11.004	7	12	20
<i>Panel B: Firm-level</i>						
Fixed assets growth	231	0.152	0.304	0.031	0.120	0.246
Capex growth	276	0.131	0.558	-0.107	0.040	0.460
Δ R&D/sales	271	0.001	0.068	-0.001	0	0.001
Δ Working capital/TA	225	-0.002	0.242	-0.038	0.006	0.049
Employment growth	261	0.084	0.272	-0.024	0.030	0.149
Δ ROA	267	0.008	0.150	-0.022	0	0.027
Group cooperation	276	0.070	0.089	0.019	0.039	0.091
Subsidiary cooperation	276	0.107	0.130	0.033	0.071	0.125
Log(assets)	276	1.337	1.391	0.534	0.917	1.571
Loan growth	276	-0.001	0.039	-0.014	0.001	0.012
LLP/TL	276	0.001	0.003	0	0	0.001
Capital ratio (%)	276	3.640	4.863	1.100	2.081	4.287
Firm log(sales)	276	7.808	1.669	6.771	7.801	9.227
Firm cash/TA	276	0.070	0.069	0.020	0.050	0.088
Firm R&D/sales	276	0.025	0.065	0	0.008	0.029
Firm leverage	276	0.669	0.230	0.531	0.641	0.789
Firm # relationships	276	27.960	29.352	11	19	33.500
Firm tangible/TA	276	0.796	0.212	0.679	0.874	0.979

This table reports summary statistics of the main regression variables. The statistics in Panel A are at the loan level, where bank characteristics are averaged using participating banks' contributions to the loan as weights. In Panel B, we report summary statistics at the borrower company-year level, where bank characteristics are averaged using banks' total amount of lending to a borrower in a given year as weights. The sample period spans from 1995 to 2020. Definition and sources of variables are listed in [Appendix A](#).

The first dependent variable we consider is *Fixed assets growth*, which represents the two-year growth rate of fixed assets between the year prior to the loan and the year following its starting date. Similarly, *Employment growth* and *Capex growth* are the (two-year) annual growth rates of the number of employees and of total capital expenditures (additions to fixed assets) in the year after the loan, respectively. We also consider Δ R&D/sales, Δ Working capital/TA, and Δ ROA which correspond to the two-year change in research and development expenses (as a share of sales), working capital (as a share of assets), and return on assets, respectively.

Panel B of [Table 1](#) shows that firms in our sample exhibit a two-year average growth rates of 15%, 13%, and 8% in terms of *Fixed assets growth*, *Capex growth*, and *Employment growth*, respectively, and a two-year change of 0.1, -0.2, and 0.8 percentage points in Δ R&D/sales, Δ Working capital/TA, and Δ ROA, respectively, in the subsequent two years after obtaining a syndicated loan. In the firm-year-level regressions, bank controls are calculated as the weighted averages of the same bank controls as before, with values taken for the same year as the year of the loan, and where the weights are banks' total amount of lending to a borrower in a given year.

Following the literature (e.g., [Acharya et al., 2019](#); [Hale et al., 2019](#); [De Jonghe et al., 2020](#)), we include borrowers' leverage ratio (*Firm leverage*), the fraction of tangible assets to total assets (*Firm tangible/TA*), Firm cash (*Firm cash/TA*), the number of relationships (*# relationships*), (*Firm R&D/sales*) and the natural logarithm of total assets in USD (*Firm size*) as control variables.

3. Empirical strategy

We study lending conditions in the syndicated loan market, taking the loan facility itself as given (intensive margin). We examine how loan terms (amount and spread) depend on supervisory arbitrage pressure, i.e., the extent to which the operations of the lending subsidiary's group in other countries are covered by cooperation with the parent country, and thus the cross-border banking group faces incentives to shift lending into the country of the firm in question.

Table 2
Lending.

Dep. Var.:	Log(amount)				Log(spread)
	(1)	(2)	EW (3)	only lead (4)	(5)
Group cooperation _{<i>f,t-1</i>}	36.596*** (10.139)	33.151*** (10.660)	22.870*** (6.224)	39.510*** (12.145)	-3.164** (1.310)
Subsidiary cooperation _{<i>f,t-1</i>}	1.851 (2.345)	0.838 (2.817)	5.405 (3.682)	-1.157 (4.764)	0.840* (0.418)
Log(assets) _{<i>f,t-1</i>}	-0.010 (0.226)	0.132 (0.297)	-0.499 (0.524)	0.449 (0.486)	0.086 (0.083)
Loan growth _{<i>f,t-1</i>}	4.151 (4.979)	5.907 (5.062)	3.641 (4.041)	7.339 (5.249)	1.331 (1.307)
LLP/TL _{<i>f,t-1</i>}	120.817 (72.464)	126.973* (68.942)	230.062** (101.189)	150.283* (76.246)	16.792 (18.840)
Capital ratio _{<i>f,t-1</i>}	-0.693*** (0.209)	-0.643*** (0.218)	-0.423** (0.162)	-0.795*** (0.248)	0.026 (0.032)
Secured _{<i>f,t</i>}		-0.438 (0.274)	-0.395 (0.273)	-0.540 (0.323)	-0.131 (0.123)
Log(maturity) _{<i>f,t</i>}		0.202** (0.091)	0.219** (0.091)	0.166 (0.114)	0.117*** (0.032)
TERM _{<i>f,t</i>}		0.487*** (0.116)	0.500*** (0.115)	0.526*** (0.143)	0.075*** (0.013)
Corporate _{<i>f,t</i>}		-0.110 (0.302)	-0.064 (0.340)	0.016 (0.270)	-0.120 (0.190)
Refinancing _{<i>f,t</i>}		-0.022 (0.401)	0.010 (0.422)	0.003 (0.351)	-0.057 (0.158)
Acquisitions _{<i>f,t</i>}		-0.163 (0.305)	-0.104 (0.331)	-0.173 (0.388)	0.007 (0.191)
Backup line _{<i>f,t</i>}		-0.121 (0.303)	-0.048 (0.375)	0.000 (0.000)	0.061 (0.219)
# lender _{<i>f,t</i>}		0.010 (0.008)	0.010 (0.014)	0.011 (0.010)	0.004 (0.004)
Log(spread) _{<i>f,t</i>}		-0.501* (0.268)	-0.516* (0.260)	-0.559** (0.258)	
Log(amount) _{<i>f,t</i>}					-0.019* (0.010)
Observations	1625	1617	1633	1036	1617
(Within) R-squared	0.04	0.12	0.10	0.14	0.21
Firm*Year FE	Y	Y	Y	Y	Y

This table presents the results of regressions of loan terms on group and subsidiary cooperation. The dependent variable is the natural logarithm of a facility amount $Log(amount)$ in columns (1)–(4) and the natural logarithm of the all-in-drawn spread in basis points $Log(spread)$ in column (5). *Group coop.* is an asset-weighted dummy indicating cooperation between the subsidiary's home country and its subsidiaries' host countries, excluding the subsidiary's country. *Subsidiary coop.* is a dummy equal to one in which cooperation exists between the subsidiary's home country and the subsidiary's country. Banks' data is aggregated at the loan level using banks' shares in a loan as weights. The sample period spans from 1995–2020. Definitions and sources of control variables are listed in [Appendix A](#). All models are estimated with two-way clustered standard errors at the borrower and year level (in parentheses).

* Denote significance at the 10% level.

** Denote significance at the 5% level.

*** Denote significance at the 1% level.

We run the following regression for a facility (segment of the loan) f

$$Loan\ term_{f,b,t} = \beta_1 Group\ cooperation_{f,t-1} + \beta_2 X_{f,t-1} + \beta_3 L_{f,t} + \delta_{b,t} + \epsilon_{f,b,t}, \quad (1)$$

where $Loan\ term_{f,s,b,t}$ is either the natural logarithm of the loan amount in USD or the natural logarithm of the all-in-drawn spread in basis points for facility f in year t to borrower b . *Group cooperation* (as defined in Section 2) captures the degree to which the assets of the other (foreign) subsidiaries of the subsidiary's group are covered by a cooperation agreement with the home country. $X_{f,t-1}$ and $L_{f,t}$ are the set of bank and loan control variables, respectively, described in Section 2.

We include *borrower x year* fixed effects in all specifications. In these specifications, identification comes from comparing the facility size of two loans granted to the same borrowing firm in the same year but by different lenders. This strategy allows us to partially control for demand factors. We report standard errors clustered at the borrower and year level in all regressions.

In the second part, we study various growth dimensions for firms that borrow on the syndicated loan market from banks with different levels of group cooperation. We use firm-year-level data and estimate the following specification:

$$Y_{b,c,t+1} = \beta_1 \text{Group cooperation}_{b,t-1} + \beta_2 X_{b,t-1} + \beta_3 Z_{b,t-1} + \gamma_b + \delta_{c,t} + \epsilon_{b,c,t}, \quad (2)$$

where $Y_{b,c,t+1}$ is the two-year growth of alternatively the fixed assets, capex, and employment or the two-year change of R&D expenses (as a share of sales), working capital (as a share of total assets), and ROA of firm b in year $t+1$ if the firm borrowed on the syndicated loan market in year t . As before, $\text{Group cooperation}_{b,t}$ and $X_{b,t}$ are the weighted averages of bank-specific group cooperation and other bank characteristics of lenders of firm b in year t . $Z_{b,t-1}$ is the set of borrower characteristics described in Section 2. The sample consists of the firms that were included in the previous section (that is, firms that borrow in the syndicated loan market).

We include borrower fixed effects, γ_b , to control for unobserved firm characteristics, as well as borrower country-year fixed effects, $\delta_{c,t}$, which control for time-varying factors at the country level, such as business cycle fluctuations. We report robust standard errors clustered at the borrower and year level.

4. Results

We first report results on the effect of supervisory arbitrage due to changes in third-country cross-border supervisory cooperation on loan terms before turning to the effect on firms' behavior and performance.

4.1. Supervisory arbitrage and lending terms

The results in Table 2 show that higher supervisory arbitrage due to changes in cross-border supervisory cooperation between third countries is associated with larger loans and lower spreads. All regressions control for *Subsidiary cooperation* and *borrower x year* fixed effects.

Columns (1)–(4) show the results for the logarithm of the loan amount in USD. Column (1) contains subsidiary-level controls. The coefficient on *Group cooperation* is positive (36.6) and significant (1% level). Among the control variables, the coefficient of *Subsidiary cooperation* is insignificant. As mentioned earlier, this coefficient should be interpreted with caution as *Subsidiary cooperation* is likely to be endogenous to lending and risk taking (and hence we include it only as a control). In particular, higher lending and risk may result in a higher likelihood of cooperating, consistent with a positive coefficient in the regression (whereas supervisory arbitrage would suggest a negative coefficient). Among the subsidiary-level controls, the capital ratio is significant and enters with a negative sign. This may reflect that subsidiaries with lower capitalization have a higher risk appetite.

Column (2) also includes loan-level controls. The coefficient on *Group cooperation* declines to 33.1 and remains significant at the 1% level. The ratio of loan-loss provisions now also enters positively. Similarly, this ratio may reflect a higher risk appetite. Among the loan controls, maturity and term loans enter significantly and positively, indicating that longer-duration loans and term loans tend to have larger sizes. This regression will be our baseline.

Column (3) considers an alternative specification of the supervisory-pressure variable. Whereas in our baseline specification, this variable is calculated using the asset weights of the group's respective operations in other countries, we employ here an equal-weight version. The coefficient on *Group cooperation* drops in size to 22.9 (significant at 1%). Column (4) only considers subsidiaries that are lead arrangers for the calculation of *Group cooperation*. The sample size drops to 1036 loan facilities. The coefficient on *Group cooperation* is now higher (39.5), and remains significant.

The size of the estimated coefficient on *Group cooperation* indicates a large economic effect arising from supervisory arbitrage. For instance, based on the coefficient in the baseline (33.1 in column (2)), a one-standard-deviation increase in *Group cooperation* increases (log) lending by 3.17 (nearly twice the standard deviation).

Table 2 column (5) investigates loan pricing. We see that the coefficient on the loan spread is negative (−3.164), significant at the 5% level. The economic significance of the pricing effect is more muted, though, as a one-standard-deviation increase in *Group cooperation* lowers loan spreads by less than half of its standard deviation.

In Table 3, we further assess the robustness of our main findings. Specifically, in column (1), we examine the effect of cooperation intensity between two countries. To do this, we construct the variable *Group cooperation intensity*, which replaces the binary cooperation indicator with an ordinal measure ranging from zero to four—where zero indicates no cooperation and four represents the presence of a supranational regulator.¹⁵ The coefficient suggests that a one-standard-deviation increase in this variable (0.17) is associated with a 0.6-standard-deviation increase in the loan amount.¹⁶ It is thus not only the extensive but also the intensive margin of supervisory cooperation that creates supervisory arbitrage that can result in positive effects for lending in third countries. Column (2) adds group-level balance sheet controls, constructed by aggregating the corresponding variables across all subsidiaries within the banking group, weighted by loan allocation. Column (3) additionally accounts for variation in regulation across other host

¹⁵ The blueprint for cooperation provided by the Basel committee suggests that the four cooperation types (information sharing, supervisory colleges, MoU on crisis management and supranational regulator) are cumulative, that is, a supervisory college for example builds on an information agreement, and so on. Thus, they present increasingly stronger forms of cooperation. For the construction of the ordinal variable, if a country pair has signed multiple agreements corresponding to different levels of cooperation, we assign the highest level.

¹⁶ We also estimate this model controlling for Group cooperation. The results remain unchanged.

Table 3
Robustness.

Dep. Var.: $\text{Log}(\text{amount})$	(1)	(2)	(3)	(4)	(5)
Group coop. intensity $_{f,t-1}$	5.458*** (1.186)				
Group coop. $_{f,t-1}$		24.131** (10.777)	29.483** (10.973)	7.394** (2.794)	32.368*** (9.126)
Group log(assets) $_{f,t-1}$		1.567 (1.053)			
Group loan growth $_{f,t-1}$		8.793 (11.651)			
Group LLP/TL $_{f,t-1}$		324.393* (181.064)			
Group capital ratio $_{f,t-1}$		0.013 (0.151)			
Group capital stringency $_{f,t-1}$			-1.867 (4.425)		
Group provision stringency $_{f,t-1}$			0.031 (0.037)		
Group loan class. stringency $_{f,t-1}$			0.019*** (0.006)		
Observations	1306	1617	1617	1596	1617
(Within) R-squared	0.14	0.13	0.13	0.14	0.12
Controls	Y	Y	Y	Y	Y
Firm*Year FE	Y	Y	Y	N	Y
Industry*Size*Firm country*Year FE	N	N	N	Y	N

This table presents robustness tests of regressions of loan terms on group and subsidiary cooperation. The dependent variable is the natural logarithm of a facility amount $\text{Log}(\text{amount})$. *Group coop.* is an asset-weighted dummy indicating cooperation between the subsidiary's home country and its subsidiaries' host countries, excluding the subsidiary's country. *Subsidiary coop.* is a dummy equal to one in which cooperation exists between the subsidiary's home country and the subsidiary's country. Banks' data is aggregated at the loan level using banks' shares in a loan as weights. The sample period spans from 1995–2020. Definitions and sources of control variables are listed in [Appendix A](#). All models, except (5), are estimated with two-way clustered standard errors at the borrower and year level. Column (5) is estimated with two-way clustered standard errors at the borrower country and year level (in parentheses).

* Denote significance at the 10% level.

** Denote significance at the 5% level.

*** Denote significance at the 1% level.

countries within the banking group.¹⁷ In column (4), we follow [De Jonghe et al. \(2020\)](#) and [Degryse et al. \(2019\)](#) by incorporating industry-location-size-time group dummies as time-varying controls for firms' credit demand.¹⁸ Finally, in column (5), we apply two-way clustering at the borrower country and year levels. All tests confirm the robustness of our baseline results, showing a positive and significant coefficient for *Group cooperation*.

In summary, the results in [Tables 2](#) and [3](#) show that supervisory arbitrage following changes in cross-border supervisory cooperation between third countries results in financial institutions giving larger syndicated loan facilities at lower spreads. While these results point to lower financing constraints for firms due to supervisory arbitrage, these findings are consistent with both a positive effect (improvement in capital allocation) and a negative effect of supervisory arbitrage (aggressive risk-taking by banks). This requires examining which types of firms benefit from the additional lending and lower interest rate spreads. We turn to this next.

The results in [Table 4](#) show that safer and more profitable firms benefit more in terms of larger loans, as do firms that already have a lending relationship with a syndicate member. We expand on the [Table 2](#) regressions by interacting *Group cooperation* with several firm characteristics. In column (1), we consider firm size (measured as the logarithm of assets). The interaction effect is insignificant. In columns (2) and (3), we consider two measures of default risk, namely leverage and insolvency risk. Insolvency risk is measured by a dummy variable that indicates if the firm has a default probability larger than the sample's median default probability, where a firm's default probability is calculated based on the Ohlson O-score ([Ohlson, 1980](#)), which is a linear combination of nine firm-level financial variables,¹⁹ using the weights originally proposed by Ohlson (1980). The computed O-score is then transformed into the

¹⁷ For each variable, we take the loan allocation-weighted value of the other host countries in the banking group. We obtain the supervisory data from [Barth et al. \(2001, 2003, 2007, 2011\)](#), available for 1999, 2003, 2007, and 2011. We take the values of the last survey for the missing years.

¹⁸ To construct these dummy variables, we interact SIC 4-digit industry dummies, borrower country dummies, firm-size quartile dummies based on total assets, and year dummies.

¹⁹ These variables are: the natural logarithm of total assets, total liabilities over total assets, working capital over total assets, current liabilities over current assets, a dummy that is one if total liabilities exceed total assets and zero otherwise, net income over total assets, pre-tax income plus depreciation over total liabilities, a dummy that is one if income was negative for the last two years and zero otherwise, and the relative change in net income.

Table 4
Firm heterogeneity.

Dep. Var.: $\text{Log}(\text{amount})$	(1)	(2)	(3)	(4)	(5)
Group cooperation $_{f,t-1}$	29.093** (13.245)	40.746*** (11.577)	36.453** (13.167)	31.580** (13.313)	29.215** (11.215)
Group cooperation $_{f,t-1}$ *Firm size $_{b,t}$	-0.281 (2.038)				
Group cooperation $_{f,t-1}$ *Firm leverage $_{b,t}$		-22.191*** (7.334)			
Group cooperation $_{f,t-1}$ *Firm insolvency risk $_{b,t}$			-6.705* (3.388)		
Group cooperation $_{f,t-1}$ *Firm ROA $_{b,t-1}$				24.652* (13.008)	
Group cooperation $_{f,t-1}$ *Relation $_{b,t}$					5.615*** (1.797)
Relation $_{b,t-1}$					-0.829 (1.881)
Subsidiary cooperation $_{f,t-1}$	-0.082 (2.959)	-0.825 (2.528)	1.554 (2.724)	0.392 (2.810)	-0.732 (3.087)
Log(assets) $_{f,t-1}$	0.237 (0.336)	0.549 (0.320)	0.246 (0.323)	0.362 (0.337)	0.106 (0.300)
Loan growth $_{f,t-1}$	13.527* (7.450)	16.561** (6.088)	8.861 (7.471)	13.020 (8.203)	5.560 (5.387)
LLP/TL $_{f,t-1}$	186.066* (92.921)	180.169*** (62.542)	151.217* (77.080)	183.961** (79.673)	125.593 (82.721)
Capital ratio $_{f,t-1}$	-0.567* (0.276)	-0.805*** (0.270)	-0.672** (0.293)	-0.585* (0.292)	-0.585** (0.232)
Log(spread) $_{f,t}$	-0.779** (0.310)	-0.780** (0.312)	-0.751** (0.326)	-0.892*** (0.311)	-0.454* (0.262)
Secured $_{f,t}$	-0.316 (0.412)	-0.340 (0.422)	-0.292 (0.415)	-0.376 (0.424)	-0.423 (0.269)
Log(maturity) $_{f,t}$	0.192* (0.097)	0.195* (0.095)	0.191* (0.096)	0.228** (0.086)	0.197** (0.092)
TERM $_{f,t}$	0.348*** (0.103)	0.356*** (0.105)	0.341*** (0.102)	0.350*** (0.104)	0.493*** (0.119)
Corporate $_{f,t}$	-0.127 (0.384)	0.376 (0.501)	-0.169 (0.342)	0.108 (0.446)	0.010 (0.330)
Refinancing $_{f,t}$	-0.005 (0.455)	0.443 (0.513)	0.022 (0.427)	0.223 (0.498)	0.050 (0.415)
Acquisitions $_{f,t}$	-0.001 (0.380)	0.466 (0.437)	0.030 (0.316)	0.259 (0.406)	-0.056 (0.307)
Backup line $_{f,t}$	-0.154 (0.409)	0.354 (0.529)	-0.198 (0.359)	0.138 (0.458)	-0.009 (0.331)
# lenders $_{f,t}$	0.023** (0.010)	0.016** (0.007)	0.025*** (0.009)	0.026*** (0.009)	0.006 (0.008)
Observations	1098	1098	1104	1082	1617
(Within) R-squared	0.13	0.15	0.14	0.15	0.13
Firm*Year FE	Y	Y	Y	Y	Y

This table presents the results of regressions of loan amount on group and subsidiary cooperation. The dependent variable is the natural logarithm of a facility amount $\text{Log}(\text{amount})$. *Group coop.* is an asset-weighted dummy indicating cooperation between the subsidiary's home country and its subsidiaries' host countries, excluding the subsidiary's country. *Subsidiary coop.* is a dummy equal to one in which cooperation exists between the subsidiary's home country and the subsidiary's country. Banks' data is aggregated at the loan level using banks' shares in a loan as weights. The sample period spans from 1995–2020. Definitions and sources of control variables are listed in [Appendix A](#). All models are estimated with two-way clustered standard errors at the borrower and year level (in parentheses).

* Denote significance at the 10% level.

** Denote significance at the 5% level.

*** Denote significance at the 1% level.

probability that a firm fails within a year as follows: $\exp(\text{O-score}) / (1 + \exp(\text{O-score}))$. Both in the case of leverage and of insolvency risk, the interaction effect with *Group cooperation* is negative and significant, suggesting that less leveraged and less risky firms benefit more from supervisory arbitrage of banks in the form of larger loan facilities.

Table 5
Real effects.

Dep. Var.:	Fixed assets growth (1)	Capex growth (2)	Δ R&D/sales (3)	Δ Working capital/TA (4)	Employment growth (5)	Δ ROA (6)
Group cooperation _{<i>b,t-1</i>}	27.752*** (8.608)	26.598** (13.123)	0.365*** (0.101)	16.914*** (3.828)	-9.000** (4.418)	6.601** (3.164)
Subsidiary cooperation _{<i>b,t-1</i>}	-1.095 (3.145)	-19.342** (7.143)	-0.074* (0.038)	0.948 (1.095)	12.600*** (3.642)	-1.704* (0.866)
Log(assets) _{<i>b,t-1</i>}	-0.885** (0.332)	0.616 (0.694)	-0.005 (0.005)	-0.739*** (0.138)	-1.056*** (0.367)	-0.041 (0.142)
Loan growth _{<i>b,t-1</i>}	4.033 (2.878)	-3.877 (5.550)	0.085* (0.048)	4.076** (1.550)	-1.551 (1.953)	-0.966 (0.725)
LLP/TL _{<i>b,t-1</i>}	189.302*** (38.237)	49.715 (58.070)	2.173** (0.779)	92.130*** (23.096)	-27.950 (19.012)	4.279 (14.256)
Capital ratio _{<i>b,t-1</i>}	-0.280* (0.140)	-0.121 (0.264)	-0.004* (0.002)	-0.124** (0.058)	0.119 (0.071)	-0.054 (0.039)
Firm sales _{<i>b,t-1</i>}	0.059 (0.123)	0.102 (0.110)	0.001 (0.002)	-0.053 (0.032)	-0.247*** (0.064)	0.031 (0.024)
Firm cash/TA _{<i>b,t-1</i>}	-0.403 (0.780)	2.614 (2.075)	-0.035 (0.022)	-0.901*** (0.277)	0.350 (0.916)	0.713 (0.462)
Firm R&D/sales _{<i>b,t-1</i>}	-0.270 (0.320)	-0.335 (0.754)	-2.050*** (0.006)	0.857*** (0.119)	0.021 (0.274)	1.398*** (0.084)
Firm leverage _{<i>b,t-1</i>}	-0.486* (0.274)	-1.484 (1.513)	0.013 (0.011)	-0.675** (0.243)	0.154 (0.464)	-0.012 (0.166)
Firm # relationships _{<i>b,t-1</i>}	-0.002 (0.004)	0.001 (0.007)	0.000 (0.000)	0.003** (0.001)	0.000 (0.003)	0.001 (0.001)
Firm tangible/TA _{<i>b,t-1</i>}	1.584* (0.854)	-0.592 (1.028)	0.000 (0.012)	-0.214 (0.206)	-1.529** (0.540)	-0.088 (0.221)
Observations	233	276	274	226	264	270
(Within) R-squared	0.59	0.44	0.99	0.85	0.53	0.81
Firm FE	Y	Y	Y	Y	Y	Y
Firm country*Year FE	Y	Y	Y	Y	Y	Y

This table presents the results of regressions of firm outcomes on group and subsidiary cooperation. The dependent variables are a firm's two-year *Fixed assets growth*, *Capex growth*, *Δ R&D/sales*, *Δ working capital/TA*, *Employment growth*, and *Δ ROA*. *Group coop.* is an asset-weighted dummy indicating cooperation between the subsidiary's home country and its subsidiaries' host countries, excluding the subsidiary's country. *Subsidiary coop.* is a dummy equal to one in which cooperation exists between the subsidiary's home country and the subsidiary's country. Banks' data is aggregated at the firm level using banks' total amount of lending to a borrower in a given year as weights. The sample period spans from 1995–2020. Definitions and sources of control variables are listed in [Appendix A](#). All models are estimated with two-way clustered standard errors at the borrower and year level (in parentheses).

* Denote significance at the 10% level.

** Denote significance at the 5% level.

*** Denote significance at the 1% level.

In column (4), we consider firms' profitability (ROA). The regression shows a positive interaction effect with profitability, suggesting that more profitable firms benefit more from supervisory arbitrage of banks in the form of larger loan facilities.

Column (5) considers the interaction of *Group Cooperation* and a loan allocation-weighted dummy indicating the existence of a previous relationship between the firm and the members of the syndicate. The positive and significant interaction suggests that the lending effect is stronger when the bank and the firm are already connected through a relationship.

From the analysis, a clear picture emerges. The subsidiaries extend more loans to firms that pose less risk to them (because of lower default risk, because they know more about them, or because they are of higher quality). Note, first, that our analysis does not consider shocks to the risk appetite of banks (rather, it is about a relocation of risks). We would thus not expect that the additional new loans are of higher risk. The reason why banks may direct the additional lending to firms where they have more information about (prior relationship) and are of low risk may reflect profit considerations. Following external pressure to create additional loans (due to cross-border supervisory cooperation elsewhere), subsidiaries may decide to take on loans where they have the lowest risk and where they are at a relatively low informational disadvantage.²⁰ Overall, the results in this section are consistent with a positive impact of supervisory arbitrage on firms' lending conditions and on banks' lending practices, consistent with [Karolyi and Taboada \(2015\)](#).²¹

²⁰ The results show that for given borrowers and loans, safer and more profitable firms benefit from larger loans and lower interest rate spreads. This finding seems to contrast with the results from [Beck et al. \(2025\)](#) of riskier (including higher-spread) loans being booked in subsidiaries that see an increase in *Group Cooperation*. However, the set-up in that paper considers the booking of a given loan on the balance sheet across different subsidiaries, independent of the location of the borrower, whereas here we focus on borrowers in the concerned country.

²¹ We also explored firm heterogeneity in loan spreads but could not find any significant differences.

4.2. Supervisory arbitrage and real effects

The previous section has shown that subsidiaries with higher *Group cooperation* extend better loan conditions for firms. In this section, we examine whether this allows firms to expand.

The results in Table 5 show that firms expand fixed assets, working capital and capital and R&D expenditures, reduce employment and become more profitable. In column (1) we focus on growth in assets and find that the coefficient on *Group cooperation* is positive and significant, suggesting that firms that borrow from a subsidiary that sees its supervisory arbitrage pressure originating from abroad increase grow faster. This is consistent with the results in the previous section in that such firms benefit from better loan conditions.

Columns (2) and (3) show that such firms also increase their capital expenditures and R&D expenditures, whereas column (4) shows that it also allows them to hold higher levels of working capital. Interestingly, column (5) shows that employment grows less. This indicates a substitution from labor to capital, consistent with capital being more constrained when there is a lack of funding. Column (6), finally investigates the impact on firms' profitability. This is important as the additional funds may also be used to fund negative NPV projects. However, the regression shows a positive and significant relationship between *Group cooperation* and profitability, which is consistent with additional lending relieving financial constraints that were previously holding back desirable investments. The positive result on profitability is also consistent with the results of the prior section showing that the additional lending is targeted to high-quality firms and firms for which subsidiaries have comparably more information.

In summary, the finding in this section are consistent with a positive effect of supervisory arbitrage on the real economy. It is not only the safer and more profitable firms that benefit more from the additional lending, but this lending translates into positive growth effects for these firms as well as higher profits.

5. Conclusions

Multiple papers have focused on the negative repercussions of regulatory and supervisory arbitrage on financial stability. This paper uncovers a bright side of supervisory arbitrage. Specifically, we show that, following the expansion of lending as result of stronger cross-border supervisory cooperation among third countries, cross-border banks provide larger syndicated loan facilities with lower spreads. Safer, more profitable firms, and those with previous lending relationship with syndicate participants, benefit the most from these larger loans, suggesting a positive effect of supervisory arbitrage on capital allocation. These firms also expand their fixed assets more, both through higher capital and R&D expenditures, increase their working capital and become more profitable.

We acknowledge some limitations of our analysis. First, our firm sample is biased towards larger firms that have access to the syndicated loan market, which typically face fewer financing constraints than smaller firms; however, seeing positive effects for such firms might thus actually underestimate the overall positive effect of the supervisory arbitrage. Second, our sample does not contain any cases in which countries formally discontinue cooperation. Hence, we cannot study the question of what happens if supervisory arbitrage pressures are reduced due to less supervisory cooperation. Obviously, in the current situation of increasing geoeconomic conflict, this might not hold any longer and might be a question for future research.

CRedit authorship contribution statement

Thorsten Beck: Writing – review & editing, Writing – original draft, Conceptualization. **Consuelo Silva-Buston:** Writing – review & editing, Writing – original draft, Formal analysis, Data curation, Conceptualization. **Wolf Wagner:** Writing – review & editing, Writing – original draft, Conceptualization.

Appendix A. Variable definitions

Variable	Definitions	Source
<i>Cooperation variables</i>		
Group cooperation	Asset-weighted dummy indicating cooperation between the subsidiary's home country and its subsidiaries' host countries, excluding the subsidiary's country.	Authors' calculations based on bankscope and bankfocus data, and cooperation data from Central Banks' and Supervisory authorities' websites and other sources.
Subsidiary cooperation	Dummy equal to one if there exists cooperation between the subsidiary's home country and the subsidiary's country.	Cooperation data from central banks' and supervisory authorities' websites and other sources.

Loan-level variables

Log(amount)	The natural logarithm of the loan facility amount in USD.	LPC dealscan
Log(spread)	The natural logarithm of the all-in-drawn spread in basis points.	LPC dealscan
Secured	Dummy variable indicating whether the loan is secured.	LPC dealscan
Log(maturity)	The natural logarithm of the maturity of the loan expressed in months	LPC dealscan
TERM	Dummy variable indicating whether the loan is a term loan.	LPC dealscan
Corporate	Dummy variable indicating whether the loan is granted for corporate purposes.	LPC dealscan
Acquisitions	Dummy variable indicating whether the loan is granted for an acquisition.	LPC dealscan
Backup line	Dummy variable indicating whether the loan is granted for a backup line.	LPC dealscan
# lenders	Number of lenders in the loan facility	LPC dealscan

Subsidiary-level variables

Log (assets)	Natural logarithm of total assets in US dollars.	Authors' calculation using bankscope and bankfocus data.
Loan growth	Annual (log difference) growth of total loans.	Authors' calculation using bankscope and bankfocus data.
LLP/TL	Loan-loss provisions as a proportion of total loans.	Authors' calculation using bankscope and bankfocus data.
Capital ratio	Sum of tier 1 and tier 2 capital as a percentage of risk-weighted assets.	bankscope and bankfocus data.

Firm-level variables

Fixed assets growth	Two-year (log difference) growth rate of fixed assets, measured over the year following the loan's starting date.	Author's calculations based on compustat data.
Capex growth	Two-year (log difference) growth rate of capital expenditures (additions to fixed assets) in the year following the starting date of the loan.	Author's calculations based on compustat data.
ΔR&D/sales	Two-year change of the share of research and development expenses over sales in the year following the starting date of the loan.	Author's calculations based on compustat data.
Δ Working capital/TA	Two-year change of the share of working capital over total assets in the year following the starting date of the loan.	Author's calculations based on compustat data.
Employment growth	Two-year (log difference) growth rate of the number of employees in the year following the starting date of the loan.	Author's calculations based on compustat data.
ΔROA	Two-year change of the share of ROA (EBITDA over total assets) in the year following the starting date of the loan	Author's calculations based on compustat data.
Sales	Natural logarithm of sales in US dollars.	Author's calculations based on compustat data.
Cash/TA	Cash holdings over total assets.	Author's calculations based on compustat data.
Leverage	Leverage ratio.	Author's calculations based on compustat data.
# relationships	Number of new bank relationships in a given year.	Author's calculations based on LPC dealscan data.
Tangible/TA	Fraction of tangible assets to total assets.	Author's calculations based on compustat data.
Size	Natural logarithm of assets	Author's calculations based on compustat data.

Insolvency risk	Dummy variable equal to one if the firm has a default probability larger than the sample's median default probability and zero otherwise. A firm's default probability is calculated based on the Ohlson O-score (Ohlson, 1980), which is a linear combination of nine firm-level financial variables, using the weights originally proposed by Ohlson. The resulting O-score can then be transformed into the probability that a firm fails within a year: $\exp(\text{O-score}) / (1 + \exp(\text{O-score}))$.	Author's calculations based on Compustat data.
Relation	Dummy equal to one if there is an existing relationship between the subsidiary and the firm.	Author's calculations based on LPC dealscan data.

Appendix B. Supplementary data

Supplementary material related to this article can be found online at <https://doi.org/10.1016/j.jcorpfin.2025.102861>.

Data availability

Data will be made available on request.

References

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