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Daniel Berkowitz, Guillermo Lezama and Claire Nackley

Sanctions, reputational losses and salience

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Abstract

Can government agencies in sanctioning countries deter their companies from violating laws that limit business transactions with sanctioned countries? To understand this issue, we study the Office of Foreign Assets Control (OFAC), which is the primary enforcer of sanctions in the United States. OFAC announces a company's violations and penalty only after it has successfully completed its investigation. We document that OFAC's announcements were unanticipated and imposed reputational losses that could deter non-compliance throughout the industry when the penalties were large enough and when announcements were made at times when OFAC was being searched intensely on the internet. This suggests that a broader market sentiment sympathetic to OFAC's mission of stopping financial crimes was necessary.

Keywords: Sanctions, reputational losses, salience, announcement, compliance, deterrence
JEL: K42, G18

Daniel Berkowitz. orcid.org/0000-0002-0146-5446. Corresponding author. Professor, Department of Economics, University of Pittsburgh, Pittsburgh, PA, 15260. Email: dmberk@pitt.edu
Guillermo Lezama. orcid.org/0000-0002-0193-4513 Seattle, Washington, 98109. Email: guillelezama@pitt.edu
Claire Nackley, https://orcid.org/0009-0003-0332-705X, Katz Business School, University of Pittsburgh, 15260. Email: CEN35@pitt.edu

Non-technical summary

Focus

Can government agencies in sanctioning countries deter their companies from violating laws that limit business transactions with sanctioned countries? To understand this issue, we study the Office of Foreign Assets Control (OFAC), which is the primary enforcer of sanctions in the United States. OFAC announces a company's violations and penalty only after it has successfully completed its investigation.

Contribution

OFAC penalties tend to be small compared to those imposed by other government agencies. However, "reputational losses" can be deterrents even when penalties are small (Karpoff and Lott, 1993). Estimating reputational losses is challenging because the release of information about misconduct and expected legal costs can occur over many years so that traders and investors can adjust before the penalty is announced (Armour, Mayer and Polo, 2017). We show that it is possible to identify reputational losses because OFAC announces a company's violations and penalty only after it has successfully completed its investigations. We validate this claim using a detailed analysis of filed corporate documents.

Findings

We find that when the OFAC agency was salient (i.e. frequently searched on the internet) an above median penalty was associated with reputational losses that were 1.1, 1.9, 3.0 and 6.2 times the size of a penalty during market windows of one, two, five and nine trading days around the announcement, respectively. However, there were no reputational losses when salience was low even in robustness checks in which large "outlier" penalties were added to the sample.

1. Introduction

Governments around the world use sanctions to deal with challenges such as conflict and violations of international treaties. For example, after Russia invaded Crimea in 2014 and Ukraine in 2022, the United States and the European Union ordered companies under their jurisdiction to either cease doing business with its Russian partners or to conduct only limited transactions with non-targeted Russian entities. However, there is evidence that companies domiciled in sanctioning countries evade sanctions regulations. Efing, Goldbach, and Nitsch (2023) document how German banks used foreign bank affiliates to make loans to countries that were sanctioned. Using stock market data, DellaVigna and La Ferrara (2009, 2010) infer that during 1990-2005 arms companies in countries that were members of U.N. illegally traded with countries that were subject to U.N. arms sanctions. Fisman, Marcolongo and Wu (2025) find evidence strongly suggesting that while Ukraine was imposing a trade blockade on its secessionist Donbas region during 2017-2022, Ukrainian power plants imported anthracite produced in the Donbass region that had been illegally exported to Russia.

Can government agencies in sanctioning countries deter their companies from evading laws limiting their commercial transactions with companies and individuals in sanctioned countries? To understand this issue, we study the Office of Foreign Assets Control (OFAC) which is the primary government agency enforcing sanctions rules for firms domiciled in the United States. On the one hand, there is

evidence suggesting OFAC penalties appear to be too small.[1] For example, in our sample of listed financial firms, the average penalty during 2003-2023 was 0.07 percent of a company's market value which is smaller than the average fine of 0.26 percent of market value that England's financial regulatory agencies imposed during 2001-2011 (Armor et al, 2017, Table 1, p.1435). Moreover, evidence in Table 1 suggests that OFAC sets penalties that are lighter than other U.S. regulatory agencies.

On the other hand, even if OFAC penalties are low, companies in at least the U.S. financial sector spend substantial resources for complying with sanctions regulations. For example, in 2022, U.S. financial companies were estimated to have spent almost 46 billion dollars on monitoring sanctions and complying with regulations that overlap with sanctions regulations including prohibitions on money laundering and the financing of terrorism (Patel and Lichtenstein, 2024, footnote 45). This spending includes "personnel, training, and technology costs … as well as the cost to purchase key datasets and watchlists" (Patel and Lichtenstein, 2024, pp.543-544). A back of the envelope calculation suggests that the average financial company spent 11.1 million dollars on compliance which was much greater than the average OFAC civil penalty for a financial company, of 3.3 million dollars in 2022[2]

[1] Becker (1968) famously argued that a penalty that deters misconduct must be large enough and administered frequently enough.

[2] OFAC issued ten civil penalties to financial companies in 2022 of which nine were less than three quarters of a million dollars However, because Bitrex Inc was fined $24.3 million the average fine was to $3.3 million. See https://ofac.treasury.gov/civil-penalties-and-enforcement-information/2022-enforcement-information. To compute average compliance costs in 2002, we use the total number of all FDIC-insured institutions in the U.S. in 2022 which was 4,136 including many small companies with assets less one billion dollars (see https://www.ibisworld.com/united-states/number-of-businesses/finance-insurance/1282/)

suggesting that companies on average view the cost of non-compliance as more than the monetary penalty (LexisNexis, 2023).

Studies of corporate fraud also indicate that small penalties imposed on a company can cause reputational losses that deter other companies in its industry from violating the law (Karpoff and Lott 1993). Reputational loss is the decline in a company's market value exceeding its legal costs when the public learns of its wrongdoings.[3] Cleanly identifying reputational loss is challenging because the release of information about misconduct and expected legal costs can occur over many years (Armour et al, 2017). However, it is possible to identify reputational losses from OFAC because it releases all violation-related information in one complete announcement only after its investigations are complete. OFAC announcements typically contain summaries of their investigations, the company's transgressions, the steps the company has taken to ensure compliance, and a non-negotiable fine.[4]

To validate that OFAC announcements are unanticipated, we leverage the requirement that listed companies include legal costs that can be probably and reasonably estimated in their mandatory filings to the Security and Exchange Commission (SEC). Once filed, these documents can be easily downloaded so that any mention of potential penalties from OFAC would enable traders and large-scale

[3] See Klein and Laffler (1981) and Shapiro (1983).
[4] The one exception is that Exxon in 2020 appealed and OFAC fine. We thank Adam Smith, who was senior advisor OFAC during the Obama administration, for explaining how OFAC's enforcement procedures are similar to the methods that the British Financial Services Authority and the London Stock Exchange used in the past for enforcing financial regulations as documented in Armour et al (2017).

investors to adjust. For example, OFAC found out that in 2008 Nasdaq acquired an Armenian company that transferred close to a quarter of a billion dollars to Iran in violation of sanctions regulations between 2008 and 2014. During 2014-2023 Nasdaq cooperated with OFAC; it divested its ownership stake in its Armenian company and strengthened its sanctions compliance programs. OFAC's investigations and negotiations with Nasdaq were confidential until December 8, 2023, when OFAC posted on its public website a summary of its investigations, Nasdaq's efforts to improve its compliance systems, and the fine that Nasdaq had agreed to pay. However, we find no mention of any potential legal expenses or fines from OFAC in the forms that Nasdaq submitted to the SEC during the year prior to the announcement. Nor do we find any such evidence for the other firms in our sample.

Studies of corporate crimes including Karpoff and Lott (1993), Karpoff (2012) and Armour, Mayer and Polo (2017) show that a company suffers reputational losses when it is revealed that it has mistreated its "second parties" with whom it trades including its customers, and investors. However, a company avoids reputational losses following a disclosure that its misbehavior affected "third parties" with whom it does not trade such as small non-controlling shareholders and did not affect its second parties. In our sample, fraudulent activities include money laundering and bribing foreign officials. While these activities can affect third parties who may be concerned with moral issues and/or the competence of the

company's managers, they do not strongly affect the second parties who directly trade with the company.

Nevertheless, we fine that a company can suffer reputational losses if OFAC announces around the time when there is a broad public sentiment that is sympathetic to OFAC's mission of stopping financial crimes that the company has conducted illegal business activities. This public sentiment is measured using word searches for "OFAC" on the internet just prior to an announcement using Google Trends. Notably, these word searches measure the salience of OFAC and are highly correlated with word searches related to financial crimes including "money laundering" and "financial crimes." [5] Although OFAC penalties are generally small, we find that they are roughly informative of the "badness" of a company's violations. Penalties tended to be higher when violations were classified as "egregious," and lower when violations were classified as "non-egregious." Moreover, the above median penalties were positively associated with "bad" activities including money laundering, the promotion of terrorism or development of weapons of mass destruction and supporting trade in narcotics.

When OFAC was salient, an above median penalty was associated with a "slow burn" effect of reputational losses that were 1.1, 1.9, 3.0 and 6.2 times the size of a penalty for an average company during windows of one, two, five and nine

[5] Public interest about financial fraud varies over time. For example, there was a massive increase in public outrage following the news of the Enron scandal in 2001 and the collapse of the financial system and the Madoff Ponzi scheme in 2008. In regressions that are available upon request, we find that there is no significant time trend for the salience of OFAC.

trading days around the announcement. This suggests that informational content in an OFAC announcement is deep and requires some time for the market to fully absorb but, only when the market is paying attention to OFAC and the broader issue of financial crimes in the first place.[6]

To shut down a reverse causality channel in which a large penalty would affect internet searches for OFAC, we dropped from the baseline sample three outlier announcements that had large penalties that were on average 1.75 percent of market value. Notably, all three outlier announcements were made when OFAC was not salient. Early and Preble (2020) argue that OFAC has over time adopted a "whale hunting" strategy of issuing very large fines to a few companies to deter other companies from violating sanctions. However, our result that penalties do not impose reputational losses when OFAC was not salient is robust when these three "whale" companies are included.

There is burgeoning literature studying the impact of sanctions on the well-being of sanctioned countries. For example, Benchimol and Palumbo (2024) use web-scraped data on market prices and availability of consumer goods to quantify the impact of economics sanctions imposed by the US and EU on Russia following its invasion of Ukraine in 2002. Gutmann et al, (2023) use an event study approach to show that sanctions have the most adverse effect on the GDP growth, consumption, trade, and FDI of sanctioned countries during the initial years of their enactment. Bělín et al (2021) show that US export sanctions on Russia after its

[6] We thank Pankaj Patel for raising this point.

2014 invasion of Crimea were weakly effective because US regulators allowed for exemptions if US exporters had signed contracts with Russia trading partners before 2014. While these papers highlight the potential effectiveness of sanctions, our paper takes a step back and studies the incentives of firms in sanctioning countries to comply with financial sanctions regulations.

Our paper is related to studies of how western companies operating in Russia and their stakeholders responded to Russia's invasion of Ukraine in 2022. Hart, Thesmar and Zingales (2024) estimate the willingness of hypothetical stakeholders to pay for exiting from a western company that continued to operate in Russia. Importantly, they find that small shareholders had a purely "deontological" willingness to pay for selling off their shares equal to roughly $125.[7] While the Hart et study focuses on whether companies were choosing to comply with private sanctions versus state-imposed sanctions, its results are consistent with our findings that third parties are willing to sell off their shares when it is revealed that their company has wrongfully conducted business in a sanctioned country. Patel and Richter (2024) show that, despite substantial public scrutiny following Russia's invasion of Ukraine, firms' exit decisions were primarily driven by business incentives rather than ethical considerations. This highlights that moral pressure is often insufficient to discipline firms to make ethical decisions, which aligns with our finding that reputational effects arise when enforcement actions are salient and attract broad public attention.

[7] This number is obtained by plugging in the coefficient estimates in Table 4 on p.226 into equation (4) on p.224 from Hart, Zingales and Thesmar (2024).

Finally, a study of OFAC may have general implications because government agencies in Austria and Germany that enforce sanctions regulations are currently adopting the procedures that OFAC uses.[8]

The next section describes our data and provides some institutional details. We then provide an overview of the estimation strategy and present results and a conclusion.

2. Data and Institutional Details

According to OFAC's framework for compliance commitments, its role is to "administer and enforce U.S. economic and trade sanctions programs against targeted foreign governments, individuals, groups, and entities in accordance with national security and foreign policy goals and objectives" (US Department of the Treasury, 2025). OFAC does not enforce embargoes on whole nations: rather, its sanctions are applied to individuals, companies, agencies, or sectors within a nation. Our paper focuses on how OFAC investigates potential violations and imposes penalties for companies under US government jurisdiction for non-compliance with these sanctions.

The data collection starts with the identification of companies listed in the "OFAC Sanctions Enforcement Data, version 7.0" sourced from Harvard Dataverse. This is an update from Early and Preble's dataset (2020, 159–75) that covers all OFAC announcements from January 1, 2003, to December 31, 2023. Each

[8] We thank Carl von Kessler and Adam Smith for this information.

company's name serves as the starting point for tracing its corporate structure. We conducted a web search to determine whether the penalized company was a subsidiary or an independent entity at the time the penalty was imposed. If it is a subsidiary, the parent company, particularly one that is publicly traded in the U.S., is identified through various business databases and corporate websites. The sample is limited to financial companies for two reasons. First, our study focused on market reactions to OFAC announcements and most non-financial companies that OFAC punishes are not listed on U.S. stock exchanges. Second, following the 9/11 terrorist incidents, 2001, the U.S. has imposed more financial sanctions, and it has required its financial institutions to record and disclose their transactions (Morgan et al, 2023, p.11).

Following the identification of the highest firm in the hierarchy, we proceed to obtain essential financial identifiers for each entity. This includes retrieving the Central Index Key (CIK) and the Compustat Identifier (GVKEY) from the SEC database and Compustat, respectively. The CIK is then used to derive the Trading Symbol (TIC) through the sec_cik_mapper tool[9]. In some cases, we use the GVKEY in the Compustat database to get the corresponding TIC. This symbol facilitates precise tracking of stock-related data. Subsequently, stock data such as price, volume, returns, and shares outstanding are retrieved using the TIC from the CRSP database, specifically from the table "Daily Stock - Securities". This information is reported daily. Concurrently, company financials like quarterly revenue, total

[9] This is a python package created by Jad Chaar. An updated version of this python tool can be found in https://pypi.org/project/sec-cik-mapper/

assets, and market value are sourced from the "Merged Fundamental Quarterly File" in the Compustat North America database. This dataset gives information reported on a quarterly basis.

The integration of data extends to align firm-specific financial and stock data with broader market indices and economic models. We synchronize the firm data with daily and total return values from the S&P 500 Financials index, as captured in the "Index Daily" table of the Compustat North America database. Moreover, data is merged with the Fama-French three-factor model based on the dates to use the “returns on market factor”. Additionally, we integrate the penalty data from the OFAC dataset (Office of Foreign Assets Control), including specifics such as the date of the penalty imposition, the penalty size, how egregious was the violation and the nature of the violation (money laundering, for example).

This comprehensive approach ensures a robust panel dataset that combines company-level stock prices, asset values and market value, market index data, and regulatory penalties. This final dataset contains this information for each business day in the period 1/3/2000 and 12/29/2023.

A critical identifying assumption in our analysis is that an OFAC announcement of a civil penalty for a company is “news” for company shareholders, investors and traders. OFAC civil penalties are plausibly unanticipated because they are announced and enforced after a case is settled, and the terms of the penalty are final. To validate this claim, we read the 10-K and 10-Q forms from listed US corporations, and the 20-F forms from listed foreign companies registered

in the USA preceding the penalty announcement.[10] The Securities and Exchange Commission (SEC) requires corporations to include in their filed forms legal costs that are "probable and reasonably estimable." The 10-K, 10-Q, and 20-F forms can be downloaded and read once they are filed. Therefore, investors, traders, and shareholders in a company could easily anticipate a penalty from OFAC by reading these documents. The results contained in Appendix B (which is available upon request) indicate there is scant evidence of anticipation in said documents.

There are 77 firm-penalty observations in the data set that are denoted announcements. Twelve firms are multiple offenders; Hong Shanghai Bank and American Express are the worst and have six penalties. Within the group of firms that are multiple offenders, there are three penalties that occur within forty days of the previous penalty.[11] As it is difficult to disentangle the effect of the latter penalty from the former ones, we consider the effect of the former and thus drop three firm-penalty observations. We also drop the firm Payoneer Global Incorporated because it lacks the number of observations required for estimating its excess return.[12] Our sample has 77 firm-penalty observations that are denoted announcements.

To measure the salience of OFAC preceding its announcement, we conduct a word search for "OFAC" in the United States on Google Trends for the month just preceding the announcement. Because Google Trends starts collecting data as of

[10] We thank Adam Smith for suggesting this validation strategy.
[11] The cases include Bank of America Corporation on February 1, 2008 and March 7, 2008; Citigroup, Inc. on July 2, 2004 and August 6, 2004; and J.P. Morgan Chase and Company on January 1, 2004 and February 6, 2004.
[12] We estimate the CAPM model for each model using returns running from 262 to 11 days before the announcement. Thus, we drop Payoneer because it only has returns covering 18 to 11 days before the penalty announcement.

January 1, 2004, there are ten announcements from April 4, 2003, through January 2, 2004, for which we code the Google Trends data as missing. We also conduct word searches for "financial crimes" and "money laundering" as OFAC deals with these issues in its announcements and find that "OFAC" is strongly correlated with financial crimes (r= 0.47) and money laundering (r = 0.84) suggesting the Google Trends data for OFAC is capturing a broader public interest in the OFAC's tasks which include punishing financial crimes. A potential concern is that the salience of OFAC is simply capturing a time trend. However, in results that are available upon request we find there is no such time trend.

Word searches on the internet are useful because they can pick up the activities of investors. As of 2005, 80% of all Americans had access to the internet and 90% of mutual fund shareholders had access. Moreover, at least two thirds of the mutual fund shareholders that have internet access go online at least once a day, and an additional 25% go online at least once a week (Investment Company Institute, 2005). In addition, having access to the internet is associated with greater stock market participation. Hvide Meling, Mogstad, and Vestad (2022. p.4) find that "For every 10-percentage point increase in broadband use, the stock market participation rate increases by 0.7 percentage points. That is, about 5.3 percent of the pre-reform mean stock market participation rate.". Thus, by using internet search activity for financial crimes, we can focus on the awareness and interest of people with a potential for increased stock market participation.

Google Trends is an appropriate search engine for this study as it has been widely accessible for the last twenty years. It also remains the most widely used search engine in the world since 2009.[13] In addition, Hölzl, Keusch, and Sajons (2025, p. 126) show that Google Trends can avoid an internet users' social desirability bias when they search for any given term. This means that a user's search queries will not be affected by their fear of judgement because they do not feel there is anyone who will be seeing the search to judge them. Therefore, searches are likely to reflect someone's actual sentiments, rather than what they anticipate the public believes their sentiments should be.

A critical identifying assumption in this study is that "Salience" is orthogonal to the announcement. A potential concern is that an OFAC announcement creates more interest in financial misconduct, which in turn, affects a future potential announcement effect. To deal with this issue, our baseline sample includes only small penalties that would not create more interest in financial crimes. Thus, we exclude from the baseline sample three high profile cases implicating Lloyds of London (January 9, 2009), the ING Group (June 12, 2012), and the Hong Kong Shanghai Bank of China (December 11, 2012) for massive money laundering schemes to sanctioned countries. The average penalty for these three high-profile announcements was 1.75 percent, which is much higher than the average and

[13] See https://www.bing.com/search?q=It%20also%20remains%20the%20most%20widely%20used%20search%20engine%20in%20the%20world%20since%202009.&FORM=ARPSEC&PC=ARPL&PTAG=20065

maximum penalties of 0.002 percent and 0.055 percent in the baseline sample (see Table 2). At least one important financial newspaper[14] reported the OFAC announcement for the three high profile cases on the day or day after the announcement versus 18-percent of the time for the other announcements.

Table 2 contains summary statistics. Six penalties are FOVs (findings of violation) that have no monetary penalty. The average penalty, 0.002 percent, is higher than the median of 0.000 percent, indicating that there substantial bunching around very lower penalties and the penalty distribution is skewed upward. Cumulative abnormal returns, CAR (-1, +1), CAR (-2, +2), CAR (-5, +5) and CAR (-9, +9) are measured for trading windows of one, five and nine market days, respectively, around the announcement date (t=0) and their construction will be described in the next section.

The text of OFAC announcements typically includes some description of the "badness" of a violation that is measured with several variables. The variable "Egregious" = 1 if violation is egregious, = -1 if non-egregious and = 0 if the terms egregious and non-egregious are not mentioned. Reckless and deliberate violations would result in an "egregious" denotation in the announcement. In addition, if the company was aware of the wrongfulness of its conduct, it would also typically also be denoted as "egregious." Factors that would make a violation non-egregious include a lack of deliberate or reckless conduct, a company's lack of awareness for violations, cooperation with the investigation, promptly taking measures to

[14] The financial media in our design includes Bloomberg Press, the Financial Times, Investors Daily and the Wall Street Journal.

remediate the situation, and setting up compliance systems. In our sample, 4 announcements were egregious, 21 were non-egregious, and 4 had no such classification. The variable "Involuntary" = 1 if a company did not voluntarily cooperate with OFAC during its investigations, = -1 if the company voluntarily cooperated and = 0 if the terms voluntary and involuntary are not recorded in the announcement. In our sample, companies were involuntary, voluntary, and not classified in 41, 3 and 30 of the 74 announcements.

The variables "Terrorism-WMD", "Narcotics" and "Money Laundering" are categorical and describe violations that occur in 15, 19 and 7 percent of the announcements. The variable "Badness" = 1 if an announcement includes at least one of these violations and = 0 otherwise and its average is 43 percent.

Google Trends data for measuring salience is collected during the month preceding an announcement. Because Google Trends started collecting data as of January 1, 2004, there are 10 announcements from April 4, 2003, through January 2, 2004, for which we code the Google Trends for "OFAC" data as missing. When there was a negligible number of searches for "OFAC" on Google (or the data was not collected) "OFAC" = 0, whereas the highest level of potential search activity = 100. In our sample, 'OFAC" ranges from 0 (10 cases) to 80 (1 case) and is on average 49.

Another potential measure for salience is "Media" which equals one if the financial press reports an OFAC announcement on the day of an OFAC

announcement or one day after.[15] However, because the media covers only 18 percent of announcements and the sample size of 74 is small, "Media" is not useful for splitting the sample into salient versus non-salient announcements.

The regressions in Table 3 indicate that an OFAC penalty is associated with the badness of a violation as described in an announcement. To deal with the skewed distribution of penalties, in this table and all remaining tables in this paper, the regressions are weighted by a company's market value just prior to its announcement. In the first three columns of Table 3, the penalty is normalized at its median. Importantly, the first column shows whether a violation was classified as "egregious" versus not. "Classified" or "not classified" versus "classified as non-egregious" is associated with about a 0.009 percentage point increase (p-value < 0.05) in the penalty, which is roughly a sample standard deviation. In columns (2) and (3) the associations between "Penalty, centered" and "Involuntary" and "Badness" are statistically insignificant.

Because penalties are close to zero below the median penalty and exhibit more variance above it, in columns (4)-(6) we use the dummy variable "Penalty, median" as the outcome variable where "Penalty, median" = 1 at median or above and = 0 otherwise. In column (4) and (5) the associations between "Penalty, median" and "Egregious" and "Involuntary" are insignificant. Importantly, column (6) indicates that an announcement indicating "Badness" is associated with an almost 39% probability that a penalty was at the median or higher. The takeaway

[15] The financial media include the Bloomberg Press, the Financial Times, Investors Daily and the Wall Street Journal.

for Table 3 is that even though penalties are small, they are positively associated with OFAC announcements indicating the badness and egregiousness of a company's transgression.

3. Estimating Reputation Losses

Our goal is to find out when OFAC penalties are deterrents that create reputational losses. Thus, we estimate a standard capital asset pricing model as developed in Sharpe (1964) and Fama et al (1969). Formally, let i and t denote a company and a trading date, where t=0 is a penalty announcement date. Let R_{it}, R_t^m *and* R_t^f denote company i's daily return at date t, the risk-free return at date t, and the overall stock market return at date t. In our sample there are 74 penalties during t=0 for a company I that are denoted "announcements." For each announcement, we estimate during $t \epsilon [-262, -11]$

$$R_{it} - R_t^f = \alpha_i + \beta_i\left(R_t^m - R_t^f\right) + \varepsilon_{it} \qquad (1)$$

where ε_{it} denotes the stochastic error trend. The regressors from eq (1), $\hat{\alpha}_i$ *and* $\hat{\beta}_{i,}$ for each announcement are used to predict the counterfactual expected excess return, denoted $\hat{E}\left[R_{it} - R_t^f\right]$ without an announcement during the window: t ∈ [-10, +9],

$$\hat{E}\left[R_{it} - R_t^f\right] = \hat{\alpha}_i + \hat{\beta}_i\left(R_t^m - R_t^f\right) \qquad (2)$$

Then, the unexpected change in excess return, denoted $CAR_i(t)$, during any $t \in [-10, +9]$ is a daily "abnormal return,"

$$CAR_i(t) = \left[R_{it} - R_t^f\right] - \hat{E}\left[R_{it} - R_t^f\right] \qquad (3)$$

And the "cumulative abnormal return" during a trading window t ∈ [-n,+n] for n ∈ [1,9] is simply the sum of "abnormal returns":

$$CAR_i\,(-\mathrm{n}, +\mathrm{n}) = \sum_{t=-n}^{t=+n} \mathrm{CAR}_i(\mathrm{t}) \qquad (4)$$

Because a company's cumulative abnormal during t ∈ [-n,+n] and its penalty are both percentages of its market value, the reputational loss as a share of market value during t ∈ [-n,+n] is simply the sum of the cumulative abnormal return and the penalty.

4. Results

Table 4 contains results for regressions of the CARs on the penalty in the full sample, Because the penalty is centered around its median, the estimate for "Constant" is the expected value of a CAR at the median penalty and the estimated

regressor, "Penalty, centered" is an estimate of the change in CAR associated with a 1-percentage point increase in the penalty relative to the median penalty. Quantitative significance is the impact of a one sample standard deviation in the penalty (0.009 percentage points) on the CAR outcome[16] and the estimated reputational loss, reported at the bottom of the table, is the estimated regressor, "Penalty, centered" plus one.[17] Evidence of reputational loss is that we reject the null that reputational loss is zero, and the estimated reputational loss is negative and statistically significant. The results in Table 4 indicate that there is no evidence of reputational losses.

Table 5 Panels A and B split the sample into announcements when OFAC was salient (Google Trend searches no less than the median) and when OFAC was not salient (Google Trend searches were below median).[18] In columns (1)-(4) in Panels A we fail to reject the null that the regressor "Constant" = 0 at five and ten percent critical values. Thus, the estimated regressor for "Penalty, centered" can be interpreted as the impact of a one percentage point increase in penalty relative to a median of zero. In all four cases there are announcement effects that are precisely estimated; however, the quantitative significance is low, -0.02 percent for CAR (-1, +1), and it increases as the trading window expands and is almost -0.07 percent for CAR (-9, +9). Importantly, for the 22 companies with penalties no less than the

[16] Quantitative significance is the product of the sample standard deviation of the penalty and the estimated regressor, "Penalty, centered."
[17] The Reputational loss is the estimated impact of a one percentage point increase in the penalty on the CAR plus a one-percentage point increase in the penalty.
[18] There are 3 announcements at which google searches for OFAC was at the median. Thus, there are 39 announcements for which OFAC was salient and 35 announcements for which it was not salient.

median, there are noisy reputational losses of -1.1 and -3.0 times the penalty during the window [-1,+1] and [-5,+5]; and there are precisely estimated reputational losses of -1.9 and -6.2 during the windows [-2,+2] and [-9,+9].

Table 5 Panel B considers the case when OFAC is not salient. In contrast to Panel A, the quantitative significance of any announcement is quite low and sometimes positive; and there are no reputational effects that are statistically significant and have a negative value.

We dropped three announcements from our baseline sample that have large penalties that would likely capture the attention of value investors. The three large penalties were announced when OFAC was not salient. However, Table A5 Panel B in the Appendix shows that our finding that there are no reputational losses from an announcement when OFAC is "not salient" is robust when we include three announcements with large penalties. In addition, the Appendix shows that the results from Table 3, Table 4 and Table 5 Panel A are robust when we include these three cases (See Tables A3, A4 and A5 Panel A; and Table A2 for summary statistics).

5. Conclusion

There are several reasons why we might expect that OFAC cannot deter companies from violating restrictions on their business activities with companies and people in sanctioned countries. First, OFAC financial penalties are relatively light. Second, if a core result from the literature on corporate crime is applied to

sanctions, then we would expect that OFAC announcements would impose reputational losses only when the violations affect second parties, such as customers and substantial investors, who trade with the penalized company. However, OFAC announcements generally affect third parties and not second parties. Nevertheless, U.S. financial companies allocate substantial resources for compliance suggesting that OFAC announcement penalties at least deter financial institutions registered in the U.S.

Our study finds that OFAC penalty announcements can impose reputational losses and serve as a deterrent when there is substantial public interest in its mission. This public interest varies over time and does not follow a time trend. Moreover, because OFAC only announces a violation and penalty once its investigations are successfully completed, its website postings are unanticipated. This suggests that OFAC should pay attention to social media, Reddit, Twitter, Google, and other platforms that can measure social concerns and time its announcement for when the public is interested in OFAC's mission.

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Table 1
OFAC Versus Overall Government Penalties

Company	Average Penalty 2000-2024	Largest OFAC Penalty 2003-2023
Natwest Group	**527**	**33.1**
Bank of America	**266**	**17.0**
Deustche Bank	**230**	**0.6**
JP Morgan Chase	**217**	**88.0**
Citi Group	**184**	**0.2**
Wells Fargo	**83**	**30**
Morgan Stanley	**58**	**0.003**

Notes: Penalties are measured in millions of constant dollars. The "Average Penalty" during 2000-2024 is the total penalties divided by the number of records. Table 1 lists the seven companies from the Violation Tracker's top ten list of most penalized financial companies that were also penalitzed by OFAC during 2000-2024

Data Sources: Violation Tracker (https://violationtracker.goodjobsfirst.org/?offense_group_sum=financial%20offenses&page=24) and the OFAC Website (https://ofac.treasury.gov/civil-penalties-and-enforcement-information).

Table 2: Summary Statistics

Variable	Definition	Mean	Std. Dev.	Max	Min
Penalty	Cash penalty normalized by market value	0.002%	0.009%	0.055%	0.000%
CAR(-1,+1)	CAR during the market window (-1,+1)	0.004%	0.021%	0.068%	-0.045%
CAR(-2,+2)	CAR during (-2,+2)	0.007%	0.026%	0.090%	-0.060%
CAR(-5,+5)	CAR during (-5,+5)	0.012%	0.045%	0.177%	-0.092%
CAR(-9,+9)	CAR during (-9,+9)	0.015%	0.084%	0.310%	-0.164%
Egregious	= 1 if violations are egregious = -1 if non-egregious = 0 otherwise	-0.230	0.538	1.000	-1.000
Involuntary	=1 if company did not voluntarily cooperate, =-1 if company voluntarily cooperated, 0 otherwise	-0.059	0.989	1.000	-1.000
Terrorism-WMD	= 1 if violations promote terrorism or development of weapons of mass destruction, = 0 otherwise	0.149	0.358	1.000	0.000
Narcotics	=1 if violations support trade in narcotics or a narcotics kinpin, =0 otherwise	0.189	0.394	1.000	0.000
Money Laundering	= 1 if violations involve money laundering, = 0 otherwise	0.068	0.253	1.000	0.000
Badness	= 1 if violations involve money laundering and/or narcotics and/or Terrorism_WMD, = 0 otherwise	0.427	0.498	1.000	0.000
OFAC	Intensity of internet word search for "OFAC" the month before an OFAC announcement, where 0 denotes no search or data is not available and 100 is the most possible activity	49.1	21.2	80.0	0.0
OFAC, missing	= 1 when OFAC data is not available, = 0 otherwise. (Prior to January of 2004, Google Trends does not collect data)	0.135	0.344	1.000	0.000
Salience	= 1 if OFAC is no less than median (55), = 0 otherwise	0.527	0.503	1.000	0.000
Media	= 1 if the financial press reports an OFAC announcement on the day or day after, = 0 otherwise	0.176	0.383	1.000	0.000

Notes: There are 74 observations. In the appendix we include the three high profile announcements with large penalties and expand the sample size to 77 observations. The financial press includes Bloomberg Press, the Financial Times, Investors Daily and the Wall Street Journal. Internet word search data for "OFAC" was downloaded from Google Trends on August 3, 2025 at 8 am.

Table 3: Determinants of Penalties

	(1)	(2)	(3)	(4)	(5)	(6)
Penalty Outcome	Penalty, centered			Penalty, median		
Egregious	0.009**			-0.247		
	(0.004)			(0.176)		
Involuntary		0.001			-0.075	
		(0.002)			(0.078)	
Badness			0.004			0.386***
			(0.004)			(0.138)
Constant	0.005**	0.003*	0.001	0.367***	0.412***	0.251***
	(0.002)	(0.002)	(0.001)	(0.091)	(0.076)	(0.070)
Observations	74	74	74	74	74	74
R-squared	0.260	0.004	0.041	0.085	0.022	0.150

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
The outcome variable, "Penalty, centered", is the penalty centered around its median value. And "Penalty, median" is a categorical variable = 1 when the penalty is no less than the median and = 0 otherwise. Regressions are weighted by the market value of a company prior to an announcement.

Table 4: CARs, Penalties and Reputational Losses

	(1)	(2)	(3)	(4)
CAR Outcomes	(-1+1)	(-2,+2)	(-5,+5)	(-9,+9)
Penalty, centered	-0.136	-0.227	-0.738	-1.954**
	(0.420)	(0.498)	(0.486)	(0.756)
Quantitative significance	-0.001	-0.002	-0.007	-0.018
Constant	0.006**	0.008**	0.007	0.012
	(0.003)	(0.004)	(0.008)	(0.014)
Observations	74	74	74	74
R-squared	0.005	0.009	0.029	0.063
Reputational Loss	0.864**	0.773	0.262	-0.954
	(0.420)	(0.498)	(0.486)	(0.756)

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Because the penalty is centered, the estimate for "Constant" is the expected CAR at the median penalty. Quantitative significance is the estimate for "Penalty, centered" times a sample deviation in the penalty (0.0091 percentage points). Reputational loss is the regressor "Penalty, centered" plus one. There is a reputational loss when the estimate for "Penalty, centered" is negative and statistically significant. These notes also apply to Table 5, Panels A and B, and Table 6, Panels A and B.

Table 5: CARs, Salience and Reputational Losses

Panel A: Sample is Salient

	(1)	(2)	(3)	(4)
CAR Outcomes	(-1,+1)	(-2,+2)	(-5,+5)	(-9,+9)
Penalty, centered	-2.111***	-2.919***	-4.042**	-7.217**
	(0.715)	(0.728)	(1.683)	(2.830)
Quantitative significance	-0.019	-0.027	-0.037	-0.066
Constant	0.007	0.008	0.012	0.020
	(0.004)	(0.006)	(0.014)	(0.023)
Observations	39	39	39	39
R-squared	0.250	0.261	0.119	0.126
Reputational Loss	-1.111	-1.919**	-3.042*	-6.217**
	(0.715)	(0.728)	(1.683)	(2.830)

Notes: An announcement is salient when the variable "OFAC, salience" is not less than the median and otherwise not salient. The variable "Salience, missing" equals one only when the sample restriction is "Not Salient."

Panel B: Sample is Not Salient

	(1)	(2)	(3)	(4)
CAR outcomes	(-1,+1)	(-2,+2)	(-5,+5)	(-9,+9)
Penalty, centered	0.042	0.067	-0.260	-1.306**
	(0.317)	(0.325)	(0.154)	(0.515)
Salience, missing	-0.004	0.007	0.021	0.004
	(0.006)	(0.008)	(0.013)	(0.030)
Quantitative significance	0.000	0.001	-0.002	-0.012
Constant	0.009**	0.009*	0.002	0.008
	(0.004)	(0.005)	(0.008)	(0.018)
Observations	35	35	35	35
R-squared	0.011	0.016	0.099	0.091
Reputational Loss	1.042***	1.067***	0.740***	-0.306
	(0.317)	(0.325)	(0.154)	(0.515)

Appendix A: Data and Robustness

Table A1: Data Sources

Database	Source	Variables Extracted
Harvard Dataverse version=7.1	Preble and Early (2021).	Financial firms registered in the SEC and listed in US stock markets that OFAC punished during 2003-2023
OFAC Public Website	https://ofac.treasury.gov/civil-penalties-and-enforcement-information	OFAC penalty announcement including penalty size, penalty date, transgression description (money laundering, supporting narcotics trade, supporting terrorism and weapons of mass destruction), egregiousness of transgression
SEC Database and Compustat	https://www.sec.gov/search-filings	Compustat ID (GVKEY), CIK, Trading Symbol (TIC)
CRSP Stock (Annual) *(accessed through WRDS)*	Daily Stock - Securities (crsp_a_stock.dsf)	Company name, daily stock price and daily returns
Compustat North America *(accessed through WRDS)*	Merged Fundamental Quarterly File (comp_na_daily_all.fundq)	A company's quarterly market value
Compustat North America - Daily Updates	Index Daily (comp_na_daily_all.idx_daily)	S&P 500 Financials: Index price - close daily, index value - total return
U.S. Research Returns Data for Fama-French Three-Factor Model	Professor Keneth French's Website at the Tuck School of Dartmouth University	Small minus big (SMB), high minus low (HML), market risk premium (Rm-Rf)
Google Trends	https://trends.google.com/trends/	Internet activity for discussion of "financial crimes": 2004 till present.
Securities and Exchange Commission (SEC)_	https://www.sec.gov/edgar/search/	10Qs, 10Ks and 20-Fs for

Table A2: Summary Statistics Including the High-Profile Announcements

Variable	Definition	Mean	Std. Dev.	Max	Min
Penalty	Cash penalty normalized by market value	0.070%	0.411%	3.044%	0.000%
CAR(-1,+1)	CAR during the market window (-1,+1)	0.006%	0.031%	0.207%	-0.045%
CAR(-2,+2)	CAR during (-2,+2)	0.008%	0.037%	0.208%	-0.059%
CAR(-5,+5)	CAR during (-5,+5)	0.010%	0.045%	0.177%	-0.092%
CAR(-9,+9)	CAR during (-9,+9)	0.009%	0.097%	0.310%	-0.435%
Egregious	= 1 if violations are egregious = -1 if non-egregious, = 0 otherwise	-0.195	0.563	1.000	-1.000
Involuntary	=1 if company did not voluntarily cooperate =-1 if company voluntarily cooperated =1, = 0 otherwise				
Terrorism-WMD	= 1 if violations promote terrorism or development of weapons of mass destruction, = 0 otherwise	0.130	0.978	1.000	-1.000
Narcotics	=1 if violations support trade in narcotics or a narcotics kinpin, = 0 otherwise	0.143	0.352	1.000	0.000
Money Laundering	= 1 if violations involve money laundering, = 0 otherwise	0.195	0.399	1.000	0.000
Badness	= 1 if violations involve money laundering and/or narcotics and/or Terrorism_WMD, = 0 otherwise	0.078	0.270	1.000	0.000
OFAC	Intensity of internet word search for “OFAC” the month before an OFAC announcement, where 0 denotes no search or data is not available and 100 is the most possible activity	48.9	20.8	80.0	0.000
OFAC, Missing	= 1 when OFAC data is not available, = 0 otherwise. (Prior to January of 2004, Google Trends does not collect data)	0.130	0.338	1.000	0.000
Salience	= 1 if OFAC is no less than median (55), = 0 otherwise	0.506	0.503	1.000	0.000
Media	= 1 if the financial press reports an OFAC announcement on the day or day after, = 0 otherwise	0.208	0.408	1.000	0.000

Notes: There are 77 observations including the three high profile announcements.

Table A3: Determinants of Penalties Including High Profile Announcements

	(1)	(2)	(3)	(4)	(5)	(6)
Penalty Outcome	Penalty, centered			Penalty, median		
Egregious	0.060*			-0.144		
	(0.034)			(0.155)		
Involuntary		0.003			-0.064	
		(0.013)			(0.077)	
Badness			0.013			0.387***
			(0.026)			(0.134)
Constant	0.034*	0.024*	0.019	0.406***	0.427***	0.258***
	(0.018)	(0.013)	(0.018)	(0.083)	(0.076)	(0.0705)
Observations	77	77	77	77	77	77
R-squared	0.036	0.000	0.001	0.031	0.016	0.151

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
The outcome variable, "Penalty, centered", is the penalty centered around its median value. And, "Penalty, median" is a categorical variable = 1 when the penalty is no less than the median and = 0 otherwise. Regressions are weighted by the market value of a company prior to an announcement.

Table A4: CARs, Penalties and Reputational Losses Including High Profile Cases

	(1)	(2)	(3)	(4)
CAR Outcomes	(-1+1)	(-2,+2)	(-5,+5)	(-9,+9)
Penalty, centered	0.021	0.011	-0.021**	-0.057
	(0.027)	(0.033)	(0.008)	(0.061)
Quantitative significance	0.000	0.000	-0.000	-0.001
Constant	0.005*	0.006	0.005	0.006
	(0.003)	(0.004)	(0.007)	(0.013)
Observations	77	77	77	77
R-squared	0.035	0.006	0.008	0.017
Reputational Loss	1.021***	1.011***	0.979***	0.944***
	(0.027)	(0.033)	(0.008)	(0.061)

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Because the penalty is centered, the estimate for "Constant" is expected CAR for the median penalty. Quantitative significance is the estimate for "Penalty, centered" time a one sample deviation in the penalty (0.0091 percentage points). Reputational loss is the regressor "Penalty, centered" plus one. There is a reputational loss when the estimate for "Penalty, centered" is negative and statistically significant. These notes also apply to Table A5, Panels A and B.

Table A5: CARs and Salience Including the High-Profile Cases

Panel A: Sample is Salient

	(1)	(2)	(3)	(4)
CAR Outcomes	(-1,+1)	(-2,+2)	(-5,+5)	(-9,+9)
Penalty, centered	-2.111***	-2.919***	-4.042**	-7.217**
	(0.715)	(0.728)	(1.683)	(2.830)
Quantitative significance	-0.019	-0.027	-0.037	-0.066
Constant	0.007	0.008	0.012	0.020
	(0.004)	(0.006)	(0.014)	(0.023)
Observations	39	39	39	39
R-squared	0.250	0.261	0.119	0.126
Reputational Loss	-1.111	-1.919**	-3.042*	-6.217**
	(0.715)	(0.728)	(2.683)	(2.830)

Notes: An announcement is salient when the variable "Salience" is not less than average and otherwise not salient. The variable "Salience, missing" is only estimated when the sample restriction is "Not Salient".

Panel B: Sample is Not Salient

	(1)	(2)	(3)	(4)
CAR outcomes	(-1,+1)	(-2,+2)	(-5,+5)	(-9.+9)
Penalty, centered	0.020	0.011	-0.016**	-0.0520
	(0.029)	(0.034)	(0.006)	(0.0634)
Salience, missing	-0.002	0.009	0.024*	0.00945
	(0.006)	(0.008)	0.009	(0.0286)
Quantitative significance	0.000	0.000	-0.000	-0.000
Constant	0.007	0.008	-0.001	0.00257
	(0.005)	(0.005)	(0.006)	(0.0159)
Observations	38	38	38	38
R-squared	0.062	0.029	0.118	0.050
Reputational Loss	1.020***	1.011***	0.984***	0.948***
	(0.029)	(0.034)	(0.006)	(0.063)

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