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Freeze! Financial Sanctions and Bank Responses

Matthias Efing, Stefan Goldbach, Volker Nitsch

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Abstract

We study the effects of financial sanctions on cross-border credit supply. Using a differences-in-differences approach to analyze eleven sanctions episodes between 2002 and 2015, we find that banks located in Germany reduce their positions in countries with sanctioned entities by 38%. The average German branch or subsidiary located outside Germany does not adjust its positions after the imposition of sanctions. For affiliated banks located in countries with low financial standards, we even observe a relative increase in credit supply. These effects are stronger if sanctions are only imposed by EU member states and not by the entire UN.

Matthias Efing*
HEC Paris
Rue de la Libération 1
France – 78350 Joy-en-Josas
efing@hec.fr

Stefan Goldbach
Deutsche Bundesbank
Wilhelm-Epstein-Straße 14
Germany - 60431 Frankfurt am Main
stefan.goldbach@bundesbank.de

Volker Nitsch
TU Darmstadt
Hochschulstraße 1
Germany - 64289 Darmstadt
nitsch@vwl.tu-darmstadt.de

*corresponding author

1. Introduction

Over the past century, more than 110 countries have experienced economic sanctions episodes during which foreign restrictions were imposed on a country's cross-border interactions (Hufbauer, Schott, Elliott, and Oegg, 2007). Still, despite their frequent use in international diplomacy, sanctions remain a controversial policy instrument whose impact is a matter of dispute (e.g., Hufbauer, Schott, Elliott, and Oegg, 2007; Levy, 2007; Biersteker, Eckert, Tourinho, and Hudakova, 2013; Besedeš, Goldbach, and Nitsch, 2017, 2018). When it comes to practical implementation, for instance, the effects of restrictive financial measures rely, in part, on the specific behavior of financial institutions with respect to sanctioned counterparties.[2] Moreover, sanctions typically increase uncertainty with respect to the question whether (certain) transactions are legal or not. This might lead financial institutions to refrain from business with an entire sanctioned country even if only some counterparties in that country are actually sanctioned. In any case, sanctions – if properly implemented – should affect (cross-border) capital flows and external positions of banks.

In this paper, we study the effects of financial sanctions on the supply of credit and other bank services to sanctioned countries. Our analysis is based on micro data of German banks' external positions, covering the period from 2002 to 2015. Previewing our main results, we find that, following the imposition of sanctions, the average German bank reduces its positions in a sanctioned country by 24%. However, the effect of sanctions on credit supply varies considerably across bank locations. In particular, our results suggest that branches and subsidiaries located in countries with higher (respectively, lower) financial

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[2] The extent to which the financial sector implements (or undermines) sanctions is largely unknown, especially since recent allegations suggest that several multinational banks have, in fact, violated sanctions in the past and continued business relations with blacklisted counterparties. In 2015, BNB Paribas was the first financial institution to be convicted and sentenced for violations of US economic sanctions. Its penalty of almost USD 8.97bn was the largest financial penalty ever imposed in a US criminal case ("BNP Paribas Sentenced for Conspiring," 2015). In the same year, Commerzbank paid USD 1.45bn to settle allegations of moving money on behalf of blacklisted entities like Iran (Freifeld and Dunsmuir, 2015). In 2017, Deutsche Bank was fined USD 0.63bn for laundering more than USD 10bn of Russian money, moving it through accounts in London, Cyprus, Estonia, and Latvia (Treanor, 2017).

system standards actively decrease (increase) their positions after the imposition of financial sanctions. As most (and the largest) German positions with counterparties in sanctioned countries are owned by banks that are located in countries with a strong adherence to international financial sector standards, including Germany itself, the first effect dominates the second one.

Our main data source is the External Position Report provided by the Deutsche Bundesbank. All German banks with foreign operations are legally obliged to report, on a monthly basis, their assets and liabilities with non-German counterparties to the central bank. Importantly, the business activities of subsidiaries and branches abroad are not attributed to their German parent banks; their positions are reported separately. Hence, we observe the geographic distribution of German banks' financial activities across different host countries as well as their network relationships. A bank's positions in a given country are aggregated and reported by asset class, maturity bucket, currency of denomination, etc. The identities of individual counterparties are not observed. As financial 'smart sanctions' typically target only a limited number of entities (Hufbauer and Oegg, 2000), we are, therefore, unable to distinguish between positions with targeted versus non-targeted entities in sanctioned countries.

Using our detailed information about the cross-border operations of German banks, we exploit the imposition of financial sanctions to identify their effects on the supply of credit or, more precisely, bank assets in a standard differences-in-differences setting. In addition to quantifying the overall effect of sanctions on the external positions of German banks, the micro data allow us to disentangle any compositional effects on bank asset supply across different bank locations from simultaneous changes in the volumes of supply and aggregate demand for credit (Khwaja and Mian, 2008). More specifically, as observations of German banks' external positions vary along three dimensions (bank, country of counterparties, and month), we are able to hold constant for a wide range of factors. While counterparty country-

time fixed effects control for changes in the macroeconomic fundamentals (e.g., aggregate credit demand) of sanctioned countries, bank-time fixed effects control for bank-specific variation in overall credit supply, thereby absorbing, for example, bank-specific effects of the financial crisis 2007-09 (De Haas and Van Horen, 2013).

We find that financial sanctions have a strong negative effect on the external positions of German banks. The estimated decline in the provision of credit to counterparties in sanctioned countries, however, is exclusively driven by banks located in Germany. Whereas domestic banks reduce their external positions by 38%, sanctions have, on average, no statistically significant effect on positions held by subsidiaries and branches of German banks abroad. As a result, a sizable portion of German positions in targeted countries remains partly unaffected by sanctions.[3]

The plain distinction between German banks' domestic and foreign locations ignores considerable variation in the economic and legal conditions in different host countries of branches and subsidiaries. In a first set of extensions, we focus on a country's adherence to international financial standards and distinguish between hosts that are or are not members of the Financial Action Task Force (FATF). The FATF is an intergovernmental organization, aiming to prevent "money laundering, terrorism financing, and other related threats to the integrity of the international financial system".[4] Our empirical findings suggest a compositional shift towards relatively higher (lower) credit supply to countries under sanctions by branches and subsidiaries located outside (inside) FATF member countries.[5]

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[3] Throughout 2002 to 2015, bank assets in sanctioned countries held by branches and subsidiaries abroad never account for less than one third of what their parent banks in Germany own in sanctioned countries. For example, in 2006 (at their peak), German affiliates hold even more assets in sanctioned countries than their parent institutes at home.

[4] See http://www.fatf-gafi.org/. Most countries in Western Europe (including Germany) and North America but also Russia, China, or India are FATF members. Many small, developing, or offshore economies are not members (for example, many Eastern European countries, the Cayman Islands, Isle of Man, Jersey, Liechtenstein, Malta and Monaco). As many of these countries are members of regional organizations with similar objectives, non-membership in the FATF does not necessarily imply a lower commitment to fighting money laundering. Nevertheless, FATF membership is a transparent and parsimonious approach towards classifying countries.

[5] Between 2002 and 2015, about 20 German banks own affiliates in 25 to 30 different non-FATF countries.

Whereas German banks inside the FATF reduce external positions by 27%, their affiliates outside the FATF increase external positions by 66% after sanctions are imposed. These effects are statistically highly significant. However, as the positions held by affiliates outside the FATF account for only 2.6% of what all branches and subsidiaries of German banks own in sanctioned countries (as of December 2015), the overall economic effect is relatively small.

Next, following Besedeš, Goldbach, and Nitsch (2017), we examine whether the effect of financial sanctions on credit supply varies by the size of the coalition of countries imposing them. More specifically, we compare sanctions imposed by the entire United Nations (UN) to sanctions imposed by the European Union (EU) alone. Our results indicate that EU sanctions lead to a smaller decline in German banks' external positions in sanctioned countries than UN sanctions. Furthermore, EU sanctions have significant effects on the geographic composition of the supply of credit and other bank services. Branches and subsidiaries outside (inside) the EU and outside (inside) the FATF supply more (less) credit after the imposition of 'EU only' sanctions. By contrast, there is no identifiable difference in the response of branches and subsidiaries, irrespective of their location, to sanctions imposed by the entire UN.

From 2009 onwards, our data set allows separation of intra-group loans and advances between German parents and their foreign affiliates from the banks' external positions with non-affiliated banks. We are therefore able to examine whether German banks provide more funds to affiliates abroad if these branches and subsidiaries do business with counterparties in sanctioned countries. To analyze this issue, we define, for each bank-country-month triplet, a binary dummy variable that takes the value of one if a domestic bank has at least one foreign affiliate that owns a position in a sanctioned country. When we use this regressor to explain intra-group loans and advances and include bank-country fixed effects such that inference is only based on affiliated banks that switch from zero to positive positions in sanctioned countries, our results suggest that German banks tend to supply more funds to affiliates that

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have started to increase their positions in sanctioned countries. This result is based on only six years of data, however.

Finally, exploiting the high granularity of our data set even further, we show that our results are robust for various subsamples. For instance, we split our sample and perform separate analyses by type and currency denomination of asset, by type of counterparty and by type of affiliation. Reassuringly, none of our findings turns out to be sensitive to these perturbations.

One possible explanation for our findings is that German bank groups shift legal business with non-targeted counterparties in sanctioned countries to their affiliates outside the FATF in order to minimize the administrative burden associated with strict documentation and compliance requirements at home.

Our paper is directly related to, at least, two strands of the literature. A first set of papers examines the economic effects of sanctions, often with a focus on the target country or the targeted economic activity. In empirical studies, a wide range of indicators are analyzed, including, for instance, international trade (Haidar, 2017), cross-border financial flows (Besedeš, Goldbach, and Nitsch, 2017) and economic growth (Neuenkirch and Neumeier, 2015). Li and Ngo (2017) study the relation between geopolitics and capital flows, showing how Chinese state-owned banks reduce capital flows to countries that were recently visited by the Dalai Lama. Kaempfer and Lowenberg (2007) provide an extensive review of the earlier literature on sanctions.

Another relevant line of research studies the association between law and finance. A central question raised in this literature asks how legal and regulatory frameworks affect firms' access to funding and firm behavior (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997, 1998; Shleifer and Vishny, 1997). A sizable number of papers, for instance, examine evasion behavior by firms in response to law and regulation. Recent examples include research on regulatory arbitrage in international bank flows and bank risk-taking (Houston,

Lin, and Ma, 2012; Ongena, Popov, and Udell, 2013), tax evasion (Desai, Dyck, and Zingales, 2007; Mironov, 2013), and corruption (Zeume, 2017). To the best of our knowledge, none of these papers studies how global banking networks respond to financial sanctions.

The remainder of the paper is organized as follows. Section 2 discusses the legal and institutional background of financial sanctions in the European Union. In Section 3, we describe our data on the external positions of German banks. The heart of the paper is Section 4, which presents our empirical results, followed by an extensive robustness analysis in Section 5. Finally, Section 6 provides a brief conclusion.

2. Financial sanctions in the European Union

In member states of the European Union, including Germany, sanctions are imposed, amended and lifted by the Council of the EU as part of the Common Foreign and Security Policy (CFSP).[6] While sanctions can take various forms, including, for example, export restrictions, visa and travel bans, and arms embargoes, our focus is on measures which restrict the free movement of capital through asset freezes. An asset freeze means that (i) existing funds of targeted entities cannot be accessed and (ii) that no new resources or financial services can be provided to sanctioned entities. Consequently, the restrictions affect the supply of credit but also of other funds and financial services like brokering and international transfer payments or the sale and trade of property.

As part of their international commitments, the EU enforces sanctions imposed by the Security Council of United Nations. In addition, however, the EU also occasionally imposes sanctions autonomously, aiming "to bring about a change in policy or activity by the target country, entities, or individuals" (European Union, 2014). Although restrictive measures are typically designed as 'smart sanctions', with a limited number of targets inside a sanctioned

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[6] See https://eeas.europa.eu/headquarters/headquarters-homepage/423/sanctions-policy_en

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country in order to minimize harm to civilians, sanctions also affect, in practice, non-targeted individuals and companies in sanctioned countries, for at least two reasons. First, sanctioned entities can be of considerable relevance to the entire economy. Second, due to increased documentation and compliance requirements, sanctions increase the administrative costs of doing business with sanctioned countries. Indeed, Besedeš, Goldbach, and Nitsch (2017) provide consistent evidence that financial sanctions reduce the number (and value) of cross-border financial flows between Germany and sanctioned countries by approximately 25 to 35%.

Financial sanctions apply within the jurisdiction of the EU, i.e., within EU territory, to EU nationals, and to companies and organizations incorporated under the law of a member state. Importantly, they apply whether or not citizens, companies, or organizations are located in the EU. Hence, they also encompass branches of EU companies in third countries and any business done in whole or in part within the EU (European Union, 2014). The sanctions are implemented and enforced by the EU member states.

3. Data

3.1. Data sources

Our main source of data is the External Position Report compiled by the Deutsche Bundesbank. Based on mandatory reports, this database collects information on assets and liabilities vis-à-vis non-residents of the entire German banking population (roughly 2,000 banks), i.e. German banks located in Germany, their subsidiaries and branches abroad, as well as the subsidiaries of foreign banks operating in Germany.[7] Importantly, the external positions of subsidiaries and branches are not attributed to their German parents but recorded

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[7] Banks located in Germany are not separated by country of ownership.

separately.[8] Hence, the data set provides a comprehensive picture of the external assets and liabilities of German banks, their geographic distribution across different host countries of branches and subsidiaries, and the network relationships between banks of the same group.[9] Fiorentino, Koch, and Rudek (2010) and Krueger, Munzert, and Stahl (2017) provide a detailed description of this data set.[10]

The External Position Report contains all assets and liabilities with foreign counterparties as well as domestically held assets and liabilities denominated in foreign currency on a monthly basis since March 2002.[11] One observation in the data set is a bank-country-month triplet (b,c,t) in which c is one given destination country of bank b in month t.[12] Consequently, individual positions of bank b with counterparties in country c are aggregated. Yet, this aggregation takes place within a number of categories, described in more detail below, thereby ensuring high granularity of information:

1. Positions are aggregated separately for the following different types of counterparties: banks (affiliated and non-affiliated with the reporting bank b), insurance companies, other financial intermediaries, non-financial corporations, households, non-profit institutions, central government and other general government.

2. Positions are broken down by different asset and liability classes. In particular, the data set differentiates between non-tradeable (e.g., loans, advances and irrevocable credit

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[8] Each individual subsidiary files its own report whereas several branches of one particular group located in the same country submit a joint report.

[9] We are not aware of other data sources of similar granularity or sample coverage as the German External Position Report. For example, the confidential FFIEC 009a database in the U.S. seems to report only a sub-sample of foreign bank claims (see Temesvary, 2014).

[10] The External Position Report is used by the banking supervisors, the balance of payments analysis division, and the monetary analysis division of the Deutsche Bundesbank. Further recipients of (aggregated) data are the European Central Bank (ECB) and the Bank for International Settlements (BIS). Micro-level data on individual banks is confidential and available to researchers only on the Bundesbank premises in Frankfurt. To satisfy data confidentiality requirements, the Deutsche Bundesbank anonymizes the data and randomly deletes ten percent of the positions before making the External Position Report available for academic research.

[11] Positions in 2002 are only recorded for institutions with external positions above Euro 10 million. Yet, with this threshold level, the database still covers more than 90% of total volume. Since January 2003, literally all positions have to be reported.

[12] Destination countries include all sovereign countries as well as several offshore destinations that must be reported explicitly.

commitments) and tradeable positions (e.g., shares, money market papers or funds, other debt securities).

3. External positions are reported separately in their currency of denomination (available only for the major currencies Euro, U.S. dollar, Japanese yen, Swiss franc, and pound sterling). Additionally, the data source reports all positions after converting them into Euro at a reference rate chosen on the reporting date.

4. Depending on the asset/liability class, positions are categorized by original maturity (for example, repayable on demand, fixed-term of one year or less, more than one but no more than two years, etc.).

We complement the external assets and liabilities data with public information on financial sanctions which have been imposed by the European Union between 2002 and 2015. The information is mainly obtained from the service center Financial Sanctions of the Deutsche Bundesbank which is responsible for the enforcement of financial sanctions under EU regulations in Germany.[13] Table 1 lists the eleven episodes in our sample.

3.2. Summary statistics

Panel A of Table 2 provides summary statistics for 2,390,051 bank-counterparty country-month triplets (b,c,t) between March 2002 and December 2015. Branches and subsidiaries of German banks abroad account for about one half of these bank-country relations. Moreover, reviewing the location of foreign affiliates in more detail, 18% (8%) of all bank-country relations are covered by branches and subsidiaries located outside the EU (outside the FATF) (see Figure 1 and Section 4.2 for details). While banks outside Germany consider their host countries to be foreign, bank-country relations where a branch reports an 'external' position with counterparties in its host country account for only 2% of the

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[13] See https://www.bundesbank.de/Navigation/EN/Service/Financial_sanctions/financial_sanctions.html.

observations.[14] More notably, business relations with sanctioned countries are relatively rare. Only 2% of the observations reflect business with counterparties in countries sanctioned by the UN. Sanctions imposed by the EU alone affect another 1% of the observations.

The average bank-country-month triplet (b,c,t) has external assets of Euro 231,440,790 (aggregated across all counterparties, currencies of denomination, and asset classes). However, the distribution is heavily skewed and the median equals only about Euro 370,000.[15] Among the different counterparties, positions with banks, including intra-group positions between bank b and its affiliated branches and subsidiaries in country c, are the most relevant positions and equal, on average, Euro 96,146,070.[16] Positions with foreign non-financial corporations, households, and non-profit institutions equal, on average, Euro 61,873,030 but also exhibit a high standard deviation of Euro 1,181,520,670. The most important asset class are loans supplied to foreign counterparties which, on average, equal Euro 170,510,240, whereas all other external bank assets are on average Euro 60,930,550.

Panel B of Table 1 presents separate summary statistics for positions in countries that are never sanctioned (columns 1 to 3) and in countries that were sanctioned in at least one month between 2002 and 2015 (columns 4 to 6). The distribution of bank locations across host countries inside and outside the EU and/or the FATF is very similar in both groups. Unsurprisingly, external positions tend to be much larger in countries that are never sanctioned, irrespective of counterparty category or asset class.

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[14] Since the business activities of branches and subsidiaries of German banks in a given host country are also considered to be foreign, they have to be reported. For example, a German subsidiary in France must report positions with French counterparties.

[15] Minima and maxima of distributions cannot be reported for confidentiality reasons.

[16] It is not possible to separate the external positions with non-affiliated banks from the external positions with affiliated branches and subsidiaries as reporting banks do not disclose the identities of individual counterparties. We only observe the intra-group advances and loans for observations after 2009. We discuss this limitation in detail in Section 5.2.

3.3. Geographic distribution and evolution of German cross-border activity

Figure 1 illustrates the presence of German banks around the world over time. In 2002, at the beginning of our sample period, almost 80 German bank groups had at least one subsidiary or branch abroad. This number declines to about 60 bank holdings until the financial crisis and remains relatively constant thereafter. Roughly one third of these bank groups have a subsidiary or branch outside the EU. About 20 German bank groups have at least one affiliate in a country that is not a member in the FATF. The right-hand graph of Figure 1 shows that German branches and subsidiaries are located in about 60 different countries. Roughly 35 (25) of these host countries are not members of the EU (FATF).

Figure 2 provides time series plots of German banks' external positions. The left-hand graph of the figure shows positions with counterparties in countries that are never sanctioned between 2002 and 2015.[17] The four lines trace the positions of banks located in Germany, the positions of their foreign affiliates, and the positions of subsets of branches and subsidiaries located outside the EU and the FATF, respectively. Several stylized facts are noteworthy. First, branches and subsidiaries abroad hold almost as many foreign assets as their parent institutes at home. Second, among the foreign affiliates, branches outside the EU account for roughly one third of all external positions. Third, branches outside the FATF own relatively small but still significant positions with foreign counterparties of about Euro 250bn. Fourth, external positions (with the exception of assets owned by branches outside the FATF) grow rapidly until 2009 and decline again afterwards.

The right-hand graph of Figure 2 provides analogous plots for external positions with counterparties in countries that were sanctioned at least once between 2002 and 2015. Again, assets owned by foreign branches and subsidiaries of German banks account for an important share of total German external positions although the shares are smaller than for non-

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[17] Again, we point out that external positions include intra-group positions between banks of the same holding. In Appendix Figure A.1, we show graphs only for positions with non-bank counterparties, thus excluding intra-group positions.

sanctioned countries. Moreover, the evolution of positions is similar to the left-hand graph except that the decline for assets owned by foreign branches and subsidiaries starts about three years earlier. While it is tempting to attribute this early decline to the sequential imposition of financial sanctions on the countries in the sample, such a conclusion would ignore possible confounding effects.

4. Empirical analysis

In this section, we use micro data on German banks' external positions to analyze how the imposition of financial sanctions affects the geographic composition of credit supply. Our identification strategy relies on the staggered, time-variant imposition of sanctions on countries in a standard differences-in-differences setting. We briefly discuss several potential endogeneity concerns. First, sanctions are not chosen randomly but in response to political developments in the target country (war, violations of human rights or UN resolutions, etc.). These underlying political developments as well as the sanctions themselves have direct effects on macroeconomic fundamentals in the target country and can therefore shift credit demand. To control for such changes in political and economic country characteristics, our most complete regression specification includes counterparty country-time fixed effects. A second endogeneity problem could arise because financial sanctions depend on the diplomatic and economic ties between the coalition of imposing countries and the sanctioned country itself. These ties are potentially endogenous to banks' foreign positions. We control for economic and diplomatic ties between a bank's host country and the countries of its counterparties through bank-counterparty country fixed effects. Finally, it is useful to note that the decision to impose sanctions is made at the supra-national level (e.g., U.N. or E.U.) and is, therefore beyond the control of the individual German bank branch or subsidiary.

4.1. Heterogeneous sanction effects across bank locations

We begin our analysis by estimating the following parsimonious regression model to identify the effect of financial sanctions on banks' positions abroad:

$$(1) \quad \text{Log}(Assets_{b,c,t}) = \beta_S\, Sanction_{c,t} + \alpha_{b,c} + \alpha_t + \varepsilon_{b,c,t}$$

As dependent variable we use the most comprehensive definition of foreign investments by banks, comprising all external assets $Assets_{b,c,t}$ of bank b with counterparties in country c in month t. Later, in Section 5.1, we distinguish between loans and other positions to study the potentially heterogeneous sanction effects on different forms of bank investments. The main regressor in equation (1) is the indicator variable $Sanction_{c,t}$ which equals one if financial sanctions are in place for counterparty country c in month t (and zero otherwise).[18] Furthermore, we control for bank-counterparty country as well as time fixed effects ($\alpha_{b,c}$ and α_t, respectively). The bank-counterparty country fixed effects ensure comparability between asset positions of varying size across different banks and counterparty countries and control for time-invariant diplomatic and economic ties between country pairs; the time fixed effects capture variation in total external positions of German banks over time. The coefficient of interest is β_S which captures the effect of financial sanctions on $\text{Log}(Assets_{b,c,t})$. Standard errors are clustered by time, counterparty country, and bank location.[19]

Column 1 in Panel A of Table 3 reports the coefficient estimate $\widehat{\beta_S}$ if the sample is restricted to banks located inside Germany. As the dependent variable is log-transformed and $Sanction_{c,t}$ is dichotomous, the highly significant coefficient of -0.480 indicates a decrease in $Assets_{b,c,t}$ by 38% (=exp(-0.480)-1) after the imposition of a sanction. This result remains largely unchanged when we augment the specification with bank-time fixed effects ($\alpha_{b,t}$) to control for time variation in the average size of bank b's external positions over time (Panel

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[18] Sanctions are imposed instantaneously. We follow Besedeš, Goldbach, and Nitsch (2017, 2018) and code sanctions imposed after the middle of a given month as being enforced from the beginning of the next month onwards.

[19] This clustering in three dimensions is the most conservative choice. Clustering in only one or (any) two dimensions reduces the standard errors of the coefficient estimates.

A, column 2).[20] Consequently, banks in Germany sizably reduce their positions when a sanction is imposed on the country of their counterparty. In part, this large reduction could be due to the banks' own decision to supply less credit to counterparties in sanctioned countries. But also changes in the demand for credit due to the direct economic effects of sanctions or due to the underlying political developments that lead to the imposition of sanctions (war, human rights violations, etc.) can, in principle, explain the large reduction of banks' external positions.

However, when we extend the sample to also include the positions of foreign branches and subsidiaries of German banks in column 3, the coefficient $\widehat{\beta_S}$ moves closer to zero and remains only weakly significant. Taken literally, the point estimate of -0.275 implies that the external positions of all German banks, irrespective of their location, with counterparties in the target country decrease, on average, by about 24% after the imposition of financial sanctions. This finding suggests a heterogeneous effect of financial sanctions on the positions held by banks that are located inside and outside Germany.

To identify the change in the geographic composition of bank positions with respect to the country of residence, we augment the regression with the interaction term *Sanction*$_{c,t}$ * *Abroad*$_b$:

(2)   Log(*Assets*$_{b,c,t}$) = β_S *Sanction*$_{c,t}$ + β_{SA} *Sanction*$_{c,t}$ * *Abroad*$_b$ + $\alpha_{b,c}$ + α_t + $\varepsilon_{b,c,t}$

where *Abroad*$_b$ is an indicator variable that takes the value of one if bank *b* is located outside Germany (and zero otherwise). The differences-in-differences estimate $\widehat{\beta_{SA}}$ of this specification is reported in column 1 of Panel B in Table 3. Its positive and significant value means that the foreign affiliates of German banks adjust their positions considerably less following the imposition of sanctions than banks that are domiciled in Germany. Again, this result remains qualitatively unchanged when we include bank-time fixed effects in column 2

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[20] When we control for bank-time fixed effects, coefficient $\widehat{\beta_S}$ of *Sanction*$_{c,t}$ is only identified for banks that do business in sanctioned countries as well as in countries that are not sanctioned.

of Panel B. To measure the effect of sanctions on the external positions of branches and subsidiaries that are located abroad, we compute the sum of the coefficient estimates $\widehat{\beta_S}$ and $\widehat{\beta_{SA}}$. In column 2 of Panel B, this sum equals only 0.062 and is statistically indistinguishable from zero. Whereas banks located in Germany reduce their positions by 38% (=exp(-0.470)-1), financial sanctions have no (statistically significant) effect on credit supply by German affiliates located abroad. .

Figure 3 illustrates the heterogeneous effect of sanctions on the external positions of banks domiciled inside and outside Germany. The vertical axis shows the residual variation in Log($Assets_{b,c,t}$) after controlling for bank-counterparty country and bank-time fixed effects. The dashed line traces the average external position of banks located in Germany whereas the solid line represents branches and subsidiaries located abroad. The horizontal axis shows event time measured in months. Figure 3 shows that the external positions of banks located inside and outside Germany follow a similar trend prior to the imposition of financial sanctions at time zero. Afterwards, the dashed line continues to decrease whereas the average external position of branches and subsidiaries located outside Germany oscillates around zero.

Next, we examine whether changes in political and macroeconomic fundamentals in the counterparty countries (demand side) can explain the effects of sanctions on banks' foreign positions. In column 3 of Panel B in Table 3, we include counterparty country-time fixed effects ($\alpha_{c,t}$), which absorb all time variation at the country-level and capture, for example, changes in aggregate credit demand (Khwaja and Mian, 2008). Comparing columns 2 and 3 of Panel B, we find that $\widehat{\beta_{SA}}$ remains almost unchanged. This suggests that sanction effects on the geographic composition of credit are mainly driven by the banks (supply side explanation).

4.2. Financial Action Task Force (FATF) membership

The plain distinction between banks located inside and outside Germany in the previous section pools all foreign host countries regardless of their different economic and legal characteristics. In this subsection, we check whether branches and subsidiaries of German banks located in countries that actively implement measures against the abuse of the financial system respond differently to the imposition of sanctions than affiliates in other, less committed countries. Specifically, we identify branches and subsidiaries located inside and outside member countries of the FATF and investigate differences in credit supply to sanctioned countries.

FATF membership seems to be a reasonable and transparent way of proxying a country's commitment to enforce financial sanctions, for various reasons. First, the FATF is a large intergovernmental body which was founded on the initiative of the G7 summit in 1989 and comprises many developed democracies (see Figure 4). Second, its objective is to combat "money laundering, terrorist financing, and other related threats to the integrity of the international financial system."[21] Third, its recommendations for good practice explicitly address the implementation of financial sanctions:

"to freeze without delay the funds or other assets of, and to ensure that no funds or other assets are made available, directly or indirectly, to or for the benefit of, any person or entity either (i) designated by, or under the authority of, the United Nations Security Council under Chapter VII of the Charter of the United Nations (…)" (FATF, 2012, p.11)

Fourth, besides offering broad policy guidelines, the FATF also recommends precise preventive measures which regulate, for example, customer due diligence, record keeping,

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[21] See http://www.fatf-gafi.org/.

transparency of counterparty information, international cooperation, business in high-risk countries, etc.[22]

Figure 4 shows FATF members as of October 2017. Unsurprisingly, many sanctioned countries (e.g., Egypt, Iran, etc.) are not members of the FATF. However, many African and Eastern European countries as well as major (offshore) financial centers (e.g., Cayman Islands, Isle of Man, Jersey, Liechtenstein, Malta, Monaco, etc.) are also absent from the list of member countries. As reported in Panel A of Table 1, about 8% of all bank-country relationships in our database are accounted for by branches and subsidiaries domiciled outside the FATF. Panel B of Table 1 shows that this share is slightly lower (7%) for the subset of bank positions in sanctioned countries.

In Table 4, we analyze whether membership of a bank's host country in the FATF measurably affects the bank's positions in sanctioned countries. Again, we start with a parsimonious regression specification along the lines of equation (2) with only bank-counterparty country and time fixed effects. The positive significant coefficient of the interaction term $Sanction_{c,t}$ * $Outside\ FATF_b$ in column 1 indicates that branches and subsidiaries located outside the FATF respond differently to the imposition of a sanction than other banks. In fact, the sum of the two reported coefficients is significant at the 10% level and suggests that branches and subsidiaries outside the FATF *increase* their positions by 46% (=exp(0.377)-1) after sanctions are imposed on a country. As many target countries of financial sanctions are not FATF members, the result could be driven by the subsidiaries and branches that are located inside sanctioned countries themselves. Indeed, the significant interaction term $Sanction_{c,t}$ * $In\ Counterparty\ Country_b$ in column 2 shows that branches respond differently when a sanction is imposed on their own host country. Yet, when we

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[22] For instance, "financial institutions should be prohibited from keeping anonymous accounts or accounts in obviously fictitious names." (FATF, 2012, p.12)

control for *Sanction$_{c,t}$ * In Counterparty Country$_b$* in column 3, the coefficient estimate of the interaction *Sanction$_{c,t}$ * Outside FATF$_b$* changes only marginally compared to column 1.

In column 4, we add bank-time fixed effects to capture the variation in a bank's average supply of credit and other bank assets over time. With this extension, the three reported coefficient estimates increase in both absolute terms and statistical significance.[23] The negative coefficient of -0.320 suggests that German banks located in FATF member countries reduce their positions by 27% after the imposition of sanctions. At the same time, their branches and subsidiaries outside the FATF seem to increase their positions. The sum of the coefficients of *Sanction$_{c,t}$* and *Sanction$_{c,t}$ * Outside FATF$_b$* in column 4 equals 0.506 which corresponds to an increase by 66%. Yet, the strongest sanctions effect is observed for positions owned by branches and subsidiaries that are themselves located inside a sanctioned country. Summing up the coefficients of *Sanction$_{c,t}$* and *Sanction$_{c,t}$ * In Counterparty Country$_b$*, we find that these affiliates increase their positions with counterparties inside their (sanctioned) host country by 205%.

In column 5, we include counterparty country-time fixed effects to control for country-level time variation in political and macroeconomic fundamentals like aggregate credit demand. The reported interaction terms remain largely unchanged compared to column 4 – consistent with a heterogeneous response in credit supplied by banks in countries with strong and weak financial standards. Finally, we point out two potential sources of measurement error in our proxy *Outside FATF$_b$*. First, many countries outside the FATF are members of regional organizations with similar objectives as the FATF and, therefore could be as committed to enforcing financial sanctions as FATF members.[24] Second, besides

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[23] When sanctions are imposed on the host country of a German bank's foreign affiliate, the *average* position across its different counterparties decreases. However, in relative terms, the bank increases its positions with counterparties inside its sanctioned host country (compared to its positions outside the country). This effect explains the strong increase of the coefficient estimate for *Sanction$_{c,t}$ * In Counterparty Country$_b$* after the inclusion of bank-time fixed effects from 0.294 in column 3 to 1.436 in column 4 of Table 3.

[24] For example, whereas Argentina and Brazil are the only South American members of the FATF, most other South American countries are members of the Grupo de Acción Financiera de Latinoamérica (GAFILAT).

committing to FATF standards, countries must also be strategically important in terms of size and financial sector development to become FATF members. Hence, our proxy *Outside FATF$_b$* is likely to pool several small but committed economies with countries that are not fully enforcing financial sanctions. We stress that this classification error would bias the coefficient estimate $\widehat{\beta_{SF}}$ towards zero. Nevertheless, we make additional efforts to refine our classification of countries and replace the proxy *Outside FATF$_b$* with the binary variable *Non-Cooperative Country$_b$* which identifies all countries that the FATF has declared as non-cooperative.

Table 5 shows that the interaction effect *Sanction$_{c,t}$ * Non-Cooperative Country$_b$* is positive and statistically significant.[25] In column 2, the sum of the coefficients of *Sanction$_{c,t}$* and *Sanction$_{c,t}$ * Non-Cooperative Country$_b$* equals 0.817 and has a p-value of 0.052. Banks located in countries declared as non-cooperative by the FATF increase positions in sanctioned countries by 126% (=exp(0.817)-1). However, we caution that this result represents only nine non-cooperative countries with a German branch or subsidiary. [26]

4.3. EU versus UN sanctions

Following Besedeš, Goldbach, and Nitsch (2017), we also examine whether the sanctions effect varies by the size of the sanctioning coalition. In particular, it may be hypothesized that, when sanctions are imposed by the EU only, German bank groups are partly able to continue supplying bank assets to counterparties in sanctioned countries through branches and subsidiaries outside the EU. By contrast, sanctions imposed by the United Nations (UN) could render such rerouting of credit difficult because all UN member states, including countries outside the EU and outside the FATF, must enforce them.

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[25] We do not control for the interaction term *Sanction$_{c,t}$ * In Counterparty Country$_b$* in Table 5 to avoid problems of multicollinearity.
[26] Non-cooperative countries with German bank presence are Malta, Russia, Guernsey, Jersey, Mauritius, Cyprus, the Islamic Republic of Iran, Pakistan and the Philippines.

In Table 6, we define two indicator variables, *EU Sanction$_{c,t}$* and *UN Sanction$_{c,t}$*, which equal one if financial sanctions are imposed on counterparty country *c* in month *t* by the EU only or by the UN, respectively. Further, we interact both variables with the indicators *Outside EU$_b$* and *Outside FATF$_b$* which equal one if a foreign affiliate *b* is located outside the EU or the FATF, respectively. As in previous sections, we start with a parsimonious model with only bank-counterparty country and time fixed effects. In columns 5 and 6, we sequentially add bank-time and counterparty country-time fixed effects.

The different regression specifications in Table 6 suggest that UN and EU sanctions trigger very different responses in credit supply by German branches and subsidiaries. To be more precise, UN sanctions have a relatively small effect on the geographic composition of credit. If anything, German branches and subsidiaries located outside the EU seem to *reduce* positions more strongly in countries sanctioned by the entire UN than German banks located inside the EU (columns 5 and 6). By contrast, EU sanctions trigger a strong *increase* in credit supplied by branches and subsidiaries located outside the EU and especially by those located outside the FATF. All interaction terms with the indicator variable *EU Sanction$_{c,t}$* are positive. In column 5, the sum of the coefficients of *EU Sanction$_{c,t}$* and *EU Sanction$_{c,t}$ * Outside FATF$_b$* is statistically highly significant; the value of 0.470 corresponds to an increase of positions in countries sanctioned by the EU by 60%. By contrast, the sum of the coefficients for *UN Sanction$_{c,t}$* and *UN Sanction$_{c,t}$ * Outside FATF$_b$* is indistinguishable from zero. Again, the coefficient estimates of the interaction terms do not change substantially when we capture variation in the demand for credit and other bank assets over time (column 6).

4.4. Intra-group advances and loans

The empirical evidence presented so far suggests that banks located in Germany reduce their positions in sanctioned countries while relatively more bank assets are supplied by their branches and subsidiaries abroad. We now turn to the question whether German

parents reroute financial funds to affiliated branches and subsidiaries if these do business in sanctioned countries. To that end, we estimate the following regression specification for the subsample of banks b that are located in Germany:

(3) $\text{Log}(\textit{Intra-Group Loans}_{b,c,t}) = \beta_{AA}\ \textit{Affected Affiliate}_{b,c,t} + \alpha_{b,c} + \alpha_t + \varepsilon_{b,c,t}$, $\forall\ b$ in Germany

The indicator variable *Affected Affiliate*$_{b,c,t}$ equals one if bank b in Germany has a branch or subsidiary in country c that holds positions in sanctioned countries in month t. The dependent variable is the (log) of intra-group advances and loans of bank b in Germany to its affiliated branches and subsidiaries in country c and month t. A positive coefficient estimate $\widehat{\beta_{AA}}$ implies that banks in Germany provide more funds to their foreign affiliates if these branches and subsidiaries do business in sanctioned countries. As we control for bank-counterparty country fixed effects ($\alpha_{b,c}$), identification relies only on time variation in the regressor *Affected Affiliate*$_{b,c,t}$ (i.e. inference is based on affiliated branches and subsidiaries that switch from zero to positive positions in sanctioned countries).

Our data set reports the variable *Intra-Group Loans*$_{b,c,t}$ only for the period from 2010 to 2015. For earlier years, we only observe $\textit{Assets}^{banks}_{b,c,t}$ defined as bank b's positions with all banks in country c and month t. Using $\textit{Assets}^{banks}_{b,c,t}$ as dependent variable introduces measurement error because we cannot distinguish between intra-group positions and assets provided to non-affiliated banks in country c. In columns 1 to 3 of Table 7, we consider the full time period of the data set and use $\text{Log}(\textit{Assets}^{banks}_{b,c,t})$ as dependent variable. In column 4, in contrast, we employ the subsample with $\text{Log}(\textit{Intra-Group Loans}_{b,c,t})$ as dependent variable, thereby excluding observations before 2010. As both specifications have their limitations (measurement error in the dependent variable versus lower sample size), both sets of results should be interpreted with caution.

The large and significant coefficient estimate $\widehat{\beta_{AA}}$ of 0.600 in column 1 of Table 7 suggests that banks in Germany provide 82% more funds to (affiliated and non-affiliated) branches and subsidiaries in countries in which they have branches and subsidiaries with business in sanctioned countries. The specification in column 1, however, ignores possible confounding effects related to changes in bank-specific asset supply and the countries' demand for bank assets. When controlling for bank-time and counterparty country-time fixed effects in column 3, we observe a lower coefficient estimate $\widehat{\beta_{AA}}$ of 0.268. Still, the effect is economically relevant. According to this estimate, German bank groups supply 31% (=exp(0.268)-1) more credit and other funds to banks in countries where the bank group operates branches and subsidiaries that increase their positions in sanctioned countries. This result is consistent with a rerouting of funds to sanctioned countries through affiliated banks in transit countries. Still, the possibility that the effect is driven by measurement error in the dependent variable cannot be excluded.

Measurement error is of no concern in column 4 where we estimate the full specification with all fixed effects to explain intra-group advances and loans. The coefficient estimate $\widehat{\beta_{AA}}$ of 1.236 is highly statistically significant and implies that banks in Germany supply 244% (=exp(1.236)-1) more funds to branches and subsidiaries *of the same group* if these affiliates start business with counterparties in sanctioned countries. However, this result is based on only six years of data, covering the seven sanctions episodes that were imposed after 2009 (see Table 1).

5. Robustness

In this section, we exploit the high granularity of our data set in further detail to show that our results remain qualitatively unchanged when we restrict the regression sample to (i) loans versus other bank assets, (ii) positions with counterparties that are banks versus non-financial companies, (iii) positions denominated in Euro, and (iv) positions held by branches versus subsidiaries.

5.1. Loans versus other bank assets

In our analysis in Section 4, we considered all external assets $Assets_{b,c,t}$ of bank b in counterparty country c in month t. Our intent was to use a dependent variable that encompasses all funds that German banks supply to counterparties in sanctioned countries. In Table 8, we show that our baseline results remain unchanged when we consider only bank loans (columns 1 and 2) or, alternatively, only non-loan bank assets with foreign counterparties (columns 3 and 4). In either case, we find that German banks tend to reduce external positions after the imposition of financial sanctions if they are domiciled in Germany or in another FATF member country. By contrast, their foreign affiliates supply more funds to counterparties in sanctioned countries if they are located outside the FATF and/or inside the target countries of sanctions.

5.2. Non-financial versus financial counterparties

When a bank in Germany reports its external assets, the bank does not distinguish between positions with its branches and subsidiaries abroad and positions with non-affiliated counterparties. As a result, intra-group positions cannot be distinguished from other cross-border positions. Figure 5 provides a schematic illustration of this limitation. In the example, non-affiliated banks in a foreign country receive 25 from the parent of a bank group in Germany plus 25 from the parent's subsidiary in the country for a total of 50 from the group.

Yet, our data set would report the 25 from the affiliate as well as the 50 that the parent is lending to all financial counterparties (affiliated and non-affiliated banks) in the country, thereby leading to a double-counting of 25.

A correction for such intra-group positions is not possible, except in the case of intra-group loans and advances after 2009.[27] Consequently, it is not advisable to compute group-wide or even country-wide positions with financial counterparties because aggregation at the group- or country-level would cause double-counting of intra-group positions. It should be noted that our analysis in Section 4 does not suffer from this caveat because we do not aggregate positions, neither at the country nor at the group level, but make inference based on bank-level data.

We nevertheless make additional efforts to show that our core findings are not driven by intra-group positions. In particular, we exploit the fact that the issue of intra-group positions does not arise when we restrict the analysis to positions with non-financial counterparties. Returning to the example in Figure 5, our data set would report loans to non-banks in a foreign country of 25 from the parent plus another 25 from the subsidiary, without any further correction being necessary. In columns 1 and 2 of Table 9, we use the external positions of bank b with non-bank counterparties in country c in month t as dependent variable. As expected, our main findings from Section 4 are confirmed. Banks in Germany and other FATF countries reduce their positions with non-bank counterparties after the imposition of financial sanctions. By contrast, branches and subsidiaries of German banks outside FATF countries and/or inside the sanctioned countries themselves supply more assets to non-bank counterparties. The regression coefficients are reasonably close to those reported in Tables 3 and 4.

Columns 3 and 4 of Table 9 present results for positions with foreign banks (affiliated and non-affiliated). None of the coefficients is statistically significant. We are therefore

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[27] See Section 4.4.

confident that our results in Section 4 are driven by positions with non-financials, and that intra-group positions between banks of the same group do not bias our results.

5.3. Euro-denominated positions

In our data set, positions with foreign counterparties are converted into Euro at the reporting date. The dependent variables used in the preceding regressions are hence recorded in Euro although original positions are partly denominated in foreign currencies. This conversion could potentially bias our estimates if the reported values of positions denominated in foreign currencies fluctuate with changes in the exchange rate even in the absence of any new business transactions. To address this issue, we demonstrate in Table 10 that our baseline results remain unchanged when we restrict the analysis to positions that are denominated in Euro (and hence are not converted). Banks located in Germany or in other FATF countries reduce their Euro-denominated positions in sanctioned countries while their branches and subsidiaries outside the FATF and/or inside the sanctioned countries increase the supply of Euro-denominated loans and other bank assets.

5.4. Positions owned by branches versus subsidiaries

As pointed out in Section 2, financial sanctions apply to business entities incorporated under the law of an EU member state, whether or not they are located in the EU. This includes branches of German banks outside the EU but not necessarily subsidiaries that are incorporated under foreign law outside the EU. As subsidiaries are legally independent from their German parent bank whereas branches are not, it is interesting to investigate whether sanctions have heterogeneous effects on positions supplied by subsidiaries and branches.

Table 11 tabulates the results from our baseline regressions when the sample is restricted to subsidiaries (columns 1 and 2) or to branches (columns 3 and 4). The empirical evidence suggests that the legal status of the foreign affiliates of German banks does not

matter. Branches as well as subsidiaries supply more funds to counterparties in sanctioned countries when they are located outside the FATF and/or inside sanctioned countries.

6. Conclusion

Economic sanctions are considered to be a powerful instrument of international diplomacy. In order to be effective, however, such measures also have to be implemented and enforced in practice.

In this paper, we examine the effects of financial sanctions on the external positions of German banks between 2002 and 2015. Table 12 provides an overview of our main findings. Overall, sanctions have a sizable negative impact on banks' external positions. The average German bank, branch, or subsidiary reduces its positions in countries with sanctioned entities by 24%. However, position changes exhibit significant heterogeneity across different bank locations. Banks located in Germany reduce their external positions in sanctioned countries by 38% whereas affiliates in countries that are less committed to international financial sector standards, on average, increase positions in sanctioned countries. These effects are stronger for sanctions that are imposed by the EU alone and not by the entire UN and remain robust when we control for time variation in unobserved macroeconomic and political fundamentals (including aggregate credit demand) in sanctioned countries.

Finally, we also note certain limitations in our analysis. First, we are only able to examine 90% of the External Position Report data for confidentiality reasons. There could be further transactions with sanctioned countries which are not covered within our data set. Second, we lack information on individual counterparties. We therefore cannot distinguish between business with non-targeted and business with blacklisted counterparties in a sanctioned country.

References

Besedeš, Tibor, Stefan Goldbach, and Volker Nitsch. 2017. "You're Banned! The Effect of Sanctions on German Cross-Border Financial Flows," Economic Policy. 32 (April): 263-318.

Besedeš, Tibor, Stefan Goldbach, and Volker Nitsch. 2018. "Cheap Talk? Financial Sanctions and Non-Financial Activity," Bundesbank Discussion Paper No 9/2018.

Biersteker, Thomas, Sue E. Eckert, Marcos Tourinho, and Zuzana Hudáková. 2013. The Effectiveness of United Nations Targeted Sanctions. Geneva: Targeted Sanctions Consortium.

"BNP Paribas Sentenced for Conspiring to Violate the International Emergency Economic Powers Act and the Trading with the Enemy Act." (2015, May 1). Retrieved from https://www.justice.gov/opa/pr/bnp-paribas-sentenced-conspiring-violate-international-emergency-economic-powers-act-and.

De Haas, Ralph, and Neeltje Van Horen. 2013. "Running for the Exit? International Bank Lending During a Financial Crisis," The Review of Financial Studies. 26 (January): 244-285.

Desai, Mihir A., Alexander Dyck, and Luigi Zingales. 2007. "Theft and Taxes," Journal of Financial Economics. 84 (May): 591-623.

European Union. 2014. "EU Restrictive Measures," EU Fact Sheet. (April 29, 2014)

Financial Action Task Force. 2012. "International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation," FATF, Paris, France.

Fiorentino, Elisabetta, Catherine Koch, and Winfried Rudek. 2010. "Microdatabase: External Position Reports of German Banks – A Description of the Microdatabase," Sonderveröffentlichungen der Deutschen Bundesbank.

Freifeld, K. and L. Dunsmuir (2015, March 12). "Commerzbank to pay $1.45 billion to resolve probes on Iran, Olympus." Retrieved from https://www.reuters.com/article/us-commerzbank-settlement-results/commerzbank-to-pay-1-45-billion-to-resolve-probes-on-iran-olympus-idUSKBN0M826E20150312.

Haidar, Jamal Ibrahim. 2017. "Sanctions and Export Deflection: Evidence from Iran," Economic Policy. 32 (April): 319-355.

Houston, Joel F., Chen Lin, and Yue Ma. 2012. "Regulatory Arbitrage and International Bank Flows," The Journal of Finance. 67 (October): 1845-1895.

Hufbauer, Gary Clyde and Barbara Oegg. 2000. "Targeted Sanctions: A Policy Alternative?," Peterson Institute for International Economics, Washington, DC.

Hufbauer, Gary Clyde, Jeffrey J. Schott, Kimberly Ann Elliott, and Barbara Oegg. 2007. Economic Sanctions Reconsidered, 3rd Edition. Washington, DC: Institute for International Economics.

Kaempfer, William H. and Anton D. Lowenberg. 2007. "The Political Economy of Economic Sanctions," in Todd Sandler and Keith Hartley (eds.) Handbook of Defense Economics, Volume 2. Amsterdam: Elsevier.

Khwaja, Asim Ijaz and Atif Mian. 2008. "Tracing the Impact of Bank Liquidity Shocks: Evidence from an Emerging Market," American Economic Review. 98 (September): 1413-1442.

Krueger, Miriam, Cordula Munzert, and Harald Stahl. 2017. "External Positions of Banks," Deutsche Bundesbank Research Data and Service Centre (RDSC).

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1997. "Legal Determinants of External Finance," The Journal of Finance. 7 (July): 1131-1150.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. "Law and Finance," Journal of Political Economy. 106 (December): 1113-1155.

Levy, Philip. 1999. "Sanctions on South Africa: What Did They Do?," American Economic Review. 89 (May): 415-420.

Li, Kun, Phong T.H. Ngo. 2017. "Geopolitics and International Bank Flows," Working Paper.

Neuenkirch, Matthias and Florian Neumeier. 2015. "The Impact of UN and US Economic Sanctions on GDP Growth," European Journal of Political Economy. 40 (December): 110-125.

Ongena, Steven, Alexander Popov, and Gregory F. Udell. 2013. "When the Cat's Away the Mice will Play: Does Regulation at Home Affect Bank Risk-Taking Abroad?" Journal of Financial Economics. 108 (June), 727-750.

Shleifer, Andrei, and Robert W. Vishny. 1997. "A Survey of Corporate Governance," The Journal of Finance. 2 (June): 737-783.

Temesvary, Judit. 2014. "The Determinants of U.S. Banks' International Activities," Journal of Banking and Finance. 44 (July): 233-247.

Treanor, J. (2017, January 31). "Deutsche Bank fined $630m over Russia money laundering claims." Retrieved from https://www.theguardian.com/business/2017/jan/31/deutsche-bank-fined-630m-over-russia-money-laundering-claims.

Zeume, Stefan. 2017. "Bribes and Firm Value," The Review of Financial Studies. 30 (May): 1457-1489.
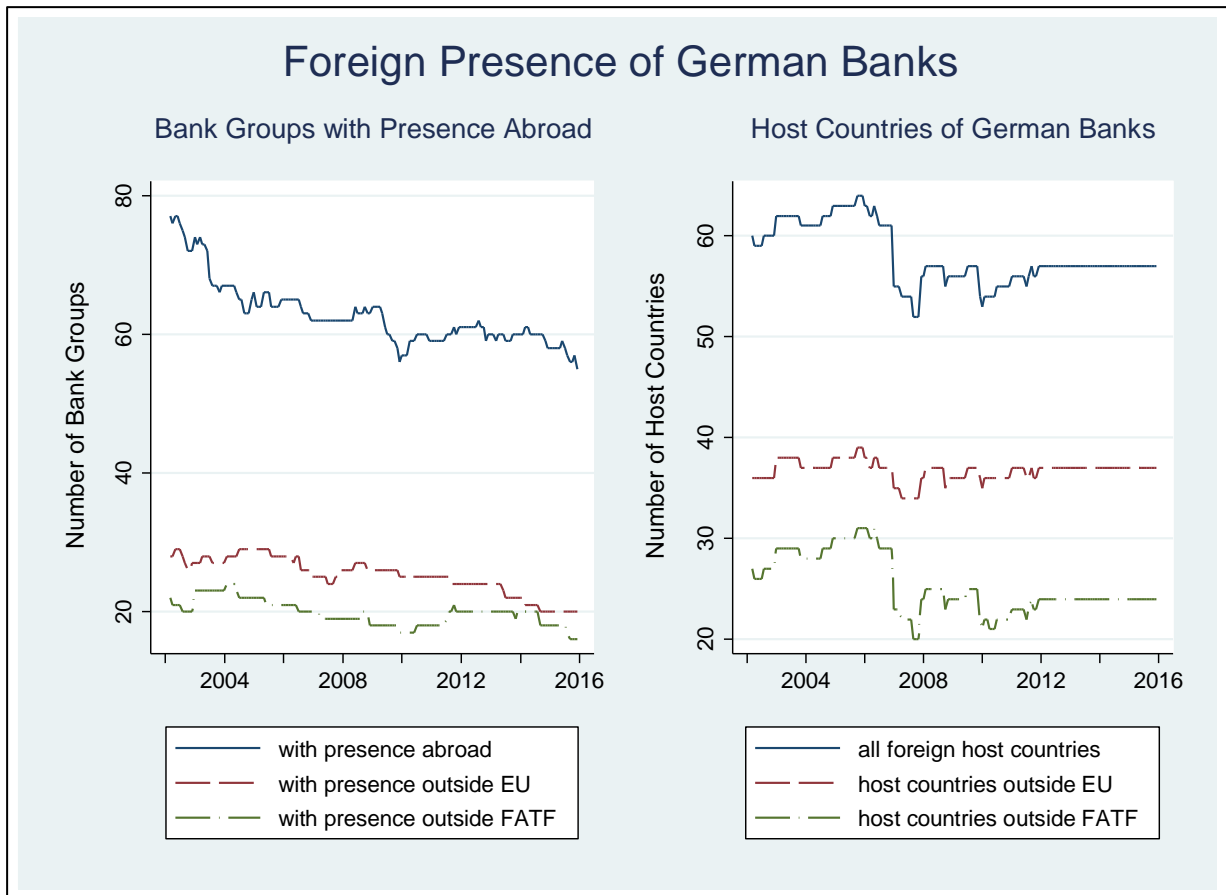
Figure 1. Foreign presence of German banks
This figure shows the number of German bank groups with at least one subsidiary or branch located abroad (left-hand graph) as well as the number of countries hosting at least one German subsidiary or branch (right-hand graph).

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.
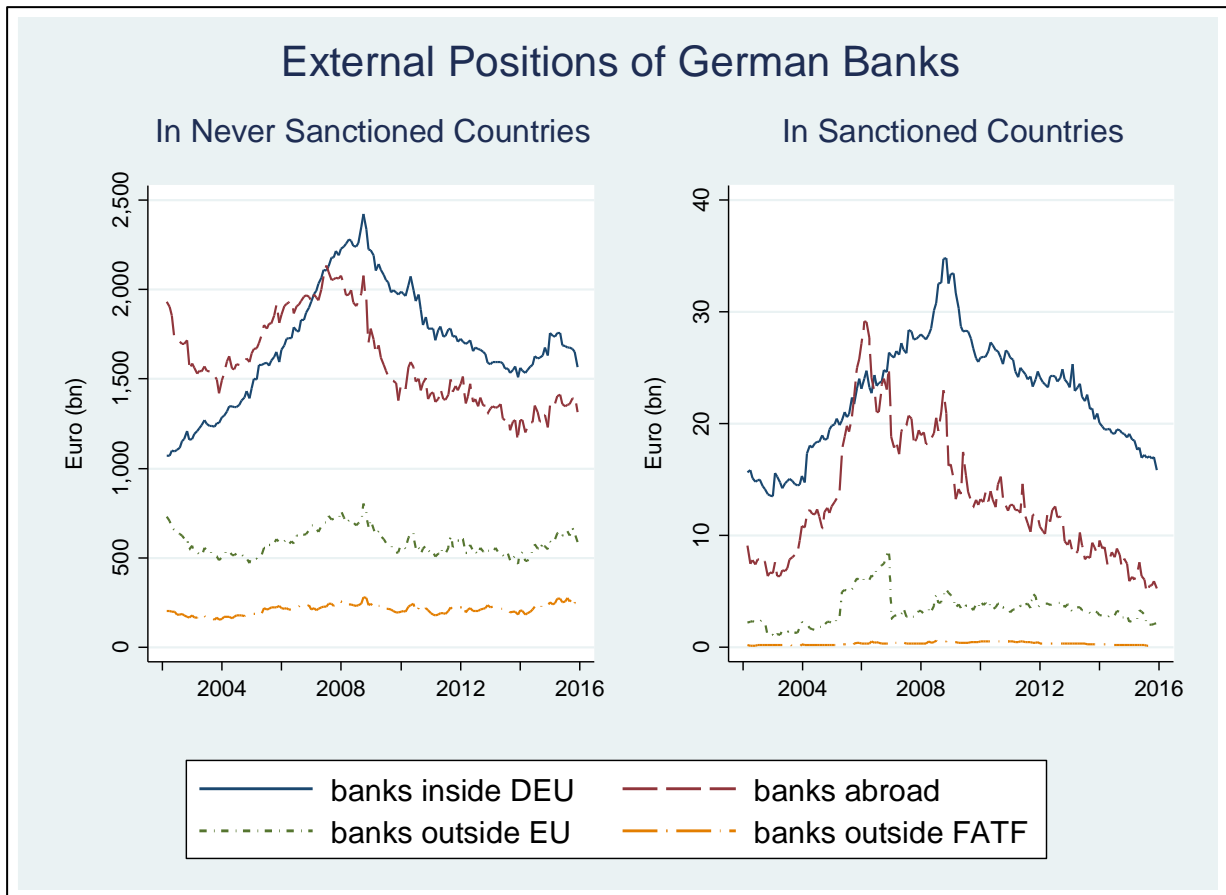
Figure 2. External positions of German banks
This figure shows the evolution of total external positions owned by German banks with counterparties in countries that have never been sanctioned (left-hand graph) or have been sanctioned at least once between 2002 and 2015 (right-hand graph). Positions are aggregated over all counterparties, asset classes, and currencies of denomination. They are broken down into total external assets of all banks located inside Germany (DEU), of all German branches and subsidiaries abroad, and of the subset of German banks that are located outside the EU or outside the FATF.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.
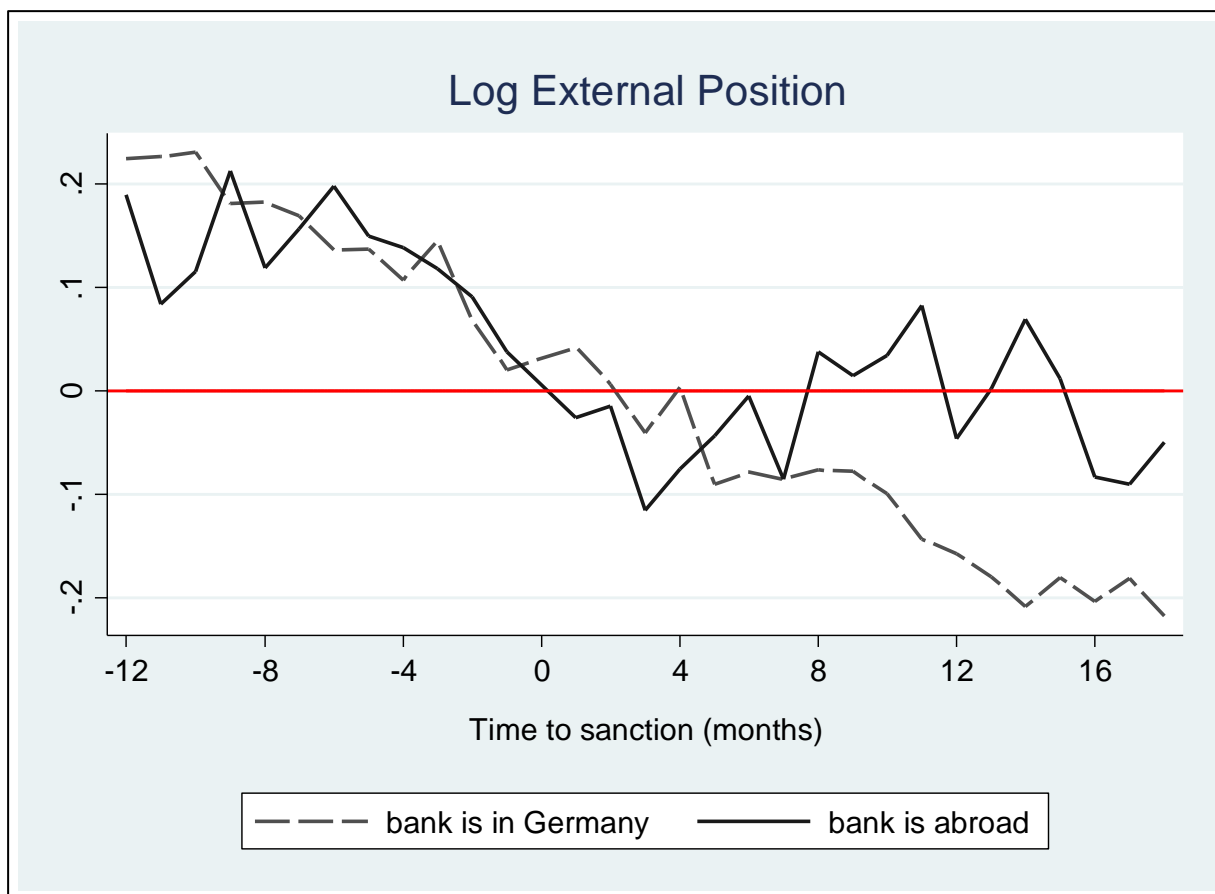
Figure 3. Sanction effects on German banks' external positions
This figure shows the heterogeneous effect of sanctions on the external positions of banks domiciled inside and outside Germany. The vertical axis shows the residual variation in Log($Assets_{b,c,t}$) after controlling for bank-counterparty country and bank-time fixed effects. The dashed (solid) line traces the average external position of banks located in Germany (abroad). The horizontal axis shows event time measured in months. The sample includes all banks located in Germany as well as all their subsidiaries and branches abroad. The sample period covers the years 2002 to 2015.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Figure 4. Financial Action Task Force
This figure shows the countries that are members of the Financial Action Task Force (FATF), which is an inter-governmental body committed to combatting money laundering and terrorism financing (see Section 4.2 for details), as of October 2017: Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, India, Ireland, Italy, Japan, Korea, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.
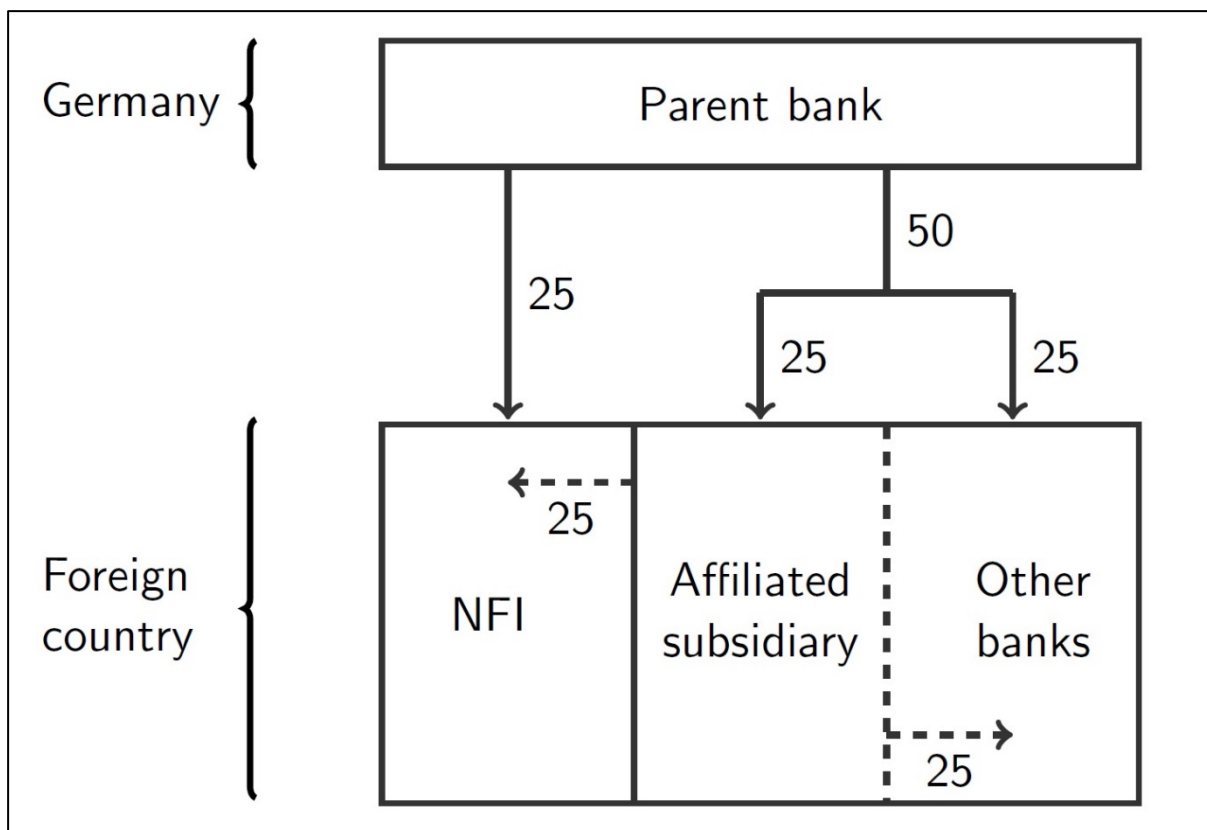
Figure 5. Example of intra-group positions in External Positions Report
This figure illustrates the external positions of a group's parent bank and its subsidiary with counterparties in a particular foreign country. The parent bank in Germany supplies assets worth 25 to each of the following counterparties in the foreign country: non-financial institutes (NFI), affiliated subsidiary, and other (non-affiliated) banks. The affiliated subsidiary supplies bank assets worth 25 to the non-financial institutes as well as assets worth 25 to other banks in its host country.

Table 1: List of financial sanctions newly imposed between 2002 and 2015
This table lists the eleven countries in our sample (i) on which the European Union imposed new financial sanctions between 2002 and 2015 and (ii) in which at least one German bank owns a position.

Source: Deutsche Bundesbank, Service center 'Financial Sanctions' and own investigations.

	Announcement (1)	Additional non-financial sanctions (2)	Imposed by (3)
Liberia	Sept. 4 , 2003 (lifted June 20, 2016)	export restriction on military equipment	Entire UN
Lebanon	Feb. 21, 2006	-	Entire UN
Belarus	May 18, 2006	export restriction on military equipment	Only EU
Iran	Feb. 2, 2007	export restriction on military equipment, chemicals and other resources	Entire UN
Tunisia	Feb. 4, 2011	-	Only EU
Libya	Mar. 2, 2011	export restriction on military equipment	Entire UN
Egypt	Mar. 21, 2011	-	Only EU
Syria	May 9, 2011	export restriction on military equipment, chemicals and other	Only EU
Afghanistan	Aug. 1, 2011	-	Entire UN
Russia	Mar. 5, 2014	export restriction on oil drilling machinery, chemicals and other resources	Only EU
Yemen	Dec. 18, 2014	-	Entire UN

Table 2: Summary statistics
This table provides summary statistics for the external positions in 105 foreign countries of 192 domestic banks in Germany plus their affiliated branches and subsidiaries abroad. One observation is a bank-counterparty country-month triplet (b,c,t). Panel A shows variables describing the host country of bank b, whether the country of counterparty is sanctioned, and external positions disaggregated by counterparty type and asset class in the full sample. Panel B shows the same variables separately for positions in countries that are never sanctioned (columns 1 to 3) and in countries that are sanctioned in at least one month. All positions are reported in Euro 1,000. The sample is a random extraction of Deutsche Bundesbank's External Position Report and covers 90% of all external positions of all German banks worldwide between March 2002 and December 2015.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Panel A: Full sample

	Obs. (1)	Mean (2)	S.D. (3)	P10 (4)	P50 (5)	P90 (6)
Host country of German bank:						
$Abroad_b$	2,390,051	0.49	0.50			
$Outside\ EU_b$	2,390,051	0.18	0.39			
$Outside\ FATF_b$	2,390,051	0.08	0.26			
$In\ Counterp.\ Country_b$	2,390,051	0.02	0.15			
Sanction indicators:						
$Sanction_{c,t}$	2,390,051	0.03	0.17			
$EU\ Sanction_{c,t}$	2,390,051	0.01	0.11			
$UN\ Sanction_{c,t}$	2,390,051	0.02	0.13			
$Affected\ Affiliate_{b,c,t}$	2,390,051	0.06	0.24			
External assets $Assets_{b,c,t}$ by counterparty (in Euro 1,000):						
All counterparty types	2,390,051	231,440.79	2,510,851.22	0	370	222,000
Banks	2,390,051	96,146.07	1,308,037.50	0	0	27,360
Other financials	2,390,051	9,056.44	301,561.90	0	0	0
Government	2,390,051	3,434.71	66,409.87	0	0	0
Non-financial firms, households, non-profit	2,390,051	61,873.03	1,181,520.67	0	0	39,243
External assets $Assets_{b,c,t}$ by asset class (in Euro 1,000):						
Loans	2,390,051	170,510.24	2,129,962.98	0	108	119,428
Non-loan assets	2,390,051	60,930.55	567,338.02	0	0	47,936
Treasury bills	2,390,051	698.19	30,171.74	0	0	0
Money market funds	2,390,051	2,796.53	84,405.42	0	0	0
Fixed income securities	2,390,051	45,446.67	352,945.25	0	0	35,554
Shares	2,390,051	5,683.31	247,760.77	0	0	0
External assets $Assets_{b,c,t}$ by host country (in Euro 1,000):						
Banks inside DEU	1,220,100	234,620.10	1,962,711	0	298	252,944.50
Banks abroad	1,169,951	228,125.20	2,976,845	0	476	194,000
Banks outside EU	438,153	223,229.60	2,498,737	0	265	135,759
Banks outside FATF	180,446	195,182.80	2,828,796	0	23	61,683

Continued...

Panel B: Sanctioned versus never sanctioned counterparty countries

	Never sanctioned			Sanctioned at least once		
	Obs.	Mean	S.D.	Obs.	Mean	S.D.
	(1)	(2)	(3)	(4)	(5)	(6)
Host country of German bank:						
Abroad$_b$	2,230,944	0.49	0.50	159,107	0.43	0.49
Outside EU$_b$	2,230,944	0.19	0.39	159,107	0.15	0.35
Outside FATF$_b$	2,230,944	0.08	0.26	159,107	0.07	0.26
In Counterp. Country$_b$	2,230,944	0.02	0.15	159,107	0.01	0.07
External assets *Assets$_{b,c,t}$* by counterparty (in Euro 1,000):						
All counterparty types	2,230,944	245,299.52	2,597,298.05	159,107	37,118.39	268,686.54
Banks	2,230,944	101,970.32	1,353,109.47	159,107	14,480.36	148,378.98
Other financials	2,230,944	9,694.27	312,119.37	159,107	112.92	2,938.54
Government	2,230,944	3,598.37	68,430.31	159,107	1,139.94	24,179.01
Non-financial firms, households, non-profit	2,230,944	65,002.27	1,222,496.02	159,107	17,995.81	112,783.02
External assets *Assets$_{b,c,t}$* by asset class (in Euro 1,000):						
Loans	2,230,944	180,265.23	2,203,512.38	159,107	33,729.03	218,300.31
Non-loan assets, i.e.:	2,230,944	65,034.28	586,575.99	159,107	3,389.36	84,019.39
Treasury bills	2,230,944	741.11	31,186.84	159,107	96.32	6,050.41
Money market funds	2,230,944	2,984.22	87,332.48	159,107	164.75	8,266.67
Fixed income securities	2,230,944	48,553.78	364,847.09	159,107	1,879.82	52,433.59
Shares	2,230,944	6,024.74	256,267.81	159,107	895.83	35,198.47
External assets *Assets$_{b,c,t}$* by host country (in Euro 1,000):						
Banks inside DEU	1,129,281	250,184.80	2,038,252	90,819	41,081.21	231,612
Banks abroad	1,101663	240,291.70	3,066,328	68,288	31,848.07	311,149
Banks outside EU	415,057	234,294.90	2,566,573	23,096	24,355.77	163,979
Banks outside FATF	169,218	207,811.60	2,920,695	11,228	4,837.94	19,427

Table 3: The effect of sanctions on German banks at home and abroad
This table shows coefficient estimates from panel regressions. The dependent variable Log($Assets_{b,c,t}$) is the natural logarithm of all external assets of bank b with counterparties in country c in month t. The regressor $Sanction_{c,t}$ is a binary variable which equals one if a financial sanction is imposed on country c in month t (and zero otherwise). The regressor $Abroad_b$ is a binary variable which equals one if bank b is located outside Germany (and zero otherwise). Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015. In columns 1 and 2 of Panel A, the sample only includes banks that are located in Germany. All other specifications cover the banks in Germany as well as their subsidiaries and branches abroad. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Panel A: Average sanction effects

Dependent variable: Log($Assets_{b,c,t}$)	Only banks in Germany		All banks
	(1)	(2)	(3)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.480***	-0.470***	-0.275*
	(0.157)	(0.151)	(0.164)
Time FE (α_t)	Yes	No	No
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	No	Yes	Yes
Country-time FE ($\alpha_{c,t}$)	No	No	No
Obs.	1,218,059	1,217,711	2,377,900
R^2	0.839	0.858	0.840

Panel B: Heterogeneous sanction effects

Dependent variable: Log($Assets_{b,c,t}$)	(1)	(2)	(3)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.348***	-0.470***	
	(0.110)	(0.086)	
$\widehat{\beta_{SA}}$: $Sanction_{c,t} * Abroad_b$	0.370***	0.532***	0.511***
	(0.135)	(0.110)	(0.169)
$\widehat{\beta_S} + \widehat{\beta_{SA}}$	0.022	0.062	
p-value	0.917	0.753	
Time FE (α_t)	Yes	No	No
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	No	Yes	Yes
Country-time FE ($\alpha_{c,t}$)	No	No	Yes
Obs.	2,377,900	2,377,900	2,377,900
R^2	0.817	0.840	0.844

Table 4: The effects of sanctions and FATF membership
This table shows coefficient estimates from panel regressions. The dependent variable Log($Assets_{b,c,t}$) is the natural logarithm of all external assets of bank b with counterparties in country c in month t. The regressor $Sanction_{c,t}$ is a binary variable which equals one if a financial sanction is imposed on country c in month t (and zero otherwise). The regressor $Outside\ FATF_b$ is a binary variable which equals one if bank b is located in a host country that is not member of the Financial Action Task Force (and zero otherwise). The regressor $In\ Counterparty\ Country_b$ is a binary variable which equals one if the host country bank b coincides with the country of counterparties c (and zero otherwise). Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015 and covers the banks in Germany as well as their subsidiaries and branches abroad. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Dependent variable: Log($Assets_{b,c,t}$)	(1)	(2)	(3)	(4)	(5)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.243	-0.213	-0.244	-0.320**	
	(0.197)	(0.201)	(0.197)	(0.159)	
$\widehat{\beta_{SF}}$: $Sanction_{c,t}$ * $Outside\ FATF_b$	0.620*		0.615*	0.826**	0.718**
	(0.313)		(0.310)	(0.363)	(0.311)
$\widehat{\beta_S} + \widehat{\beta_{SF}}$	0.377*		0.371*	0.506**	
p-value	0.074		0.076	0.035	
$\widehat{\beta_{SC}}$: $Sanction_{c,t}$ * $In\ Counterp.\ Country_b$		0.432***	0.294	1.436***	1.621***
		(0.135)	(0.262)	(0.259)	(0.507)
$\widehat{\beta_S} + \widehat{\beta_{SC}}$		0.219	0.050	1.116***	
p-value		0.173	0.894	0.000	
Time FE (α_t)	Yes	Yes	Yes	No	No
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	No	No	No	Yes	Yes
Country-time FE ($\alpha_{c,t}$)	No	No	No	No	Yes
Obs.	2,385,938	2,385,938	2,385,938	2,377,900	2,377,900
R^2	0.817	0.817	0.817	0.840	0.844

Table 5: The effects of sanctions and non-cooperative countries
This table shows coefficient estimates from panel regressions. The dependent variable Log($Assets_{b,c,t}$) is the natural logarithm of all external assets of bank b with counterparties in country c in month t. The regressor $Sanction_{c,t}$ is a binary variable which equals one if a financial sanction is imposed on country c in month t (and zero otherwise). The regressor *Non-Cooperative Country$_b$* is a binary variable which equals one if bank b is located in a host country that is declared as non-cooperative by the Financial Action Task Force (and zero otherwise). Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015 and covers the banks in Germany as well as their subsidiaries and branches abroad. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Dependent variable: Log($Assets_{b,c,t}$)	(1)	(2)	(3)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.218	-0.287*	
	(0.199)	(0.161)	
$\widehat{\beta_{SN}}$: $Sanction_{c,t}$ * *Non-Cooperative Country$_b$*	0.493*	1.104**	1.111**
	(0.250)	(0.461)	(0.440)
$\widehat{\beta_S} + \widehat{\beta_{SN}}$	0.275	0.817*	
p-value	0.332	0.052	
Time FE (α_t)	Yes	No	No
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	No	Yes	Yes
Country-time FE ($\alpha_{c,t}$)	No	No	Yes
Obs.	2,385,938	2,377,900	2,377,900
R^2	0.815	0.833	0.836

Table 6: The effects of EU versus UN sanctions
This table shows coefficient estimates from panel regressions. The dependent variable Log($Assets_{b,c,t}$) is the natural logarithm of all external assets of bank b with counterparties in country c in month t. The regressor *EU Sanction$_{c,t}$* is a binary variable which equals one if a financial sanction is imposed on country c in month t by the European Union alone (and zero otherwise). The regressor *UN Sanction$_{c,t}$* is a binary variable which equals one if a financial sanction is imposed on country c in month t by the entire United Nations (and zero otherwise). The regressor *Outside EU$_b$* is a binary variable which equals one if bank b is located in a host country outside the European Union (and zero otherwise). The regressor *Outside FATF$_b$* is a binary variable which equals one if bank b is located in a host country that is not member of the Financial Action Task Force (and zero otherwise). Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015 and covers the banks in Germany as well as their subsidiaries and branches abroad. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Dep. variable: Log($Assets_{b,c,t}$)	(1)	(2)	(3)	(4)	(5)	(6)
$\widehat{\beta_E}$: EU Sanction$_{c,t}$	-0.076	-0.148	-0.102	-0.165	-0.219	
	(0.202)	(0.173)	(0.219)	(0.192)	(0.194)	
$\widehat{\beta_{EE}}$: EU San.$_{c,t}$*Outside EU$_b$		0.650**		0.618**	0.138	0.188
		(0.248)		(0.235)	(0.283)	(0.359)
$\widehat{\beta_E} + \widehat{\beta_{EE}}$		0.502		0.453	-0.081	
p-value		0.146		0.214	0.836	
$\widehat{\beta_{EF}}$: EU San.$_{c,t}$*Outside FATF$_b$			0.530***	0.434***	0.689***	0.596***
			(0.179)	(0.159)	(0.205)	(0.132)
$\widehat{\beta_E} + \widehat{\beta_{EF}}$			0.428***	0.269**	0.470***	
p-value			0.000	0.014	0.000	
$\widehat{\beta_U}$: UN Sanction$_{c,t}$	-0.386*	-0.394*	-0.426*	-0.416*	-0.408*	
	(0.218)	(0.217)	(0.232)	(0.228)	(0.226)	
$\widehat{\beta_{UE}}$: UN San.$_{c,t}$*Outside EU$_b$		0.055		-0.078	-0.422*	-0.535*
		(0.072)		(0.198)	(0.219)	(0.291)
$\widehat{\beta_U} + \widehat{\beta_{UE}}$		-0.339		-0.494	-0.830*	
p-value		0.207		0.222	0.051	
$\widehat{\beta_{UF}}$: UN San.$_{c,t}$*Outside FATF$_b$			0.742	0.775	1.177	1.073
			(0.566)	(0.658)	(0.755)	(0.659)
$\widehat{\beta_U} + \widehat{\beta_{UF}}$			0.316	0.359	0.755	
p-value			0.422	0.470	0.171	
Time FE (α_t)	Yes	Yes	Yes	Yes	No	No
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	No	No	No	No	Yes	Yes
Country-time FE ($\alpha_{c,t}$)	No	No	No	No	No	Yes
Obs.	2,385,938	2,385,938	2,385,938	2,385,938	2,377,900	2,377,900
R^2	0.817	0.817	0.817	0.817	0.840	0.844

Table 7: The effects of sanctions on intra-group advances and loans
This table shows coefficient estimates from panel regressions. The dependent variable $\text{Log}(Assets^{banks}_{b,c,t})$ in columns 1 to 3 is the natural logarithm of the external positions of bank b in month t with (affiliated and non-affiliated) banks in country c as counterparties. The dependent variable $\text{Log}(\textit{Intra-Group Loans}_{b,c,t})$ in column 4 is the natural logarithm of the intra-group loans and advances that bank b extends to its affiliated branches and subsidiaries in country c in month t. The regressor $\textit{Affected Affiliate}_{b,c,t}$ is a binary variable which equals one if bank b has a branch or subsidiary in country c that owns positions in sanctioned countries in month t (and zero otherwise). Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015 and covers only banks located in Germany. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Dependent variable:	$\text{Log}(Assets^{banks}_{b,c,t})$			$\text{Log}(\textit{Intra-Group Loans}_{b,c,t})$
	(1)	(2)	(3)	(4)
$\widehat{\beta_{AA}}$: $\textit{Affected Affiliate}_{b,c,t}$	0.600***	0.281*	0.268**	1.236***
	(0.120)	(0.152)	(0.125)	(0.352)
Time FE (α_t)	Yes	No	No	No
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	No	Yes	Yes	Yes
Country-time FE ($\alpha_{c,t}$)	No	No	Yes	Yes
Bank sample	DEU	DEU	DEU	DEU
Sample period	2002-15	2002-15	2002-15	2010-2015
Obs.	1,219,910	1,219,567	1,219,545	485,759
R^2	0.793	0.813	0.820	0.873

Table 8: Loans versus other bank assets

This table shows coefficient estimates from panel regressions. The dependent variable Log($Loans_{b,c,t}$) in columns 1 and 2 is the natural logarithm of all loans that bank b supplies to counterparties in country c in month t. The dependent variable Log($Other\ Assets_{b,c,t}$) in columns 3 and 4 is the natural logarithm of all non-loan assets that bank b supplies to counterparties in country c in month t. The different regressors are defined as in previous tables. Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015 and covers the banks in Germany as well as their subsidiaries and branches abroad. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Dependent variable:	Log($Loans_{b,c,t}$)		Log($Other\ Assets_{b,c,t}$)	
	(1)	(2)	(3)	(4)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.394***	-0.283**	-0.127***	-0.053
	(0.068)	(0.137)	(0.033)	(0.063)
$\widehat{\beta_{SA}}$: $Sanction_{c,t}$ * $Abroad_b$	0.417***		0.242***	
	(0.119)		(0.023)	
$\widehat{\beta_S} + \widehat{\beta_{SA}}$	0.023		0.115**	
p-value	0.903		0.043	
$\widehat{\beta_{SF}}$: $Sanction_{c,t}$ * $Outside\ FATF_b$		0.718**		0.237**
		(0.339)		(0.105)
$\widehat{\beta_S} + \widehat{\beta_{SF}}$		0.435*		0.184**
p-value		0.057		0.013
$\widehat{\beta_{SC}}$: $Sanction_{c,t}$ * $In\ Counterp.\ Country_b$		1.500***		1.018***
		(0.251)		(0.307)
$\widehat{\beta_S} + \widehat{\beta_{SC}}$		1.217***		0.965***
p-value		0.000		0.002
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	Yes	Yes	Yes	Yes
Obs.	2,381,154	2,381,154	2,371,917	2,371,917
R^2	0.817	0.817	0.840	0.840

Table 9: External positions with non-bank versus bank counterparties

This table shows coefficient estimates from panel regressions. The dependent variable $\text{Log}(Assets_{b,c,t}^{non-banks})$ in columns 1 and 2 is the natural logarithm of the external positions of bank b in month t with non-banks in country c as counterparties t. The dependent variable $\text{Log}(Assets_{b,c,t}^{banks})$ in columns 3 and 4 is the natural logarithm of the external positions of bank b in month t with banks in country c as counterparties. The different regressors are defined as in previous tables. Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015 and covers the banks in Germany as well as their subsidiaries and branches abroad. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Dependent variable:	$\text{Log}(Assets_{b,c,t}^{non-banks})$		$\text{Log}(Assets_{b,c,t}^{banks})$	
	(1)	(2)	(3)	(4)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.508***	-0.378***	-0.001	0.007
	(0.057)	(0.119)	(0.029)	(0.092)
$\widehat{\beta_{SA}}$: $Sanction_{c,t} * Abroad_b$	0.464***		0.052	
	(0.029)		(0.182)	
$\widehat{\beta_S} + \widehat{\beta_{SA}}$	-0.044		0.051*	
p-value	0.610		0.057	
$\widehat{\beta_{SF}}$: $Sanction_{c,t} * Outside\ FATF_b$		0.693**		0.209
		(0.273)		(0.133)
$\widehat{\beta_S} + \widehat{\beta_{SF}}$		0.315**		0.216
p-value		0.044		0.169
$\widehat{\beta_{SC}}$: $Sanction_{c,t} * In\ Counterp.\ Country_b$		1.682***		-0.074
		(0.199)		(0.370)
$\widehat{\beta_S} + \widehat{\beta_{SC}}$		1.304***		-0.067
p-value		0.000		0.860
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	Yes	Yes	Yes	Yes
Obs.	2,376,205	2,376,205	2,381,195	2,381,195
R^2	0.839	0.839	0.795	0.795

Table 10: Euro-denominated external positions
This table shows coefficient estimates from panel regressions. The dependent variable $Log(Assets_{b,c,t}^{Euro})$ is the natural logarithm of all Euro-denominated external assets of bank b with counterparties in country c in month t. The different regressors are defined as in previous tables. Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015 and covers the domestic banks in Germany as well as their subsidiaries and branches abroad. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

Dependent variable: $Log(Assets_{b,c,t}^{Euro})$	(1)	(2)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.320***	-0.254**
	(0.096)	(0.110)
$\widehat{\beta_{SA}}$: $Sanction_{c,t} * Abroad_b$	0.357***	
	(0.057)	
$\widehat{\beta_S} + \widehat{\beta_{SA}}$	0.037	
p-value	0.810	
$\widehat{\beta_{SF}}$: $Sanction_{c,t} * Outside\ FATF_b$		0.852***
		(0.279)
$\widehat{\beta_S} + \widehat{\beta_{SF}}$		0.598**
p-value		0.015
$\widehat{\beta_{SC}}$: $Sanction_{c,t} * In\ Counterp.\ Country_b$		1.924***
		(0.390)
$\widehat{\beta_S} + \widehat{\beta_{SC}}$		1.670***
p-value		0.000
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	Yes	Yes
Obs.	2,007,951	2,007,951
R^2	0.847	0.839

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Table 11: External positions of subsidiaries versus branches

This table shows coefficient estimates from panel regressions. The dependent variable Log($Assets_{b,c,t}$) is the natural logarithm of all external assets of bank b with counterparties in country c in month t. The different regressors are defined as in previous tables. Specifications control for bank-counterparty country, time, bank-time and counterparty country-time fixed effects as indicated. The sample contains bank-country-month observations for years 2002 to 2015. In columns 1 and 2 (respectively, columns 3 and 4) we exclude all branches (subsidiaries) of German banks abroad from the sample. Robust standard errors (reported in parentheses) are clustered by bank host country, counterparty country, and by month. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

	Only subsidiaries		Only branches	
Dep. variable: Log($Assets_{b,c,t}$)	(1)	(2)	(3)	(4)
$\widehat{\beta_S}$: $Sanction_{c,t}$	-0.470***	-0.396***	-0.470***	-0.363**
	(0.055)	(0.098)	(0.068)	(0.149)
$\widehat{\beta_{SA}}$: $Sanction_{c,t}$ * $Abroad_b$	0.491***		0.582*	
	(0.020)		(0.312)	
$\widehat{\beta_S} + \widehat{\beta_{SA}}$	0.021		0.112	
p-value	0.779		0.769	
$\widehat{\beta_{SF}}$: $Sanction_{c,t}$ * $Outside\ FATF_b$		1.133**		0.487*
		(0.483)		(0.278)
$\widehat{\beta_S} + \widehat{\beta_{SF}}$		0.737*		0.124
p-value		0.067		0.656
$\widehat{\beta_{SC}}$: $Sanction_{c,t}$ * $In\ Counterp.\ Country_b$		1.352***		2.548***
		(0.134)		(0.279)
$\widehat{\beta_S} + \widehat{\beta_{SC}}$		0.956***		2.185***
p-value		0.000		0.000
Bank-country FE ($\alpha_{b,c}$)	Yes	Yes	Yes	Yes
Bank-time FE ($\alpha_{b,t}$)	Yes	Yes	Yes	Yes
Obs.	1,780,575	1,780,575	1,815,036	1,815,036
R^2	0.849	0.849	0.842	0.842

Table 12: Overview of sanctions' effects by bank host country
This table shows a selection of regression estimates from Tables 3 to 6 to provide an overview of how German banks' external positions change after financial sanctions are imposed on the countries of banks' counterparties. The effects of $Sanction_{c,t}$ on $Log(Assets_{b,c,t})$ are reported for sets of different host countries. We distinguish between German banks (including branches and subsidiaries) that are located in- or outside Germany, in- or outside the FATF member countries, in- or outside the same country as the counterparty of the bank's position and in- or outside countries declared non-cooperative by the FATF. For each group of host countries, we report the point estimate for the effect of $Sanction_{c,t}$ on $Log(Assets_{b,c,t})$ as well as the corresponding percentage change relative to the time before sanctions are imposed. All reported effects are estimated in panel regressions with bank-counterparty country and bank-time fixed effects. The sample contains bank-country-month observations for years 2002 to 2015. Significance at the 10%, 5%, and 1% level is indicated by *, **, ***, respectively.

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, External position of banks (AUSTA), 03/2002 – 12/2015, own calculations.

		Avg. effect of $Sanction_{c,t}$ on $Log(Assets_{b,c,t})$	
		Point estimate	Percentage change
By host country of bank:		(1)	(2)
Table 3, Panel A, column 3:			
All host countries		-0.275[*]	-24%[*]
Table 3, Panel B, column 2:			
Germany		-0.470[***]	-38%[***]
Foreign country		0.062	6%
Table 4, column 4:			
FATF member country		-0.320[**]	-27%[**]
Not FATF member country		0.506[**]	66%[**]
In same country as counterparty		1.116[***]	205%[***]
Table 5, column 2:			
FATF-compliant country		-0.287[*]	-25%[*]
FATF non-cooperative country		0.817[*]	126%[*]
Table 6, column 5:			
EU Sanction$_{c,t}$:	EU member country	-0.219	-20%
	Not EU member country	-0.081	-8%
	Not FATF member country	0.470[***]	60%[***]
UN Sanction$_{c,t}$:	EU member country	-0.408[*]	-33%[*]
	Not EU member country	-0.830[*]	-56%[*]
	Not FATF member country	0.755	113%