The Value of Offshore Secrets – Evidence from the Panama Papers

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Abstract

We use the data leak of the Panama Papers on April 3, 2016 to study whether and how the use of offshore vehicles affects valuation around the world. The data leak made transparent the operations of more than 214,000 shell companies incorporated in tax havens by Panama-based law firm *Mossack Fonseca.* The Panama Papers implicate a wide range of firms, politicians, and other individuals around the globe to have used secret offshore vehicles. Allegations include tax evasion, financing corruption, money laundering, violation of sanctions, and hiding other activities. We find that, around the world, the data leak erased an unprecedented risk-adjusted US$230 billion in market capitalization among 1,105 firms with exposure to the revelations of the Panama Papers. Firms with subsidiaries in Panama, the British Virgin Islands, the Bahamas, or the Seychelles – representing 90% of the tax havens used by *Mossack Fonseca* – experienced an average drop in firm value of 0.5%-0.6% around the data leak. We also find that firms operating in perceivably corrupt countries – particularly in those where high-ranked government officials were implicated by name in the leaked data – suffered a similar decline in firm value. Further, firms operating both in Mossack Fonseca's primary tax havens *and* in countries with implicated politicians experienced the largest negative abnormal returns. For instance, firms linked to Mossack Fonseca's tax havens and operating in Iceland experienced negative abnormal returns of -1.4%; the data leak revealed that Iceland's Prime Minister failed to disclose beneficial interest in a British Virgin Islands incorporated shell company. Overall, our estimates suggest that investors perceive the leak to destroy some of the value generated from offshore activity.

1. Introduction

On April 3, 2016, news sources around the world started reporting about a data leak of confidential documents concerning the business activities of Mossack Fonseca, a Panama-based law firm and provider of corporate services. These so-called Panama Papers comprised 11.5 million emails, contracts, transcripts and scanned documents, and constituted the largest data leak to date. However, the contents of the leak, rather than its sheer size - 2.6 terabytes of data, equivalent to roughly 168 million pages of text – make it significant. The leaked documents provided insights into the uses of more than 214,000 shell companies during the past 45 years. According to Mossack Fonseca's internal documents – also leaked – 95% of the company's work consisted of "selling [corporate] vehicles to avoid taxes".[1]

The use of offshore corporate vehicles to avoid or evade taxes, facilitate corruption, launder money, violate sanctions, and avoid detection of other activities is well known. However, due to their intransparent nature, an analysis of the actual uses of offshore vehicles and of the value they create for shareholders has been challenging in the past, both for governments and researchers.

In this paper, we use the data leak of the Panama Papers to study, around the world, whether and how the use of offshore vehicles affects valuation and corporate decisions. In theory, the unexpected data leak might reduce or increase firm value generated from offshore vehicles. The leak might negatively affect value if it makes it harder to avoid future taxes or to use offshore money to bribe foreign government officials. The same applies if the leak increases expected costs of regulatory punishment for past tax evasion and violations of anti-bribery

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[1] 'The Panama Papers: how the world's rich and famous hide their money offshore', April 3, 2016, The Guardian. Retrieved April 14, 2016.

regulation. Additionally, reputational damage may arise from the revelations. However, if offshore structures were used to tunnel resources out of the firm at the expense of minority shareholders, the leak might increase the costs of such activities, thereby increasing firm value.

We use a sample of 26,655 publicly traded firms from 73 countries, with a total of 543,151 subsidiaries across 213 sovereign and non-sovereign territories, to assess the impact of the Panama Papers data leak on firm value. We measure firm value by returns and abnormal returns to the announcement of the data leak around April 3, 2016.

Our results show that, across countries, the data leak wiped out a total of $ 222-230 billion in market capitalization among firms with exposure to the revelations of the Panama Papers.[2] Around the data leak, an average firm with exposure to the Panama Papers – by having subsidiaries in the main tax havens used by Mossack Fonseca – experiences a drop in firm value of 0.5 to 0.6 percent relative to same-country same-industry firms without such exposure. These returns persist over alternative event windows, are robust to adjusting for market movements and market risk exposure, and are statistically significant at the 1% level throughout.

Next, we consider firms' exposure to individual tax havens implicated by the Panama Papers. Of the 214,000 companies that appear in Mossack Fonseca's files, 90 percent were incorporated in just four tax havens - the British Virgin Islands (BVI) (114,000 firms), Panama

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[2] For this calculation, we consider the 1,105 firms with exposure to Panama, the British Virgin Islands, the Bahamas, and the Seychelles in our sample. US$222bn is the drop in market value of these firms between closing of Thursday, March 31, 2016 (the day before our main event window) and closing of Thursday, April 7, 2016 (the last day of our main event window). US$230 is the drop in market value obtained by multiplying each of the 1,105 firms' market valuation on Thursday, March 31, 2016 by its cumulative abnormal returns between April 1, 2016 and April 7, 2016 (our main event period). Cumulative abnormal returns are based on a 1-factor CAPM (see Section 2 for more detail). We obtain quantitatively similar results when applying the average drop in firm value from regressions with country and industry fixed effects to the average size of firms conditional on being exposed to the Panama leak.

(48,000), the Bahamas (16,000), and the Seychelles (15,000).[3] We find negative and strongly significant abnormal returns for exposure to three of these tax havens. Firms exposed to the Bahamas lose 1.3% in value, followed by firms exposed to Panama (-0.8%) and BVI (-0.7%).

We then turn to the impact of the data leak on firms with exposure to perceivably corrupt regions. Firms having subsidiaries in countries perceived to be more corrupt than their home country experience 0.3% lower returns than same-industry, same-country firms without this exposure. Also, the impact of the data leak is more pronounced for firms that have activities in countries whose high-ranked government officials were implicated by name in news stories of suspected fraud, money laundering, bribes, or related activities immediately following the leak. These countries are Iceland, Argentina, Georgia, Iraq, Jordan, Qatar, Saudia Arabia, Sudan, United Arab Emirates, and Ukraine.[4] Firms with at least one subsidiary in any of these 10 countries experienced average abnormal returns of -0.65%.

Finally, we test whether investors perceive firms to have used offshore accounts to obtain political favors, such as government contracts or licenses. Because bribe payments and contract allocation procedures are unobservable, our evidence is indirect. We find that firms that are exposed both to tax havens implicated by the Panama Papers and to perceivably corrupt countries have 0.3%-0.4% lower abnormal returns around the data leak than same-country, same-industry firms. Similarly, firms with exposure to any of the four Panama Papers havens and

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[3] According to ICIJ, the remaining 10% of firms were incorporated in Niue (9,600), Samoa (5,300), British Anguilla (3,200), Nevada (1,300), Hong Kong (450), the UK (150) and very small numbers in other countries.

[4] Initial news stories focused primarily on the use of offshore vehicles by several government leader, presidents and other politicians in these 10 countries. As of 21 April 2016, the list of potentially implicated individuals has grown to include politicians and other individuals from 40 countries in total (additionally: Armenia, Australia, Azerbaijan, Bangladesh, Brazil, Canada, Chile, China, Colombia, Cyprus, Egypt, France, Hong Kong, India, Indonesia, Israel, Italy, Malta, Mexico, New Zealand, Norway, Pakistan, Russia, Singapore, Spain, Sweden, Switzerland, Thailand, Tunisia, the UK, and the US).

nine of the ten countries directly implicated by the leak have negative returns; the effect is statistically significant for Iceland, Jordan, Qatar, the Sudan, and the United Arab Emirates.

As an example of an early outcome of the data leak, Iceland's Prime Minister, Sigmundur Davíð, resigned in the wake of revelations that his family had owned *Wintris*, a company incorporated in the British Virgin Islands.[5] We show that firms both linked to implicated tax havens and operating in Iceland experienced negative abnormal returns of 1.4%.

Our work is related to two strands of research. First, a large and growing literature in accounting and finance has studied the costs and benefits of using tax havens.[6] Tax shelters are used as a substitutes for debt (Graham and Tucker 2006) and for round-trip tax evasion (Hanlon, Maydew, and Thornock 2015). Managers also use tax haven subsidiaries to finance inefficient acquisitions (Hanlon, Lester, and Verdi 2015) and to expropriate minority shareholders; tax enforcement and transparency can reduce such expropriation in the tax haven setting (Bennedsen and Zeume 2016) and in corrupt environments (Desai, Dyck, and Zingales 2007, Mironov 2013). Second, prior work has studied the benefits of bribery and the costs of anti-bribery regulation for firms.[7] Firms appear to use bribes to create shareholders value (Cheung, Rau, and Stouraitis 2012, Lin, Morck, Yeung, and Zhao 2016, Zeume 2016). Yet prosecution costs associated with detected violations of anti-bribery regulation more than offset the value of contracts obtained through bribe payments, but only if prosecution for bribery is accompanied by charges of financial fraud (Karpoff, Lee, and Martin 2015). Our work provides insights into the use of offshore facilities, among others to pay off corrupt politicians.

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[5] At the time of writing, Sigmundur Davíð's move may constitute a *stepping aside* rather than a *stepping down*.

[6] This literature by-and-large focuses on tax avoidance - see Hanlon and Heitzman (2010) for a review. See also Desai, Foley, and Hines (2004) on the effects of tax havens, Johannesen and Zucman (2014) for bank deposits' response to increased transparency of tax havens, and Slemrod (1985) for a perspective on individual tax evasion.

[7] Reviews of the corruption and growth literature are provided by Shleifer and Vishny (1993), Bardhan (1997), and Svensson (2005).

Finally, much of the data pertaining to the Panama Papers leak are not yet available; for our tests we rely on market data and news stories up to April 7, 2016. Future revelations from the Panama Papers and responses by law enforcement, governmental agencies, and regulatory bodies will likely create additional events and data that impact the value of offshore secrets.[8]

2. Data and Summary Statistics

In this section, we describe the data and variables used in this paper. The Appendix lists all variable definitions and data sources.

2.1 Sample construction

Our paper combines data from several sources. For all publicly listed firms in Bureau van Dijk's Orbis database (2015), we obtain a list of subsidiaries owned at the 50% level or higher. We identify whether or not a firm has subsidiaries in any of the four main tax havens used by Mossack Fonseca (Panama, British Virgin Islands, Bahamas, Seychelles). We do not condition on whether a firm used Mossack Fonseca to set up the subsidiary or not; instead, we capture whether a firm has *any* exposure to tax havens used by Mossack Fonseca. Importantly, this is information available to investors as of April 3, 2016, i.e. the initial date of the disclosure of the data leak. Future versions of this paper will additionally use more direct links between firms and Mossack Fonseca based on the leaked data.

In similar fashion, we use news stories from April 3-7, 2016 to measure whether or not a firm has at least one subsidiary in any of the countries whose high-ranked government officials were implicated by name in the leaked data. These countries are: Argentina, Georgia, Iceland,

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[8] A future version of this paper will include an extended analysis of the far more detailed data contained in the Panama Papers once made available by the The International Consortium of Investigative Journalists (ICIJ). This data will allow us to connect firms, individuals, politicians, and countries, and cover aspects of suspected tax evasion, money laundering, fraud, corruption, and violation of sanctions.

Iraq, Jordan, Qatar, Saudi Arabia, Sudan, United Arab Emirates, and the Ukraine. As before, these measures proxy for being exposed to certain countries rather than capture whether firms are indeed connected to implicated politicians.

We obtain daily stock prices from Datastream for all publicly listed firms. We apply standard data filters and drop penny stocks (prices below US\$0.10), stocks indicated as inactive by Datastream, stocks with only zero returns between 1 and 7 April 2016, and we exclude firms with revenues in 2015 below US\$1mn. We winsorize returns at the 1% and 99% percentiles to remove outliers (all of our results alternatively obtain without winsorization). We calculate stock returns in excess of market returns using country-specific market returns. Alphas are obtained from a 1-factor model, with March 4, 2015 to March 3, 2016 as the estimation period. We require stocks to have at least 100 observations available during that period.

The day of the data leak, April 3, 2016, falls on a Sunday, which makes our event day Monday, April 4, 2016. We aggregate returns over different event windows spanning up to 20 trading days prior to April 4, 2016, and up to 3 trading days thereafter.

Finally, we construct several variables that try to capture firms' exposure to corruption, independently of the revelations of the Panama Papers. As in Zeume (2016), *Corruption exposure* combines, for each firm, subsidiary location data from Orbis with Transparency International's Corruption Perceptions Index (CPI). In order to calculate *Corruption exposure*, for each firm, we multiply the percentage of the firm's subsidiaries headquartered in each country in 2015 by the CPI of that country in 2015. We then sum over all of a firm's products to obtain that firm's corruption exposure. The resulting sum is divided by 10 (for legibility) and subtracted from 10 (the upper limit of the CPI) so that *Corruption exposure* is increasing in firms' exposure to high-corruption regions. *High Corruption Exposure* and *High Corruption*

Rank are indicator variables equal to 1 if a firm's Corruption Exposure is strictly above its headquarter country's corruption level and rank, respectively. [9]

2.2 Summary statistics

Table 1 provides summary statistics for all firms in our sample. Panel A shows equal-weighted returns for several event windows around April 4, 2016, the first trading day after the Panama Papers data leak became public knowledge. Leading up to the event, during the [-20;-3] window, firms experience an average positive return of 1.11%, or 0.81%, controlling for local market returns. Around the event, for the [-2;3] window, firms experience positive returns of 0.45% and 0.11%, respectively.

-- Table 1 about here --

Roughly 1,100 firms, or 4.1% of the sample, have at least one subsidiary in the Panama Papers tax havens, many of them in the British Virgin Islands (2.9%) and Panama (1.1%). Around 1,600 firms, 5.9% of the sample, have subsidiaries in countries whose government officials were immediately implicated by the Panama Papers leak, many of them in Argentina (2.5%) and the United Arab Emirates (3%). A subsample of firms have both subsidiaries in a range of Panama Papers tax havens and in more than one politically implicated country; we do not yet analyze this in detail. In terms of exposure to perceivably corrupt countries, about 22% of firms are exposed to countries with higher corruption levels than their headquarter country.

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[9] Both dummy variables are not 50% in mean because a large fraction of firms from any given country do not have foreign subsidiaries; these are classified as *below median*. A few firms miss a *Corruption exposure* measure because the Corruption Perception Index is not available for any of their subsidiaries.

3. The Market Reaction to the Panama Papers Data Leak

In this section we analyze the market response to the Panama Paper data leak. Our event date is Monday April 4, 2016, the first trading day after media around the world began reporting on the data leak. To account for the possibility that information became available prior to the weekend, and to accommodate that the unprecedented scope of the leaked data became apparent over several days, we consider several alternative event windows, around April 4, 2016.

3.1 All havens implicated by the Panama Papers

Panel A of Table 2 shows regressions of the dependent variable, cumulative stock returns around disclosure of the Panama Papers, on firms' exposure to tax havens implicated by the Panama papers. *Has Panama Papers Exposure* is an indicator variable equal to 1 if a firm has at least one subsidiary in any of the four main tax havens used by Mossack Fonseca. All specifications include *country x industry* fixed effects; industries are Fama-French 49.

--- Table 2 about here ---

First, Columns 1 and 2 show that firms with subsidiaries in havens implicated by the Panama Papers did *not* have significantly higher or lower returns over event windows that exclude the event day, alleviating concerns about information leaks prior to the event or firms with exposure always earning lower returns.

Second, the firms with Panama Papers Exposure have negative returns for all event windows that include April 4, 2016, event day zero. For a standard event window [-1;3], which comprises 5 trading days (Friday April 1 to Thursday April 7), such firms have 0.75% lower returns than same-country, same-industry firms. Most of the effect occurs during event days 0 and 1 (0.53%, Column 9), while later event days, +2 and +3 are not significantly different (Columns 10 and 11). Results for a range of event windows before and after April 4, 2016,

confirm these findings. However, given that we study a relatively recent event, and our data end on April 7, we cannot yet make statements about whether the effect beyond April 7 persists, increases, or reverts, and how this may differ between firms across countries.

Next, we analyze abnormal returns. First, we deduct from stock returns the market return of firms' local market indices. While our regressions include *country x industry* fixed effects, one concern could be that firms with exposure to the Panama Papers tend to operate in markets that had lower returns for unrelated reasons around April 4, 2016. Panel B of Table 2 shows that our results are robust to deducting market returns.

Another possible concern is that firms with Panama Papers exposure tend to have higher market risk, and that high-beta firms have lower returns during the event period. We therefore calculate cumulative abnormal returns (alphas) over all respective event windows. The economic magnitude is slightly reduced, but we continue to find significantly negative abnormal returns around the event day. For the [-1;3] window, firms with subsidiaries in tax havens implicated by Mossack-Fonseca's activity have 0.5% lower returns.

3.2 Haven-by-haven results

We have so far shown that firms with subsidiaries in Panama, the British Virgin Islands, the Bahamas, and the Seychelles have more negative returns around April 3, 2016. Next, we distinguish firms by their exposure to individual havens. One purpose of this analysis is to understand whether benefits reaped from activities in certain havens, such as havens considered to be more secretive or more dubious, are more adversely affected by the leakage.

Table 3 repeats our previous analysis for the [-1;3] event window, using stock returns (Columns 1 to 6) and alphas (Columns 7 to 12), for the four tax havens.

--- Table 3 about here ---

Returns are negative and significant for firms with subsidiaries in Panama, the British Virgin Islands, and the Bahamas. The effect is not different from zero for firms with subsidiaries in the Seychelles. These results may help interpretation of what types of benefits of offshore vehicles the data leak is affecting. The Bahamas and Panama, for instance, appear on a list of fifteen countries regarded as uncooperative in the fight against money laundering compiled by the *Financial Action Task Force* in 2000. The Seychelles, in the meantime, are not consistently considered a tax haven. Notably, they are neither on the OECD Gray List (as of August 17, 2009), nor on the list of havens of a draft of the US 'Stop Tax Haven Abuse Act' (S.1533; not enacted); both these lists are commonly used to classify tax havens in the literature.

4. Exposure to Perceivably Corrupt Regions

In the previous section, we have focused on the tax haven side, and shown that firms exposed to tax havens used by Mossack Fonseca experience significantly negative returns around the data leak. We now turn our attention to a second aspect of the Panama Papers. Around the leak, news stories disclosed links between offshore accounts and high-ranked government officials, including, for instance, the Prime Minister of Iceland. Ultimately, we seek to establish a link between companies' use of offshore subsidiaries and governments implicated by the Panama Papers. Specifically, firms may have used offshore accounts to bribe foreign government officials. The Panama Papers data leak should then lead to a decline in firm value for such firms, since discovery of bribery can be associated with heavy fines in many jurisdictions and reputation costs (see e.g. Karpoff, Lee, and Martin 2015, Zeume 2016).[10]

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[10] Examples of regulation making bribery of public government officials illegal includes the Foreign Corrupt Practices Act (USA; 1977) and the UK Bribery Act (United Kingdom; 2010); moreover, most OECD countries have signed the OECD Anti-Bribery Convention and thereby agreed to adopt some of its features into national regulation.

Table 4 presents our results. In Panel A, we show that firms exposed to countries perceived to be more corrupt have more negative returns around the data leak event. Specifically, firms that, on average, operate subsidiaries in countries perceived to be more corrupt than their home country have 0.31%-0.34% lower returns than same-industry same-country firms with no such incorporated entities (Columns 1 and 3). An alternative continuous measure of Corruption exposure shows a similar negative, although statistically insignificant, coefficient.

-- Table 4 about here --

Further, in Panel B, we test whether firms with exposure to countries where high-ranked government officials were directly implicated by the leak are more negatively affected, and find this to be the case. Firms exposed to these ten countries had 0.65% lower returns (Column 1).

5. Financing Corruption?

Our last test is aimed at understanding whether investors perceive firms to have used offshore accounts to obtain political favors, such as government contracts or licenses. Lacking direct evidence on bribe payments and contract/licence allocation procedures, we provide indirect evidence by focusing on firms exposed to both tax havens and countries whose high-ranked officials were directly implicated by the Panama Papers leak.

If firms created value by paying off politicians through offshore accounts, and if the leak is perceived to destroy such value, firms with exposure to both tax havens and implicated countries should have more negative returns around April 4, 2016. Possible channels for such negative effect include (i) legal fines for observable bribery (e.g. under the US FCPA or the UK Bribery Act) and (ii) an increase in the cost of using offshore accounts to pay off politicians, resulting in a lower probability of obtaining licenses or winning government contracts.

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Table 4 presents the results of our tests. In Panel A, we do find that firms exposed both to havens implicated by the Panama Papers and to countries perceived to be more corrupt have 0.35%-0.36% lower returns (Columns 2 and 4). The continuous *Corruption exposure* measure confirms this result (Column 6). In Panel B, we repeat this analysis for each country whose high-ranked officials were implicated by the leak. Firms with exposure to any of the four Panama Papers havens and nine of the ten countries directly implicated by the leak have more negative returns (Georgia is the exception). The effect is statistically significantly negative for Iceland, Jordan, Qatar, the Sudan, and the United Arab Emirates. Economically, firms exposed to Iceland (whose Prime Minister was directly implicated by the leak) and with subsidiaries in any of the Panama Papers havens have 1.4% lower returns than same-country same-industry firms.

6. Conclusion

This paper documents that the Panama Papers data leak is perceived to destroy significant value of corporate offshore activities. Offshore vehicles create shareholder value, for example because they can be used to pay bribes or evade taxes, and the data leak appears to have significantly reduced the expected benefits of offshore structures.

Our event study estimates of decreases in shareholder value are economically large and statistically significant; at the same time, because more information from the leaked data becomes available over time, we caution from interpreting the economic magnitudes documented (our analysis ends on April 7, 2016). A future version of this paper will include an extended analysis of the detailed data contained in the Panama Papers and made available by the ICIJ. The ICIJ data allow us to connect firms, individuals, politicians, and countries, and cover aspects of suspected tax evasion, money laundering, fraud, corruption, and violation of sanctions.

Appendix - Variable Definitions and Data Sources

Variable	Description	Source
Return [a;b]	The natural logarithm of (the closing price of day *b* divided by the closing price of day *a-1*). *a* and *b* are relative to April 4, 2016 (a Monday), the first trading day after April 3, 2016 (a Sunday), which is when the press reported about the Panama Papers.	Datastream
Stock - Market Return [a;b]	A firm's *Return [a;b]* less the retrun of the major stock market index of that firm's headquarter country over the same period.	Datastream
Alpha [a;b]	The residual of a 1-factor CAPM. Estimation period is the calendar year ending on March 4, 2016 and beginning on March 3, 2015. Inputs are returns of stocks, their local main indices, and the risk-free rate.	Datastream
Has Panama Papers Exposure	Dummy variable equal to 1 if a firm has at least one subsidiary in any of the four main tax havens used by Mossack Fonseca (Panama, British Virgin Islands, Bahamas, Seychelles).	Orbis 2015
Has Panama Subsidiary	Dummy equal to 1 if a firm has at least one subsidiary in Panama.	Orbis 2015
Has British Virgin Island Subsidiary	Dummy equal to 1 if a firm has at least one subsidiary in the British Virgin Islands.	Orbis 2015
Has Bahamas Subsidiary	Dummy equal to 1 if a firm has at least one subsidiary in the Bahamas.	Orbis 2015
Has Seychelles Subsidiary	Dummy equal to 1 if a firm has at least one subsidiary in the Seychelles.	Orbis 2015
Corruption Exposure (0=low;10=high)	Combines, for each firm, subsidiary location data from Orbis with Transparency International's Corruption Perceptions Index (CPI). For each firm, *Corruption exposure* is the sum—over all countries—of the percentage of the firm's subsidiaries headquartered in the focal country in 2015 multiplied b*y* the CPI of that country in 2015. The resulting sum is divided by 10 (for legibility) and subtracted from 10 (the upper limit of the CPI) so that *Corruption exposure* is increasing in firms' exposure to high-corruption regions.	Orbis, Transparency International
High Corruption Exposure	Dummy equal to 1 if firm's Corruption Exposure is above headquarter country's Corruption Perception Index.	Transparency International
High Corruption Rank	Dummy equal to 1 if firm's Corruption Exposure Rank is above headquarter country's Corruption Perception Index.	Transparency International
Has 1st Layer Subsidiary	Dummy variable equal to 1 if a firm has at least one subsidiary in any of the countries whose presidents or major officials were implicated by the Panama Papers (Argentina, Georgia, Iceland, Iraq, Jordan, Qatar, Saudi Arabia, Sudan, United Arab Emirates, Ukraine).	Orbis 2015
Has *Country* Subsidiary	Dummy variable equal to 1 if a firm has at least one subsidiary in *Country*.	Orbis 2015

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Table 1 Summary statistics

Panel A: Equally Weighted Returns					
Days Relative to Event	First Day	Last Day	Cumulative raw return	Cumulative market-adjusted return	Cumulative Alpha (one-factor model)
[-20;-3]	March 7, 2016	March 30, 2016	1.11%	2.22%	0.81%
[-10;-3]	March 21, 2016	March 30, 2016	0.00%	0.50%	-0.11%
[-2;3]	March 31, 2016	April 7, 2016	0.45%	-1.24%	0.37%
[-2;2]	March 31, 2016	April 6, 2016	0.39%	-1.15%	0.32%
[-1;2]	April 1, 2016	April 6, 2016	0.17%	-1.14%	0.11%
[-1;1]	April 1, 2016	April 5, 2016	0.07%	-1.31%	0.03%
[0;1]	April 4, 2016	April 5, 2016	0.20%	-0.50%	0.15%
[2;3]	April 6, 2016	April 7, 2016	0.11%	-0.67%	0.08%
[3;3]	April 7, 2016	April 7, 2016	0.16%	0.03%	0.13%

Panel B: Dependent Variables and Controls (Firm-Level)								
Variable	Mean	SD	P10	P25	P50	P75	P90	N
Cumulative raw return [-1;3] (%)	-0.94	4.81	-6.42	-3.50	-0.89	1.32	4.50	26,525
Cumulative MA return [-1;3] (%)	0.74	4.60	-4.52	-1.78	0.62	3.07	6.07	26,525
Cumulative Alpha [-1;3] (%)	-1.41	1.67	-3.58	-2.33	-1.17	-0.29	0.36	26,525
Has Panama Papers Exposure (%)	4.1	19.9	0	0	0	0	0	26,525
Has Panama Subsidiary (%)	1.1	10.6	0	0	0	0	0	26,525
Has BVI Subsidiary (%)	2.9	16.9	0	0	0	0	0	26,525
Has Bahamas Subsidiary (%)	0.4	6.5	0	0	0	0	0	26,525
Has Seychelles Subsidiary (%)	0.1	3.5	0	0	0	0	0	26,525
High Corruption Exposure (%)	22.2	41.6	0	0	0	0	100	26,429
High Corruption Rank (%)	28.9	45.3	0	0	0	100	100	26,429
Corruption Exposure (0=low;10=high)	3.86	8.30	6.30	5.60	3.50	2.40	2.00	26,429
Has 1St Layer Subsidiary (%)	5.9	23.5	0	0	0	0	0	26,525
Has Iceland Subsidiary (%)	0.2	3.9	0	0	0	0	0	26,525
Has Argentina Subsidiary (%)	2.5	15.8	0	0	0	0	0	26,525
Has Georgia Subsidiary (%)	0.1	3.8	0	0	0	0	0	26,525
Has Iraq Subsidiary (%)	0.2	4.2	0	0	0	0	0	26,525
Has Jordan Subsidiary (%)	0.3	5.6	0	0	0	0	0	26,525
Has Qatar Subsidiary (%)	0.5	7.4	0	0	0	0	0	26,525
Has Saudi Arabia Subsidiary (%)	1.2	10.9	0	0	0	0	0	26,525
Has Sudan Subsidiary (%)	0.1	3.2	0	0	0	0	0	26,525
Has UAE Subsidiary (%)	3.0	16.9	0	0	0	0	0	26,525
Has Ukraine Subsidiary (%)	1.5	12.3	0	0	0	0	0	26,525

Table 2: Cumulative Stock Returns and Subsidiaries in Tax Havens Implicated by the Panama Papers

Regressions of the dependent variable, cumulative stock returns around leakage of the Panama Papers, on firms' exposure to tax havens implicated by the Panama papers. Cumulative stock returns over days [a;b] are those obtained between closing of day a-1 and closing of day b. Days a and b are relative to April 4, 2016 (a Monday), the first trading day after April 3, 2016 (a Sunday), which is when the press started reporting about the Panama Papers. Panel A uses raw stock returns. Panel B uses stock returns less local market returns. Panel C uses alphas obtained from a 1-factor model (described in the Appendix). *Has Panama Papers Exposure* is an indicator variable equal to 1 if a firm has at least one subsidiary in any of the four main tax havens use by Mossack Fonseca (Panama, British Virgin Islands, Bahamas, Seychelles). All specifications include *country x industry* fixed effects; industries are those in the Fama-French 49 industry classification. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Event Window	(1) [-20;-3]	(2) [-10;-3]	(3) [-2;3]	(4) [-2;2]	(5) [-1;3]	(6) [-1;2]	(7) [-1;1]	(8) [0;1]	(9) [2;3]	(10) [3;3]
Panel A: Cumulative raw returns										
Has Panama Papers Exposure	0.279	-0.039	-0.789***	-0.693***	-0.748***	-0.651***	-0.682***	-0.529***	-0.098	-0.100
	(0.53)	(-0.17)	(-4.04)	(-4.51)	(-4.11)	(-4.63)	(-3.89)	(-5.54)	(-1.21)	(-1.15)
Country x Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	26441	26211	26525	26316	26525	26237	25489	24295	25476	22914
Adj. R2	0.131	0.071	0.124	0.190	0.121	0.184	0.196	0.176	0.136	0.226
Panel B: Cumulative market-adjusted returns										
Has Panama Papers Exposure	0.203	0.008	-0.666***	-0.583***	-0.638***	-0.555***	-0.612***	-0.511***	-0.059	-0.089
	(0.45)	(0.04)	(-3.88)	(-4.43)	(-3.69)	(-4.06)	(-3.59)	(-5.11)	(-1.04)	(-0.98)
Country x Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	26441	26211	26525	26316	26525	26237	25489	24295	25476	22914
Adj. R2	0.102	0.055	0.097	0.099	0.103	0.107	0.099	0.072	0.062	0.052
Panel C: Cumulative abnormal returns (one-factor model)										
Has Panama Papers Exposure	0.232	-0.032	-0.560***	-0.518***	-0.500***	-0.457***	-0.523***	-0.291***	0.001	-0.052
	(0.96)	(-0.30)	(-3.20)	(-2.69)	(-3.45)	(-2.80)	(-3.32)	(-5.04)	(0.03)	(-0.94)
Country x Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	26441	26211	26525	26316	26525	26237	25489	24295	25476	22914
Adj. R2	0.095	0.049	0.085	0.099	0.091	0.104	0.094	0.079	0.042	0.054

Table 3: Cumulative Stock Returns and Individual Subsidiaries in Tax Havens Implicated by the Panama Papers

Regressions of the dependent variable, cumulative stock returns around leakage of the Panama Papers, on firms' exposure to tax havens implicated by the Panama papers. Cumulative stock returns are calculated as described in Table 2. Columns (1)-(6) use raw stock returns. Columns (7)-(12) uses alphas obtained from a 1-factor model (described in the Appendix). *Has ... Subsidiary* is an indicator variable equal to 1 if a firm has at least one subsidiary in any of the respective four main tax havens used by Mossack Fonseca (Panama, British Virgin Islands, Bahamas, Seychelles). All specifications include *country x industry* fixed effects; industries are those in the Fama-French 49 industry classification. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | (1) [-1;3] | (2) [-1;3] | (3) [-1;3] | (4) [-1;3] | (5) [-1;3] | (6) [-1;3] | (7) [-1;3] | (8) [-1;3] | (9) [-1;3] | (10) [-1;3] |
Event Window										
Has Panama Subsidiary	-0.808** (-2.22)				-0.612 (-1.61)	-0.681*** (-3.24)				-0.569*** (-3.18)
Has BVI Subsidiary		-0.723*** (-4.30)			-0.641*** (-3.84)		-0.448*** (-3.24)			-0.385*** (-3.05)
Has Bahamas Subsidiary			-1.321*** (-4.66)		-1.018*** (-3.54)			-0.782** (-2.57)		-0.547** (-2.17)
Has Seychelles Subsidiary				-0.067 (-0.09)	0.198 (0.28)				-0.278 (-0.80)	-0.121 (-0.44)
Country x Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	26525	26525	26525	26525	26525	26525	26525	26525	26525	26525
Adj. R2	0.121	0.121	0.121	0.120	0.121	0.091	0.091	0.091	0.091	0.091

Table 4: Cumulative Stock Returns and Exposure to Perceivably Corrupt Countries/Officials

Regressions of the dependent variable, cumulative stock returns around leakage of the Panama Papers, on firms' exposure to tax havens implicated by the Panama papers anf firms' exposure to other countries. Cumulative stock returns are alphas obtained from a 1-factor model (described in the Appendix). *Has Panama Papers Exposure* is an indicator variable equal to 1 if a firm has at least one subsidiary in any of the four main tax havens use by Mossack Fonseca (Panama, British Virgin Islands, Bahamas, Seychelles). In Panel A, *Corruption Exposure* combines, for each firm, subsidiary location data from Orbis with Transparency International's Corruption Perceptions Index (CPI). For each firm, *Corruption exposure* is the sum—over all countries—of the percentage of the firm's subsidiaries headquartered in the focal country in 2015 multiplied b*y* the CPI of that country in 2015. The resulting sum is divided by 10 (for legibility) and subtracted from 10 (the upper limit of the CPI) so that *Corruption exposure* is increasing in firms' exposure to high-corruption regions. *High Corruption Exposure* is an indicator variable equal to 1 if a firm's Corruption Exposure is above its headquarter country's corruption level. *High Corruption Exposure Rank* is an indicator variable equal to 1 if the average corruption rank of a firm's subsidiaries is above the corruption rank of its headquarter country. In Panel B, *Has Subs. in Ctr* in an indicator variable equal to one if a firm has a subsidiary in any of the indicated countries (Columns (3)-(12)m or in all of them (Columns (1)-(2). All specifications include *country x industry* fixed effects; industries are those in the Fama-French 49 industry classification. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Exposure to Perceivably Corrupt Countries						
Event Window	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]
High Corruption Exposure	-0.309***	-0.270***				
	(-4.36)	(-4.66)				
High Corruption Exposure Rank			-0.340***	-0.301***		
			(-4.67)	(-5.07)		
LN(Corruption Exposure)					-0.136	-0.178
					(-0.43)	(-0.62)
(Corruption Exp. Measure) x (Has Panama Papers Exposure)		-0.361*		-0.348**		-0.124***
		(-1.92)		(-2.02)		(-3.54)
Country x Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	26429	26429	26429	26429	26429	26429
Adj. R2	0.091	0.091	0.102	0.102	0.091	0.091

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel B: Exposure to Countries with Presidents or High-Ranked Government Officials Implicated by the Panama Papers												
Event Window	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]	[-1;3]
Country	1st Layer	1st Layer	Iceland	Argentina	Georgia	Iraq	Jordan	Qatar	S. Arabia	Sudan	UAE	Ukraine
Has Subs. in Ctr	-0.649***	-0.572***	0.043	-0.669**	-1.162***	-0.962***	-0.328	-0.481**	-0.747***	-0.474	-0.427***	-0.778***
	(-3.66)	(-4.06)	(0.23)	(-2.56)	(-4.10)	(-2.79)	(-1.55)	(-2.51)	(-3.58)	(-1.64)	(-3.77)	(-5.51)
(Has Subs. in Ctr) x (Has Panama Papers Exposure)		-0.303	-1.379***	-0.208	0.347	-0.169	-0.626*	-0.454*	-0.211	-1.196***	-0.375**	-0.181
		(-1.58)	(-3.50)	(-1.19)	(1.04)	(-0.42)	(-1.74)	(-1.87)	(-1.35)	(-3.31)	(-2.02)	(-0.61)
Country x Ind. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	26525	26525	26525	26525	26525	26525	26525	26525	26525	26525	26525	26525
Adj. R2	0.091	0.091	0.091	0.091	0.091	0.091	0.091	0.091	0.091	0.091	0.091	0.091