# How Do Foreign Firms Manage Their Exposure to United States Portfolio Flows?

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*From 1990 to 2013, US portfolio flows to foreign stocks and bonds nearly quadrupled. Across 44 countries, I show that non-US firms with stock returns that are more sensitive to these cross-border flows are more likely to sell stocks and bonds, but display lower investment and employment growth rates. Using large natural and industrial disasters, I document that after deadly disasters occur, firms that are more sensitive to US flows are less likely to tap capital markets and tend to cut their real behaviors at higher rates, as would be expected if capital flight could potentially spill over to the real economy.*

## INTRODUCTION

Residents of the United States supplied an average of USD 5.29 trillion in foreign portfolio investment to the world from 2000 to 2013, making them the "largest" group of foreign portfolio investors in the world.[1] Firms need capital to grow, and since people tend to hold local stocks and bonds (Lewis, 2011), these portfolio flows can increase firms' capital supply, enable better risk-sharing across investor bases (Obstfeld, 1994), and bring tighter monitoring to firms' insiders (i.e., large shareholders or managers, see, Stulz, 2005), all of which can lead to real growth in the recipient economies; however, one concern commonly raised by managers and policy-makers is that when non-local investors take their money elsewhere, their capital flight can spill over to the real economy (Obstfeld and Taylor, 2017).[2]

In this paper, I show that non-US firms with stock returns that are more sensitive to US investors' portfolio flows to their local economy are more likely to sell stocks and bonds, but display lower investment and employment growth rates. To identify how exposure to US portfolio flows affects firms' financing and real behaviors, I study how firms respond to large natural disasters and industrial accidents in their home countries. I find that in the year after the disasters, firms with higher exposure to US cross-border flows are less likely to tap capital markets and tend to cut their investing and hiring at higher rates. The cuts in firms' real behaviors are driven by firms that had higher leverage prior to the disasters. I show that during the natural disaster years, non-US firms that are more sensitive to US portfolio flows earns lower stock returns during the months in which US portfolio investors exit their country's capital market (-2.451%, t=-2.870) and not vice versa (0.674%, t=1.483), as would be expected if non-local investors taking their money elsewhere could potentially spill over to the real economy.

The results are surprising because all the firms in my sample are publicly listed, have liquid stock returns, and over 80% of the companies in my sample report no US sales over the sample period. So why might firms behave this way? First, from 1990 to 2013, US portfolio flows to foreign stocks and bonds nearly quadrupled.3 Given this extensive growth in US portfolio investment to foreign markets, we would expect non-US firms with higher exposure to US cross-border flows to perform better as US portfolio investors increase the capital that they supply to the firms' local markets, and vice versa. They do. That is using Fama MacBeth (1973) regressions of monthly firm-level stock returns, I show that non-US firms that have higher exposure to US flows have higher monthly returns when US portfolio investors are net buyers of their country's stocks and bonds (0.268%, t=3.221), and lower returns when US investors are net sellers (-0.685%, t=-6.703, see, Appendix Table A.1, Panel A). Second, when uncertainty rises, non-local investors tend to run (see, for example, "sudden stops" in Forbes and Warnock, 2012).[4] The main idea can be captured in Figure 1, which plots cumulative US flows to the 44 countries in my sample from 1990 to 2013 and the year-end value of the Chicago Board of Exchange VIX index, a common measure of uncertainty (Forbes and Warnock, 2012; Giannetti and Laeven, 2012, 2015). Given their strongly negative correlation (-0.587), we would expect increases in uncertainty to be challenging for non-US firms that are sensitive to US portfolio flows. They are. That is, using firm-level Fama MacBeth (1973) regressions, I show that non-US firms that have higher exposure to US investors' country-level flows have poorer stock price performance when uncertainty rises, that is, the months after the VIX goes up (-0.241%, t=-2.302), but not vice versa (0.021%, t=0.187, see, Appendix Table A.1, Panel B).

Importantly, all the above stock return results are for non-US firms with liquid stocks and are robust to directly controlling for liquidity, volatility, size, and so forth. The main takeaway is that non-US firms' exposure to US investors' country-level portfolio flows can influence firms' stock prices. While the idea that portfolio flows can affect asset prices across countries is not new (see, for example, Froot and Ramadorai, 2008; Ferreira and Matos, 2008; Jotikasthira, Lunbald, and Ramadorai, 2012); what is new to this study, is the insight that bearing exposure to ebbs and flows in non-local investors' willingness to provide capital to a local economy can have real effects on firms' corporate activities.

I find that non-US firms' exposure to US portfolio flows strongly influences firms' capital-raising and real decisions, but in different directions (Table 2). I estimate that for the firms in my sample, a one standard deviation increase in non-US firms' sensitivity to US cross-border flows is associated with an increase the probability of issuing a stock or a bond of 3.01% and 3.08%, respectively. To place that in perspective, the unconditional probability that a firm in my sample issues a stock or a bond is 8.7% and 4.8%, respectively. When I examine the association between firms' exposure and their investment (the sum of capital expenditure and research development expense, relative to lagged total assets) and employment growth (the natural log of total employees, relative to lagged total employees), I find the complete opposite. I estimate that a one standard deviation increase in non-US firms' sensitivity to US portfolio flows is associated with a reduction in firms' investment and employment growth of -0.348% (t=-6.70) and -0.515% (t=-3.24), respectively. For the typical firm in my sample, the reductions in investment and employment growth equal cuts of -10.545 and -57.227 percentage points relative to their medians. I show that the capital-raising and real business behaviors are robust to controlling for investment opportunities, real GDP growth, and stock market to GDP ratios, and can be found among firms that report no US sales over the sample period, suggesting that results are not driven by drastic differences in economic and financial development or firms' specific US economic connections. To my knowledge, these findings are new to the literature.

While the above results are illustrative, they are not causal. To identify how non-US firms' exposure to US portfolio flows affects firms' financing and real behaviors, I focus on periods when firms' sensitivity to their adjustment costs would rise, but the capital supplied by non-local portfolio investors would not. Specifically, from 1990 to 2013, I create a panel of large natural disasters and industrial accidents (i.e., disasters that have killed at least 100 people) for each country-year. I focus on the disasters because the real options literature shows that uncertainty can lead firms to become more sensitive to their adjustment costs (Bernanke, 1983; McDonald and Siegel, 1986), and as mentioned above, non-US firms that are more sensitive to US cross-border flows tend to have poor stock market performance when uncertainty increases. Following this intuition, I use the disasters as exogenous, random, local uncertainty shocks to test whether differences in non-US firms' exposure to US portfolio flows lead to differences in firms' capital raising (likelihood of issuing stocks and bonds), investment, employment, and stock return performance.

My hypothesis, that non-US firms' exposure to US portfolio flows can intensify firms' financing frictions, has three main predictions, all of which I find to be supported in the data. First, non-US firms that have higher exposure to US flows are more likely to issue stocks and bonds. Yet, after large disasters occur, they do the opposite (Table 3). Using a panel of public firms' seasoned stock issuances, I estimate the effect of exposure to US cross-border flows on the likelihood that non-US firms issue stocks in response to the large disasters. I also do the same with firms' bond issuances. I find that firms with higher sensitivity to US flows are significantly less likely to issue stocks the year after large natural disasters, and not the year before. I find a similar pattern when I examine the timing of firms' stock and bond issuances around large industrial accidents. The results are surprising because all the firms in my sample are publicly listed, and the firms that are more sensitive to US cross-border flows are only less likely to issue stocks and bonds after the disasters, and not before. While firms can avoid capital markets for many reasons, the distinct patterns in firms' stock and bond issuances suggests that differences in firms' exposure to cross-border portfolio flows can lead to differences in how firms raise capital in response to large disasters.

Second, if non-US firms' sensitivity to US portfolio flows intensifies financing frictions in firms' real corporate decisions, we would expect non-US firms with higher exposure to US cross-border flows to cut their real business activities at higher rates. To test this hypothesis, I use firm-fixed effects and compare whether differences in exposure lead to differences in firms' total investment and employment growth (Table 4). Consistent with my hypothesis, I find that non-US firms with higher exposure to US flows cut their total investment at higher rates after natural disasters (-0.18%, t-stat=-2.36) and reduce their employment growth at higher rates after industrial disasters (-1.43%, t-stat= -2.52). Because leverage can increase the likelihood that firms face the costs associated with financial distress, we would expect firms with higher leverage to find increased financing frictions more challenging. To test this hypothesis, I group firms by their leverage relative to their country-medians the year prior to the disasters. Consistent with non-US firms' exposure amplifying firms' financing frictions, I find that the drops in investment and employment are driven by firms that have higher leverage prior to the disasters (Table 4, Panel B).

Third, I find that, during disaster years, the relation between non-US firms' exposure to US cross-border flows and firms' stock returns can grow asymmetric. Using monthly stock returns, I estimate firm-level Fama MacBeth (1973) regressions (Table 5). The data show that during large natural disaster years, non-US firms with higher sensitivity to US cross-border flows earn lower returns during the months in which US portfolio investors are net sellers of their country's stocks and bonds, but not vice versa. These results are not explained by differences in firms' stock-return liquidity, volatility, or other standard return characteristics. When I examine industrial accidents, I find no significant association between non-US firms' exposure to US portfolio flows and firms' stock returns during the disaster years, even when I condition the sample on months in which US portfolio investors are net buyers or sellers of a country's stocks and bonds. While the industrial disaster results do not support my hypothesis, the natural disaster findings suggest that during disaster periods, non-local investors taking their money elsewhere can have an asymmetric effect on firms' stock performance.

All in all, my findings show how non-US firms' exposure to US portfolio flows can intensify firms' financing frictions during disaster periods. I perform placebo tests to show that non-US firms' exposure to US flows does not randomly lead firms to avoid capital markets or further reduce their investing and hiring (Table 6). The placebo results suggest that, as non-US firms respond to disasters, firms' exposure to US cross-border flows can influence their capital-raising and real business decisions.

My paper presents a unique contribution to the literature. In addition to documenting how sensitivity to cross-border flows relates to firms' real behaviors, I identify a distinct setting to study how exposure to foreign financial flows affects firms' capital raising and show how these amplified financing frictions lead to patterns in firms' investment and hiring behaviors. Across multiple forms of capital-raising, real behaviors, and different disasters treatments, I show that firms around the world behave as if their exposure to non-local portfolio flows can intensify their financing frictions. I add to an extensive literature that examines how capital flows can spillover to the real economy (Forbes, 2007; Alfaro, Chari, and Kanczuk, 2017; Obstfeld and Taylor, 2017) and a growing literature that explores how disasters impact economies at the microeconomic level (Bloom and Davis, 2013; Cavallo, Cavallo, and Rigobon, 2014).

The rest of the paper proceeds as follows: Section 2 describes the data and methodology I use to measure non-US firms' exposure to US portfolio flows. Section 3 presents my empirical design. Section 4 presents my main findings on firms' capital-raising, investment, and employment behaviors. Section 5 examines robustness checks. I conclude in Section 6.

## DATA AND METHODOLOGY

This paper relies on data from five main sources: The *Treasury International Capital Reporting System (TIC)* survey conducted by the US Department of Treasury and the US Federal Reserve Board to measure US portfolio flows; the Center for Research on the Epidemiology of Disasters (CRED) to identify natural disasters and industrial accidents; Worldscope and Datastream to measure accounting and return data; SDC to identify firm-level stock and bond issuance; and the World Bank to measure macroeconomic conditions. In this section, I describe these data sources and provide summary characteristics in Table 1. Further details on all the variables are provided in the data appendix.

### US Portfolio Flows Data

I follow the methodology described in Hau and Rey (2004) to measure US portfolio flows to foreign countries. I collect US investors' monthly stock and debt flows from January 1990 to December 2013 from the *TIC* database. The data are from a publicly available, legally required, and strictly enforced survey. Respondents report total purchases and sales of non-domestic stocks and bonds that occurred during the month. In the database, transactions are aggregated to market-wide calendar-month flow measures. All transactions are presented in USD. To compute $\text{USFlow}_{US\rightarrow J,t}$, I take the sum of US net purchases of foreign stocks and bonds of country *j* at time *t,* scaled by the sum of gross bilateral stock and debt transactions between residents of the United States and country *j* at time *t.* I use monthly $\text{USFlow}_{US\rightarrow J,t}$ to estimate firms' exposure to US portfolio flows, which I detail in the next section. I construct annual $\text{USFlow}_{US\rightarrow J,t}$ to measure US portfolio flows for the calendar year and use the annual measure as a control variable in my empirical tests.

To construct my sample, I focus on the 44 countries that, according to the S&P Global Factbook, had the largest stock market capitalizations outside of the United States in the year 2000, near the midpoint of my sample period. My sample countries include: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, the Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Malaysia, Mexico, Morocco, the Netherlands, New Zealand, Norway, Pakistan, Peru, the Philippines, Poland, Portugal, the Russian Federation, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, and the United Kingdom. The mean and median of annual $\text{USFlow}_{US\rightarrow J,t}$ in my sample are 0.747% and 0.269%, meaning, for the typical year in my sample, the portfolio flows from investors in the United States to the economies in my sample are positive. The $\text{USFlow}_{US\rightarrow J,t}$ country-medians show that flow of capital due to US portfolio investment varies widely across my sample, ranging from -1.928% in Greece to 15.676% in Belgium.

### Accounting and Return Data

I collect annual accounting data in USD on all firms from the countries in the sample from the Worldscope database from 1990 to 2013. I consider the firm's country to be the location of its primary geographic segment as reported to Datastream ("GEOGN"). To minimize the effect of outliers, I winsorize all accounting variables at the 1% level. I require firms to have total assets, price-to-book, and year-end stock market capitalization data available the previous year. I collect monthly and weekly returns in USD and local currency for each firm from Datastream from 1990 to 2013. Firms can have multiple stock listings and share types. I require the stocks in my sample to be firms' primary (ISINID: "P") and major (MAJOR: "Y") listing as identified by Datastream. I remove all over-the-counter stocks (EXNAME, "OTC") and require stocks to be identified as equities, ADRs, or GDRs (Type: "EQ," "ADR," "GDR"). The final sample contains 257,016 firm-year observations that report total assets, are matched to firms' sensitivity to US portfolio flows (i.e., USFlowBetas), and have liquid stock returns; I detail how I measure both sensitivity and liquidity in the paragraph below. The largest countries in my sample (by firm-years) are Japan (60,526), the United Kingdom (17,159), and India (16,106); the countries in my sample with the smallest amount of firm-years are Brazil (23), South Africa (81), and the Russian Federation (118).

To measure $USFlowBeta_{i,j,t}$, the sensitivity of firm $i$ in country $j$ in year $t$ to US portfolio flows, I regress each firms' monthly excess returns on US investors' monthly country-level portfolio flows. Specifically, I estimate the following regression model:

$$R_{i,j,t} - Rf_t = a_i + B_{USFlow\rightarrow J,t}\, USFlow\rightarrow J_{,t} + e_{i,t} \quad (1)$$

where $R_{i,j,t}$ is the monthly return on firm $i$ while $USFlow\rightarrow J_{,t}$ is the US portfolio flow to country $j$, in month $t$, respectively. $USFlowBeta_{i,j,t}$ are estimated using rolling 5-year (60 month) windows. The risk-free rate is the three-month US Treasury Bill downloaded via Ken French's website. Firms are required to have at least 12 non-missing monthly stock return observations. Following Ince and Porter (2006), monthly returns are set to missing when they exceed 200% and are reversed. To minimize the effect of outliers, all USFlowBetas are winsorized at the 1% level. To avoid a look-ahead bias, USFlowBetas are measured in July of year $t$ and matched with accounting data of fiscal year $t+1$. To account for stale prices, I apply the zero-return (LOT) approach of Lesmond, Ogden, and Trzcinka (1999) to firms' local-currency weekly returns, and require that firms' stock be liquid, that is, the stock traded for at least 30% the previous year. Across the firms in my sample, the mean and median USFlowBetas are 0.475 and 0.212, respectively. The country-median of the USFlowBetas range from -0.600 for China to 1.107 for Canada.

## Natural Disasters Data

I collect publicly available data on all natural disasters and industrial accidents from January of 1990 to December of 2013 from the Emergency Events Database (EM-DAT) produced by the Centre for Research on Epidemiology of Disasters (CRED) at the Catholic University of Louvain, Belgium.[5] The EM-DAT identifies the disasters' type (i.e., drought, earthquake, industrial accidents, etc.), location, total deaths, and approximate start year. For each country-year, I total the deaths due to natural disasters that have occurred within that calendar year. For my sample, the mean and median mortalities caused by natural disasters are 1,223 and 23 people, respectively. The country-median mortalities caused by natural disasters vary widely as well, ranging from zero deaths in 12 countries in my sample to over 1000 in China and India. I create $Natural_{J,t}$, which takes a value of 1 during the year in which country $j$ experiences natural disasters that have killed at least 100 people. I label firm-years in which a firm is in a country that experiences a large natural disaster as a "treated" natural-disaster year. For my sample, the average value of $Natural_{J,t}$ is 41.8%, meaning that roughly two out of five firm-years in my sample are "treated" large natural-disaster years. For the industrial disasters, I repeat the previous steps outlined above. The mean and median deaths due to industrial disasters are 118 and 14 people, respectively. As before, I define $Industrial_{J,t}$ as taking a value of 1 for years in which country $j$ has at least 100 deaths due to industrial accidents. For the firms in my sample, the average value of $Industrial_{J,t}$ is 19.1%, indicating that roughly one out of five firm-years in my sample are "treated" large industrial-disaster years.

## Stock and Bond Issuance Data

I collect secondary stock offerings and new debt issuance data from January of 1990 to December 2013 from the SDC Platinum database provided by Thomson Reuters. I match firms' stock and bond issuances to the balance sheet data from Worldscope by the ultimate parent's CUSIP, SEDOL, and ISIN. I match firms' issuances at the ultimate parent-level to account for firms' potential capital raising through offshore subsidiaries (see Bruno and Shin, 2017). For the seasoned equity offerings data, I use the SDC Platinum All Public and Private Common Stock database. The database provides the filling date and issuance date of each stock issue. Using the database, I aggregate firms' total stock proceeds for each calendar year to identify each firms' stock-issuance year, that is, the calendar years in which firms issue stock. The bond data are from the SDC Platinum New Debt Issues database; I repeat the previous steps outlined to identify firms' new-debt-issuance years. My final sample contains 22,341 stock-issuance years; I define $SEO_{i,j,t}$ as taking a value of 1 for firms *i*'s stock-issuance year; SEO has an average value of 8.7%, meaning that the unconditional probability that the firms in my sample issue a stock is roughly one out of ten. My sample has 12,343 new-debt-issuance years; $NewDebt_{i,j,t}$, which takes a value of 1 for firm *i*'s bond-issuance years, has an average value of 4.8%, indicating that the unconditional probability that the firms in my sample issue a bond nearly one out of twenty.

**Economic and Financial Development Data**

As measures of macroeconomic and financial development, I obtain real GDP growth and the ratio of each country's stock market capitalization to GDP from the World Bank. The GDP growth data are in USD year 2005 constant dollars.

## EMPIRICAL DESIGN

The main goal of this paper is to identify how non-US firms' sensitivity to US portfolio flows affects firms' behavior. My hypothesis is that non-US firms' sensitivity to US cross-border flows can impact firms' financing frictions. As discussed earlier, non-US firms that are sensitive to US flows tend to have poorer stock price performance when US investors reduce the capital that they supply to the firms' local market, and better stock price performance when US investors do the opposite (Appendix Table A.1). Motivated by this idea, my first set of tests examine whether firms' exposure to portfolio flows influences firms' financing and real business decisions.

The capital-raising dependent variables of interest are $SEO_{i,j,t}$ and $NewDebt_{i,j,t}$, the indicator variables for firms' stock and bond issuances, respectively. The real behaviors that I focus on are firms' investment, defined as the sum of firms' CAPEX and R&D expense scaled by lagged total assets, and firms' employment growth, defined as the natural log of firms' total employees scaled by lagged total employees.

To examine whether non-US firms' sensitivity to US cross-border flows impacts firms' behavior, I estimate forms of the following panel regression:

$$Outcome_{i,j,t} = a + B_1 * USFlowBeta_{i,j,t-1} + B_2 * USFlow{\rightarrow}J_{,t-1} + X_{i,j,t} + b_{i\,j,k} + c_t + e_{j,t} \quad (2)$$

where the dependent variable is the capital-raising and real behavior of firm *i* in country *j* in year *t.* Here $USFlow{\rightarrow}J_{,t}$ identifies the annual portfolio flows from investors in the United States to country *j* in year *t*; $USFlowBeta_{i,j,t-1}$ is previously defined. $X_{i,j,t}$ denotes time-varying control variables that I specify below. All the issuance regression models include country, industry, and year-fixed effects; the investment and employment models include firm and year-fixed effects denoted by the variables b and c, respectively. All standard errors are clustered by country-year.

To account for time-varying firm and market-level characteristics that can also affect firms' capital-raising behavior, I include the following control variables: $Q_{i,j,t-1}$, $Cashflow_{i,j,t-1}$, the natural log of firms' total assets in USD millions ($lnTA_{i,j,t-1}$), the natural log of firms' age ($lnFirmAge_{i,j,t}$), $Leverage_{i,j,t-1}$, $GdpGrowth_{j,t-1}$, and $MktCapGdp_{j,t-1}$, all of which are lagged by one year to reduce endogeneity and are defined in the data appendix. The controls are intended to reflect a robust set of variables that have been shown to impact firms' access to capital markets (see Parsons and Titman, 2008).

The main coefficient of interest in Equation (2) is $B_1$, the estimated coefficient on the USFlowBetas, the exposure of firm *i* to US flows to country *j* in year *t.* Since the USFlowBetas vary by firm-year and the baseline regressions include country, industry, or firm-fixed effects and all models include year-fixed effects, coefficient estimates on $B_1$ can be interpreted as identifying whether firms with higher exposure behave differently. For example, a positive (negative) sign on $B_1$ would indicate that when firms have higher exposure to US flows they are more (less) likely to sell stocks or bonds. My hypothesis predicts that for the investing and hiring equations the sign on $B_1$ would be negative, indicating that firms that are more sensitive to US portfolio flows display lower investment and employment growth. For the capital raising equations the predictions are less clear. As mentioned earlier, the firms in my sample that are more sensitive to US flows have higher stock price performance when US investors provide more capital to their local capital markets (see, Appendix Table A.1). In this sense, we would expect there to be many conditions in which being exposed to the market-wide trades of US investors would also help to relieve local firms' financing frictions.

My second set of tests exploits the disaster events, detailed earlier, to identify whether differences in non-US firms' sensitivity to US cross-border flows lead to differences in how firms behave. Specifically, I test whether differences in USFlowBetas affect how firms in disaster "treated" countries respond to disaster events:

$$Outcome_{i,j,t} = a + C_{1,2,3}*Disaster_{J,t-1,t,+1}*USFlowBeta_{i,j,t-1} + C_{4,5,6}*Disaster_{J,t-1,t,t+1} + C_7*USFlowBeta_{i,j,t-1} + C_8*USFlow{\rightarrow}J_{,t-1} + X_{i,j,t} + b_{i/j,k} + c_t + e_{j,t} \quad (3)$$

where the dependent variable is the capital-raising and real behavior of firm $i$ in country $j$ in year $t$. $Disaster_{J,t}$ identifies "treated" firm years, and all other variables are previously defined. Equation (3) adds the $Disaster_{J,t}$ and pre- and post-$Disaster_{J,t}$ indicators and their interaction with $USFlowBeta_{i,j,t-1}$ to the model estimated in Equation (2). I use the $Disaster_{J,t}$ and $Industrial_{J,t}$ events as alternative treatments. As before, all the regression models include country, industry, or firm effects and year-fixed effects; all standard errors are clustered by country-year.

The main coefficients of interest in Equation (3) are $C_1$, $C_2$, $C_3$, the estimated coefficients on the pre-, current, and post-$Disaster_{J,t}$*$USFlowBeta_{i,j,t-1}$ interaction variables. Since the baseline regressions include country, industry, or firm effects and year-fixed effects the estimated coefficients on $C_1$, $C_2$, $C_3$, can be interpreted as identifying whether firms with higher sensitivity to US cross-border flows behave differently when large disasters occur. Within this experimental framework, my hypothesis predicts that as sensitivity to foreign flows temporarily intensifies firms' financing frictions, the estimated coefficients on $C_2$ and $C_3$ will be negative, that is, firms with high $USFlowBeta_{i,j,t-1}$ will be less likely to raise capital, and reduce their real business activities at higher rates. The estimated coefficient on $C_1$ can be interpreted as identifying how firms with higher USFlowBetas behaved prior to the disaster periods. For example, an estimated coefficient on $C_1$ that is not distinguishable from zero would suggest that firms with higher exposure to US flows follow parallel trends before the disasters periods, and a negative (positive) estimated coefficient would indicate that the firms' engaged in higher (lower) levels of the capital raising, investing, or hiring, prior to the disasters.

## EMPIRICAL FINDINGS

### Does Exposure to US Portfolio Flows Influence How Firms Around the World Behave?

Table 2 reports the estimated coefficients for Equation (2). Columns (1, 2) and (3, 4) report probit regressions for firms' stock and bond issuances; Columns (5, 6) and (7, 8) report OLS regression results for firms' investment and employment growth; Columns (2, 4, 6, 8) restricts the sample to firms that report no geographic exposure to the United States. All the models include the time-varying controls, effects at the country, industry, or firm-level, and year-fixed effects. All standard errors are clustered by country-year.

The table shows that firms that are more sensitive to US portfolio flows are more likely to issue stocks and bonds and display lower investment and employment growth rates. First, in each capital-raising equation, the estimated coefficient on the USFlowBeta terms is significantly positive. Taking the standard deviation of $USFlowBeta_{i,j,t}$ (1.392) from Table 1, the economic magnitude of the relation between firms' sensitivity to portfolio flows and issuance is large. The coefficient estimates in Columns (1, 3) imply that a one standard deviation increase in $USFlowBeta_{i,j,t}$ (1.392) is associated with an increase the probability that a firms issues a stock (0.0216) or a bond (0.022) by (0.0216)*(1.392)=3.06 and (0.022)*(1.392)=3.08 percentage points, respectively. These are large increases when compared to the unconditional probability that a firm in my sample issues a stock (8.7%) or a bond (4.8%).

Second, for each of the investment and employment equations, the estimated coefficient on the USFlowBeta term is negative and significant. The coefficient estimates in Columns (5,7) imply that, all else equal, a one standard deviation increase in $\text{USFlowBeta}_{i,j,t}$ (1.392) is associated with firms reducing their total investment (-0.0017) and employment growth (-0.0020) by (-0.0017)*(1.392) = -0.2367 and (-0.0020)*(1.392) = -0.2748 percentage points, respectively. The reductions in investment and employment are large when compared to the median total investment rate and employment growth for the firms my sample, which are 3.3% and 0.9%, respectively.

One alternative explanation for the associations might be that firms with higher $\text{USFlowBeta}_{i,j,t}$ have better access to US capital markets. Under this explanation, the relations might be driven by differences in firms' sales to the United States (as in, Kang and Stulz, 1997) or by general differences in firms' US operations. To test this idea, I construct the "No US Sales" sample; I search through firms' geographic segments as reported to Worldscope to identify firms that have reported any exposure to "the Americas", "the States", "North America", or "the United States" over the sample period. I do this because firms do not consistently provide a geographic breakdown of their US sales and operations. Among the "No US Sales" sample, I find that all the relations maintain their economic and statistical significance (Columns 2, 4, 6, 8), suggesting that the results are not driven by a US operations channel, as identified by firms' reported foreign operations.

One potential explanation for the capital-raising and real behavior results might be that differences in the limits that firms place on foreign investors influence firms' financing and investing decisions. These limits could be explicit, in the sense of firms' foreign ownership structure, or implicit, in terms of firms' stock return volatility. To address this concern, in untabulated results, I augment the models estimated in Table 2 with firms' lagged foreign free-float, as reported to Worldscope, and firms' lagged stock return volatility estimated using weekly returns in USD over the previous calendar year. Within this reduced sample, I find that exposure's positive relation with firms' stock issuance and negative relations with firms' real behaviors also holds, suggesting that differences in firms' limits on foreign investors as identified by these proxies do not entirely drive the findings.

Overall, the findings in Table 2 suggest that non-US firms with higher sensitivity to US portfolio flows are more likely to sell stocks and bonds and display lower investment and employment growth rates. Given that the results control for differences in firms' investment opportunities, macroeconomic and financial conditions, and US reported operations, firms' inclination to invest less and display lower employment growth rates are supportive of my hypothesis.

**Does Exposure to US Portfolio Flows Influence Firms' Capital Raising When Disasters Strike?**

In this section, I use the disasters to test whether differences in firms' exposure to US portfolio flows lead firms to raise capital differently in response to disaster events. As discussed in Section 3, I apply Equation (3) to firms' capital-raising behaviors. The capital-raising dependent variables of interest are the indicator variables for firms' stock and bond issuance years. Within this empirical framework, my hypothesis predicts that if exposure to US flows intensifies firms' financing frictions, firms with higher sensitivity to US flows will be less likely to sell stocks and bonds.

Table 3 reports the probit regression results of Equation (3). As before, each column labels the issuance outcome of interest; Columns (1, 2, 3, 4) report treatments using natural disasters; Columns (5, 6, 7, 8) report treatments using industrial disasters; Columns (1, 3, 5, 7) report results for the full sample; Columns (2, 4, 6, 8) restricts the sample to firms that report no geographic exposure to the United States. All the models include the time-varying controls, and country, industry, and year-fixed effects; all standard errors are clustered by country-year.

The table shows that after large disasters strike, firms that are more sensitive to US portfolio flows are less likely to tap capital markets. First, the estimated coefficient on the $\text{post-Disaster}_{J,t}$* $\text{USFlowBeta}_{i,j,t}$ interactions terms are significantly negative in the three out of four the stock equations (Columns 1, 2, 6) and two out of four of the bond equations (Columns 7, 8). The estimated coefficients in Column (1) imply that in the year that follows a large natural disaster, a one standard deviation increase in $USFlowBeta_{i,j,t}$ (1.392) reduces the probability that the firms issue stocks (-0.0536) by (-0.0536)*(1.392)= -7.46 percentage points. Second, for the industrial disasters treatments, the estimated coefficients on the post-$Disaster_{J,t}$* $USFlowBeta_{i,j,t}$ interaction variables are significantly negative in three out of for equations (Columns 6, 7, 8), indicating that firms that have higher exposure to US flows are less likely to tap capital markets following large industrial disasters. In Columns (6, 8), the coefficient estimates on the post-$Disaster_{J,t}$* $USFlowBeta_{i,j,t}$ interaction term imply that after a large industrial disaster, a one standard deviation increase in $USFlowBeta_{i,j,t}$ (1.392) leads to a reduction in the probability that firms issue stocks (-0.0824) or bonds (-0.0618) by (-0.0824)*(1.392)= -11.47 and (-0.0618)*(1.392)=-8.60 percentage points, respectively.

Figures 2 and 3 plot the estimates and the 95% confidence intervals of the $Disaster_{J,t}$* $USFlowBeta_{i,j,t}$ interaction terms for the capital raising equations estimated in Columns (2, 4) and Columns (6, 8), respectively. The samples are the firms that report no geographic exposure to the United States. The plots show that across the two treatments, non-US firms that were more sensitive to US portfolio flows were less likely to tap capital markets after the disasters, and not before. The stock-issuance results suggest that non-US firms that are more sensitive to US flows followed parallel trends before the disaster, and exhibited drastically different capital-raising behavior afterwards (Columns 2, 6). The bond equations show that firms with higher exposure to US flows were more likely to sell bonds prior to the industrial disasters, but afterwards the opposite is true (Columns 4, 8).

Collectively, the findings in Table 3 highlights the effect of non-US firms' sensitivity to US cross-border flows on firms' capital-raising behaviors. While firms can avoid issuing stocks and bonds for many reasons, the distinct pattern in the timing of how non-US firms that are more sensitive to US flows are less likely to issue stocks and bonds in the year after disasters, and not the year before, support my hypothesis. Across distinct forms of capital-raising and different types of disasters treatments, non-US firms behave as if exposure to US flows can amplify their financing frictions following disaster periods.

**Does Exposure to US Flows Influence How Firms Invest and Hire When Disasters Strike?**

The approach in the previous section studied the association between firms' sensitivity to US portfolio flows and firms' capital-raising decisions. This section studies whether the financing frictions lead to systematic patterns in firms' real activities in response to large disasters. The dependent variables of interest are firms' investment and employment growth. As discussed previously, in this experiment, my hypothesis predicts that if exposure to US flows intensifies firms' financing frictions, firms with higher sensitivity to US flows will reduce their investment and employment at higher rates in response to the disasters.

Table 4 reports the OLS panel regression results of Equation (3). As before, each column labels the real activity of interest; Columns (1, 2, 3, 4) report results using large natural disasters; Columns (5, 6, 7, 8) report industrial disasters treatments; Columns (2, 4, 6, 8) restricts the sample to firms that report no geographic exposure to the United States. All models contain firm and year-fixed effects; all standard errors are clustered by country-year. In this empirical specification, the identification comes from variation *within* firms' investment and employment behaviors, that is, coefficient estimates on $Disaster_{J,t}$*$USFlowBeta_{i,j,t}$ capture how firms with higher sensitivity to US flows invest differently when large disasters occur.

The table shows that in the year after large disasters, firms with higher $USFlowBeta_{i,j,t}$ reduce their real activities at higher rates. Interestingly, the different disasters types seem to have different effects on firms' real behaviors. First, for firms' investment (Columns, 1, 2, 5, 6), the estimated coefficient for the post-$Disaster_{J,t}$*$USFlowBeta_{i,j,t}$ interaction variable is significantly negative after natural disasters (Columns 1, 2) and not significantly different zero following industrial accidents (Columns 5, 6). The coefficient estimates in Column (2) suggest that during large natural disaster years, a one standard deviation increase in $USFlowBeta_{i,j,t}$ (1.392) leads to firms reducing their total investment by (-0.0022)*(1.392)= -0.306 percentage points the year following. Second, for the employment models

(Columns 3, 4, 7, 8), the estimated coefficient for the post-Disaster$_{J,t}$*USFlowBeta$_{i,j,t}$ interaction variable is only significantly negative following industrial accidents (Columns 7, 8). The point estimates in Column (8) imply that during large industrial disaster years, an equal increase in USFlowBeta$_{i,j,t}$ would lead to firms reducing their employment growth by (-0.0135)*(1.392)=-1.879 percentage points the year afterwards.

Figures 4 and 5 plot the point estimates and the 95% confidence intervals of Disaster$_{J,t}$ *USFlowBeta$_{i,j,t}$ interaction terms for the coefficients in Columns (2, 4) and (6, 8), respectively. As before, the samples are non-US firms that report no US sales. The coefficient plots indicate that non-US firms' sensitivity to US cross-border flows is strongly associated with firms reducing their real behaviors in response to the disasters. Surprisingly, the investment models show that the estimated coefficients on the pre-Disaster$_{J,t}$*USFlowBeta$_{i,j,t}$ interaction variables are not distinguishable from zero (Columns 2, 6), suggesting that in my sample, non-US firms' investment policies followed parallel trends before the disasters. Also of note, the employment equations show that the pre-Disaster$_{J,t}$*USFlowBeta$_{i,j,t}$ interaction variables are significantly positive for the industrial disaster treatments (Column 8), indicating that the firms in my sample displayed higher employment growth before the disasters and adopted drastically different policies afterwards.

Altogether, I interpret the results as consistent with my hypothesis that exposure to US portfolio flows can amplify financing frictions in non-US firms' real behaviors. To further examine this point, I exploit firms' financing policies the year prior to the disasters. I follow the standard approach of grouping firms by their lagged leverage, relative to their country-year medians. The main idea is that firms with higher leverage may face higher adjustment costs and therefore, be more adversely affected by increased financing frictions. Table 4, Panel B presents the results. The table shows that when large natural disasters firms with higher sensitivity to US flows and higher leverage significantly reduce their investment and employment growth at higher rates (Columns 1, 3) and firms with lower leverage do not (Columns 2, 4). Noticeably, I find a similar distinct pattern with higher leverage firms cutting their investment and employment at higher rates following large industrial accidents (Columns 5, 7) and low leverage firms not cutting their investment during these periods (Column 6). While these results support my hypothesis, I find that firms with lower leverage reduce their employment growth at higher rates following large industrial disasters (Column 8); the finding does not support my hypothesis.

Taken together, the investment and employment growth results support a main prediction of my hypothesis. Firms with higher sensitivity to US flows reduce their real behaviors at higher rates following large disasters, and the reductions seem particularly driven by firms that have higher leverage prior to the disaster periods. The findings suggest that sensitivity to US cross-border flows can intensify non-US firms' financing frictions when disasters strike.

**Does Exposure to US Flows Influence Firms' Stock Returns When Disasters Strike?**

The previous sections showed that non-US firms with higher sensitivity to US cross-border flows reduce their capital raising and real behaviors at higher rates during disaster periods. In this section, I examine whether non-US firms' exposure to US portfolio flows impacts firms' stock returns the disaster years. Given the negative relations between firms' exposure to US flows and firms' financing and real behaviors during the disasters, we might expect the relation between firms' exposure and firms' stock returns to be negative during these periods as well. While there are many ways a negative relation may occur, the previous findings show that non-US firms' exposure earns a premium when US investors are net buyers of a country's stocks or bonds, and a discount when US investors are net sellers or after uncertainty increases (Appendix Table A.1). Following this intuition, I use firms' monthly stock returns to estimate the following Fama MacBeth (1973) regression:

$$R_{i,j,t} - Rf_t = a + \gamma * USFlowBeta_{i,j,t-1} + X_{i,j,t} + e_{i,t} \mid Disaster_{J,t} \quad (4)$$

where $R_{i,j,t}$ is the monthly return on firm *i*, USFlowBetas, and Disaster$_{J,t}$ are all defined, previously. $\gamma$, the estimated coefficient on the USFlowBetas is the main variable of interest. Within this specification, if firms with higher exposure earn higher returns, the estimated coefficient would be positive. If the opposite holds and exposure is associated with lower returns, the estimated coefficient would be negative. In the event that non-US firms' exposure to US portfolio flows is not significantly associated with the cross-section of stock returns, the estimated coefficient will not be distinguishable from zero. As before, to avoid a look-ahead bias, sensitivities and characteristics are matched with returns in July of year *t*; monthly returns are set to missing when they exceed 200% and are reversed; firms' stock is required to have traded for 30% of the previous year. The control variables include the natural log of firms' stock market capitalization, the natural log of firms' book-to-market ratio, momentum, short-run reversal, the zero-return measure of LOT, and the firms' stock return volatility measured using weekly returns in USD, all of which are defined in the data appendix.

Table 5 reports the results. Columns (1, 2, 3, 4, 5) report results for natural disaster years; Columns (6, 7, 8, 9, 10) report results for industrial disaster years; Columns (1, 6) report results for the full sample; Columns (2, 3, 7, 8) report results for the country-months in which US investors are net buyers of a country's stocks and bonds; Columns (4, 5, 9, 10) report country-months in which US investors are net sellers of a country's stocks and bonds. The table shows that during the natural disasters years, the relationship between non-US firms' exposure to US cross-border flows can grow asymmetric (Columns 1, 2, 3, 4, 5). During natural disaster years, exposure to US cross-border flows earns no premium when US investors are net buyers of a country's stocks and bonds (Columns 2, 3), and a discount when US investors are net sellers (Columns 4, 5). The point estimates in Columns (5) suggest that during a large natural disaster year, when US portfolio investors take their money elsewhere, the discount associated with non-US firms' exposure to US cross-border flows (-1.475%, t=-2.102) is distinct from the discounts associated with size (-0.165%, t=-1.756) and short-run reversal (-4.427%, t=-4.154), and the premium associated with firms' book-to-market ratio (0.459%, t=2.325). While the natural disaster results support my hypothesis, the industrial disasters results do not. I find that during the industrial disaster years, exposure to US cross-border flows displays no significant association with firms' stocks returns (Column 6), regardless of when I condition the time series on US investors being net buyers or sellers (Columns 7, 8, 9, 10).

Collectively, the results in Table 5 provide support for my hypothesis. The findings suggest that at the firm level, non-US firms' exposure to US portfolio flows can have an asymmetric effect on stock prices during large natural disaster years. The findings suggest that during these disaster periods, as US investors take their money elsewhere, non-US firms' exposure to US cross-border flows can significantly lower firms' stock performance. The results provide insight into how exposure to US portfolio flows during disaster years can create a distinct challenge for non-US firms.

## ROBUSTNESS TESTS

### Placebo Tests

Table 6 reports placebo tests intended to examine whether firms with higher sensitivity to US flows significantly raise less capital or reduce their investment and employment during random periods. The main idea is that if firms' exposure generally leads firms to avoid issuing stock and bonds and invest and hire differently, then we would expect to observe the behaviors that I document in this study during other random periods as well.

To test this hypothesis, I use the EM-DAT to reassign the deadly disasters across all country-years in the sample period. With the randomly assigned disasters, I retest the capital-raising, investment, and employment results. Columns (1, 2, 3, 4) examine firms' seasoned equity and new debt issuances; the equations repeat the models estimated in Table 3, Columns (1, 2, 3, 4); Columns (5, 6, 7, 8) examine investment and employment growth; the equations repeat the models estimated in Table 4, Panel A, Columns (1, 2, 3, 4). As before, the issuance regressions include country, industry, and year-fixed effects; the investment and employment regressions include firm and year-fixed effects; all standard errors are clustered by country-year.

The table shows that during the random periods, firms' sensitivity to US flows does not intensify firms financing frictions. Using the placebo treatments, I find no significant association between firms' exposure to US flows and firms' capital-raising, investment, or employment behaviors during the random treatment years.

On the whole, the placebo tests show that during random periods, exposure to US flows is not associated with firms raising capital differently or investing and hiring differently. The results suggest that the documented behaviors are in response to the large natural disasters and industrial accidents.

### *Foreign Ownership Structure, Stock Return Volatility, No US Sales*

One potential alternative explanation for the issuance, investment, and employment results might be that differences in firms' limits on foreign investors may also be driving the documented findings. As discussed before, limits on foreign investors could be explicit, in the sense of firms' foreign ownership structure, or implicit, in terms of US investors' familiarity with the firms that have US sales or firms' stock return volatility. I address this alternative hypothesis in Appendix Table A.2. I use the sample of non-US firms that report no US sales over the sample period, and I augment the issuance and real behavior equations of Table 3, Columns (2, 4, 6, 8) and Table 4, Panel A, Columns (2, 4, 6, 8), with firms' foreign free-float, as reported to Worldscope, and firms' lagged stock return volatility estimated using weekly returns in USD over the previous calendar year. The free-float data are available beginning in 2003; therefore, the sample size in these tests are reduced. The table shows that within this reduced sample, most of the main issuance and real outcome results hold. Surprisingly, I find that in the year after large natural and industrial disasters, non-US firms with higher sensitivity to US portfolio flows are less likely to issue stocks and bonds. For the real outcomes, I find no significant association between firms' exposure to US portfolio flows and firms' investment around natural disasters; however, I find that firms' sensitivity to US flows is significantly associated with firms reducing their employment growth when natural disasters occur, and firms' sensitivity is significantly associated with firms cutting their investment and employment growth at higher rates during industrial disaster years or the year after, suggesting that differences in non-US firms' limits on foreign investment as measured by my proxies do not fully drive the disaster results.

## CONCLUSION

From 1990 to 2013, US portfolio flows to foreign stocks and bonds nearly quadrupled. In this paper, I showed that firms outside of the United States with stock returns that are more sensitive to these portfolio flows are more likely to tap capital markets and tend to display lower investment and employment growth rates. Using large natural disasters and industrial accidents to identify bad shocks across countries, I documented that when disasters strike, firms that are more sensitive to US cross-border flows were less likely to tap capital markets and reduced their investment and hiring at higher rates. Consistent with capital flight spilling over to the real economy, I found that during large natural disaster years, non-US firms with higher sensitivity to US flows earn significantly lower stock returns during the months in which US investors take their money elsewhere, and not vice versa.

Across multiple disaster treatments, and various forms of firms' capital-raising and real corporate activities, I found that firms' sensitivity to cross-border flows bring an additional challenge for firms to manage. This paper contributes to a deep literature that studies how cross-border flows can impact firms in local economies (Forbes, 2007; Alfaro, Chari, and Kanczuk, 2017; Obstfeld and Taylor, 2017).

## ENDNOTES

1. The estimates are made based on the long-term debt and total equity investment data provided by the International Monetary Fund's (IMF) Coordinated Portfolio Investment Survey from 2000 to 2013. (http://data.imf.org/CPIS)
2. One *Wall Street Journal* article explains that "Capital flight is the term for unusually large amounts of money leaving a country to be invested elsewhere. It often happens when investors en masse lose faith in a country's economic prospects." (https://www.wsj.com/articles/what-is-capital-flight-1454900927) The potentially destabilizing impact of capital flight continues to concern policy-makers; see, for example, the International Monetary Fund (IMF) reassessing its official stance on capital controls in 2012.
3. In 1990, US portfolio flows to foreign stocks and bonds totaled USD $46.6 billion; by 2013 their sum reached USD $182.4 billion. All figures are obtained from the US Treasury International Transactions (TIC) database and measured in USD 2005, using the US Bureau of Labor Statistics consumer price index (BLS CPI) inflation adjuster.
4. The strong reaction can be consistent with uncertainty, in the sense of Ellsberg (1961), reducing investors' willingness to supply capital abroad (Uppal and Wang, 2003; Epstein, 2001) or increasing non-local investors' liquidity needs (see, for example, Coval and Stafford, 2007; Barberis, Shleifer, and Wurgler, 2005, among many others).
5. The EM-DAT has been used widely within economics (for reviews of the economics of natural disasters, see Stromberg, 2007 and Cavallo and Noy, 2010). As Bloom and Davis (2013) discuss, the EM-DAT is provided by the CRED in an effort to produce standardized and comprehensive coverage of large-scale disasters; the data are available at http://www.emdat.be/advanced_search/index.html.

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## DATA APPENDIX, VARIABLE DEFINITIONS AND SOURCES

*$USFlowBeta_{i,j,t}$*. $USFlowBeta_{i,j,t}$ labels the sensitivity of firm *i* in country *j* in year *t* to US portfolio flows. For each firm, I estimate $R_{i,j,t} - Rf_t = a_i + B_{USFlow \rightarrow J,t} USFlow \rightarrow J_{,t} + e_{i,t}$, where $R_{i,j,t}$ is the monthly return on firm *i* while $USFlow \rightarrow J_{,t}$ is the US portfolio flow to country *j*, in month *t*, respectively. To calculate USFlowBetas, I use rolling 5-year (60 month) windows. Firms are required to have at least 12 non-missing monthly stock return observations. Following Ince and Porter (2006), monthly returns are set to missing when they exceed 200% and are reversed. USFlowBetas are measured in July of year *t* and matched with accounting data of fiscal year *t+1.* Applying the zero-return (LOT) approach of Lesmond, Ogden, and Trzcinka (1999) to firms' local-currency weekly returns, and stocks are required trade for at least 30% the previous calendar year. All monthly returns are in USD. (Source, Datastream)

*$USFlow_{US \rightarrow J,t}$*. $USFlow_{US \rightarrow J,t}$ labels the sum of US net purchases of foreign stocks and bonds of country *j* at time *t,* scaled by the sum of gross bilateral stock and debt transactions between residents of the United States and country *j* at time *t,* as in Hau and Rey (2004). I use monthly $USFlow_{US \rightarrow J,t}$ to estimate firms' exposure to US portfolio flows, and I construct annual $USFlow_{US \rightarrow J,t}$ to measure US portfolio flows for the calendar year and use the annual measure as a control variable in my empirical tests. (Source, US TIC Database)

*$Natural_{J,t}$*. *Natural* identifies country-years in which a country experiences natural disasters that have called at least 100 people. (Source, Centre for Research on the Epidemiology of Disasters)

*$Industrial_{J,t}$*. *Industrial* identifies country-years in which a country experiences industrial disasters that have killed at least 100 people. (Source, Centre for Research on the Epidemiology of Disasters)

*Seasoned Equity $Offering_{i,j,t}$*. *SEO* is the reported stock issuance-year matched at the ultimate-parent level to each firm in the sample. (Source, SDC Platinum Database)

*New-Debt $Issue_{i,j,t}$*. *New-Debt Issue* is the reported bond issuance-year matched at the ultimate-parent level to each firm in the sample. (Source, SDC Platinum Database)

*$Investement_{i,j,t}$*. *Investement* is defined as the ratio of CAPEX and R&D expense scaled by the lagged book value of total assets. (Source, Worldscope)

*$EmploymentGrowth_{i,j,t}$*. *Employment Growth* is defined as the natural log of the total employees scaled by the lagged value of total employees. (Source, Worldscope)

*$Q_{i,j,t-1}$*. *Q* is defined as the ratio of total assets less book equity plus year-end stock market capitalization relative to the book value of total assets. (Source, Worldscope and Datastream)

*$Cashflow_{i,j,t-1}$*. *Cashflow* is defined as earnings before interest, taxes, depreciation and amortization scaled by the lagged book value of total assets. (Source, Worldscope)

*$lnTA_{i,j,t-1}$*. *lnTA* is the natural log the lagged book value of total assets in USD millions. (Source, Worldscope)

*$lnFirmAge_{i,j,t}$*. *lnFirmAge* is defined as the natural log of the difference between the firm's start date (Bdate) and year *t.* (Source, Datastream)

*$Leverage_{i,j,t-1}$*. *Leverage* is defined as the ratio of long-term debt scaled by the lagged book value of total assets. (Source, Worldscope)

*$GdpGrowth_{j,t-1}$*. *GdpGrowth* labels the annual percentage growth rate of GDP using market prices based on constant local currency in 2005 U.S. dollars. (Source, World Bank)

*$MarketCapGdp_{j,t-1}$*. *MarketCapGdp* labels the ratio of stock market capitalization to GDP. (Source, World Bank)

## TABLE 1
## NON-US FIRMS' EXPOSURE TO US PORTFOLIO FLOWS, FIRM AND COUNTRY CHARACTERISTICS

For each of the 44 countries in the sample, I report firm-level and country-level summary statistics from 1990 to 2013. Panel A reports summary statistics across all countries and years; Panel B reports summary statistics by country. $\mathbf{USFlowBeta}_{i,j,t}$ reports the estimated sensitivity of a firm's monthly stock return to monthly $\mathbf{USFlow}_{US \rightarrow J}$, the sum of US investors' monthly stock and debt flows scaled by the sum of gross international stock and debt transaction between investors in the United States and country *j* in month *t*. $\mathbf{USFlowBeta}_{i,j,t}$ are estimated using rolling 5-year (60 month) windows. Firms are required to have at least 12 non-missing monthly stock return observations. Monthly returns are set to missing when they exceed 200% and are reversed. I require firms to have total assets, price-to-book, and year-end stock market capitalization data available the previous year. Using weekly local-currency returns, a firm's stock is required to have traded at 30% of the previous year. To avoid a look-ahead bias, sensitivities are measured in July of year *t* and matched with accounting data of fiscal year *t+1*. All stocks are required to be the primary and major listing for each firm as identified by Datastream. $\mathbf{USFlow}_{J,t}$ reports US investors' annual cumulative stock and debt flows to country *j* for year *t*. All other variables are defined in the data appendix. Firm-year-observations reports the number of firm-years for which total assets and flow sensitivities are available. All firm accounting data are in USD and downloaded via Worldscope; all stock and bond issuance data are from SDC; all accounting variables are winsorized at the 1% and 99% level.

**TABLE 1, PANEL A: US PORTFOLIO FLOWS EXPOSURE, SUMMARY STATISTICS**

| Full Sample | Mean | P50 | Sd | Count |
|---|---|---|---|---|
| $USFlowBeta_{i,j,t}$ | 0.475 | 0.212 | 1.392 | 257,016 |
| $USFlow_{J,t}$ | 0.007 | 0.003 | 0.034 | 257,016 |
| | | | | |
| $Investment_{i,j,t}$ | 0.063 | 0.033 | 0.091 | 257,016 |
| Employment $Growth_{i,j,t}$ | 0.032 | 0.009 | 0.247 | 197,878 |
| $Employees_{i,j,t}$ (#) | 5,700 | 964 | 22,007 | 206,899 |
| No US $Sales_{i,j}$ (0,1) | 0.175 | 0.000 | 0.380 | 257,016 |
| $Q_{i,j,t}$ | 1.410 | 1.081 | 1.072 | 230,221 |
| $Cashflow_{i,j,t}$ | 0.090 | 0.091 | 0.149 | 218,843 |
| $lnTA_{i,j,t}$ | 5.610 | 5.455 | 2.009 | 230,222 |
| $lnFirmAge_{i,j,t}$ | 2.386 | 2.398 | 0.666 | 257,011 |
| $Leverage_{i,j,t}$ | 0.131 | 0.073 | 0.160 | 230,222 |
| | | | | |
| $SEO_{i,j,t}$(0,1) | 0.087 | 0.000 | 0.282 | 257,016 |
| $NewDebtIssues_{i,j,t}$(0,1) | 0.048 | 0.000 | 0.214 | 257,016 |
| | | | | |
| $GDPGrowth_{j,t}$ | 0.033 | 0.027 | 0.036 | 246,903 |
| $MarketGDP_{j,t}$ | 0.960 | 0.767 | 0.812 | 246,871 |
| | | | | |
| $Disasters_{J,t}$ (Deaths>=100) | 0.418 | 0.000 | 0.493 | 257,016 |
| $AllDisasterDeaths_{J,t}$ | 1,223 | 23 | 7,147 | 257,016 |
| $Industrial_{J,t}$ (Deaths>=100) | 0.191 | 0.000 | 0.393 | 257,016 |
| $AllIndustrialDeaths_{J,t}$ | 118 | 14 | 289 | 257,016 |

**TABLE1, PANEL B: US PORTFOLIO FLOWS EXPOSURE, FIRM CHARACTERISTICS, CAPITAL ISSUANCES, AND DISASTER DEATH TOLLS BY COUNTRY**

| $Country_J$ | Firm-Years (Count) | USFlow Beta (P50) | $USFlow_J$ (P50) | INVS (P50) | EmpG (P50) | TA (P50) | Q (P50) | CF (P50) | Age (P50) | SEOs (Count) | New Debt (Count) | Disaster $Death_J$ (P50) | Industrial $Death_J$ (P50) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Argentina | 783 | 0.054 | -0.001 | 0.039 | 0.003 | 471.3 | 0.991 | 0.128 | 12 | 20 | 27 | 15 | 30 |
| Australia | 13,074 | 0.160 | 0.010 | 0.053 | 0.024 | 54.4 | 1.331 | 0.064 | 9 | 4,904 | 339 | 8 | 11 |
| Austria | 1,167 | 0.040 | -0.012 | 0.061 | 0.010 | 573.7 | 1.070 | 0.112 | 10 | 70 | 69 | 3 | 0 |
| Belgium | 716 | 0.018 | 0.157 | 0.039 | 0.009 | 526.5 | 1.039 | 0.089 | 14 | 61 | 44 | 2 | 0 |
| Brazil | 23 | 0.376 | 0.021 | 0.048 | -0.347 | 681.2 | 1.198 | 0.240 | 12 | 1 | 0 | 115 | 160 |
| Canada | 9,734 | 1.107 | 0.004 | 0.077 | 0.022 | 65.9 | 1.195 | 0.064 | 12 | 2,720 | 409 | 2 | 6 |
| China | 14,284 | -0.600 | -0.009 | 0.000 | 0.015 | 287.5 | 1.657 | 0.090 | 9 | 744 | 291 | 1,092 | 782 |
| Czech Republic | 247 | 0.149 | 0.000 | 0.056 | -0.041 | 354.8 | 0.901 | 0.124 | 5 | 3 | 6 | 6 | 0 |
| Denmark | 2,296 | 0.031 | -0.001 | 0.038 | 0.016 | 304.4 | 1.050 | 0.100 | 15 | 177 | 98 | 0 | 0 |
| Egypt | 886 | 0.081 | -0.004 | 0.013 | -0.014 | 218.6 | 1.128 | 0.127 | 10 | 58 | 3 | 0 | 106 |
| Finland | 1,674 | 0.128 | 0.026 | 0.064 | 0.011 | 289.6 | 1.147 | 0.130 | 10 | 129 | 113 | 0 | 0 |
| France | 10,533 | -0.163 | 0.002 | 0.041 | 0.016 | 288.8 | 1.112 | 0.108 | 10 | 579 | 545 | 16 | 26 |
| Germany | 9,681 | 0.019 | -0.005 | 0.047 | 0.008 | 203.5 | 1.151 | 0.112 | 10 | 616 | 330 | 8 | 10 |
| Greece | 3,542 | 0.067 | -0.019 | 0.007 | 0.000 | 125.8 | 1.042 | 0.093 | 9 | 91 | 52 | 2 | 20 |
| Hong Kong | 11,031 | 0.583 | 0.005 | 0.021 | 0.019 | 245.6 | 0.958 | 0.074 | 11 | 1,675 | 340 | 0 | 0 |
| Hungary | 390 | -0.021 | -0.009 | 0.071 | -0.020 | 131.7 | 1.030 | 0.111 | 8 | 11 | 18 | 1 | 0 |
| India | 16,106 | 0.210 | 0.046 | 0.049 | 0.014 | 75.6 | 1.032 | 0.130 | 13 | 874 | 605 | 1,893 | 540 |
| Indonesia | 1,614 | 0.047 | 0.019 | 0.047 | 0.022 | 294.1 | 1.098 | 0.156 | 10 | 107 | 106 | 273 | 243 |
| Ireland | 625 | -0.081 | 0.001 | 0.032 | 0.038 | 400.8 | 1.219 | 0.103 | 17 | 65 | 39 | 0 | 0 |
| Israel | 2,948 | 0.499 | 0.003 | 0.036 | 0.030 | 152.4 | 1.043 | 0.089 | 14 | 101 | 30 | 0 | 0 |
| Italy | 4,278 | 0.068 | -0.006 | 0.024 | 0.000 | 785.6 | 1.031 | 0.080 | 11 | 229 | 280 | 17 | 49 |
| Japan | 60,526 | 0.763 | 0.004 | 0.025 | 0.004 | 409.0 | 1.010 | 0.067 | 15 | 2,684 | 3,855 | 67 | 14 |
| Malaysia | 10,842 | 0.085 | 0.011 | 0.024 | 0.017 | 117.4 | 0.956 | 0.084 | 11 | 668 | 327 | 6 | 0 |
| Mexico | 1,200 | 0.170 | 0.022 | 0.040 | 0.024 | 1,432.8 | 1.064 | 0.139 | 10 | 50 | 170 | 88 | 89 |
| Morocco | 458 | 0.020 | -0.002 | 0.008 | 0.041 | 427.7 | 1.234 | 0.122 | 10 | 13 | 1 | 15 | 80 |
| Netherlands | 2,719 | 0.162 | -0.001 | 0.056 | 0.017 | 396.3 | 1.207 | 0.147 | 18 | 185 | 106 | 0 | 0 |
| New Zealand | 480 | -0.063 | 0.148 | 0.043 | 0.017 | 189.6 | 1.207 | 0.114 | 12.5 | 79 | 21 | 0 | 0 |
| Norway | 1,121 | -0.009 | 0.000 | 0.047 | 0.029 | 417.2 | 1.118 | 0.092 | 9 | 144 | 56 | 0 | 0 |
| Pakistan | 1,358 | 0.009 | -0.003 | 0.025 | 0.008 | 139.1 | 1.039 | 0.150 | 13 | 9 | 6 | 513 | 135 |
| Peru | 707 | 0.031 | 0.016 | 0.040 | 0.016 | 238.5 | 0.843 | 0.169 | 11 | 15 | 21 | 109 | 143 |
| Philippines | 1,538 | 0.080 | 0.022 | 0.019 | 0.001 | 244.2 | 1.011 | 0.081 | 12 | 145 | 127 | 959 | 99 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Poland | 2,285 | 0.034 | -0.001 | 0.031 | 0.000 | 96.7 | 1.063 | 0.098 | 8 | 103 | 10 | 84 | 12 |
| Portugal | 909 | 0.054 | 0.000 | 0.028 | -0.002 | 442.1 | 1.027 | 0.105 | 9 | 53 | 98 | 1 | 0 |
| Russian Federation | 118 | 0.243 | 0.001 | 0.056 | -0.001 | 1,545.1 | 1.077 | 0.178 | 5 | 8 | 12 | 9 | 256 |
| Singapore | 5,383 | 0.093 | -0.008 | 0.030 | 0.034 | 188.9 | 1.010 | 0.094 | 10 | 557 | 254 | 0 | 0 |
| South Africa | 81 | 0.123 | 0.041 | 0.060 | 0.003 | 300.8 | 1.325 | 0.170 | 12 | 0 | 0 | 33 | 110 |
| South Korea | 15,715 | 0.193 | 0.007 | 0.042 | 0.000 | 154.4 | 0.948 | 0.094 | 11 | 1,342 | 1,778 | 23 | 20 |
| Spain | 2,406 | 0.150 | 0.000 | 0.031 | 0.010 | 1,076.6 | 1.128 | 0.105 | 10 | 219 | 209 | 11 | 30 |
| Sweden | 4,280 | 0.165 | -0.006 | 0.040 | 0.016 | 125.4 | 1.224 | 0.109 | 9 | 460 | 171 | 0 | 0 |
| Switzerland | 3,573 | -0.213 | 0.000 | 0.048 | 0.012 | 716.6 | 1.079 | 0.111 | 15 | 144 | 310 | 0 | 0 |
| Taiwan | 9,650 | 0.147 | -0.003 | 0.043 | 0.024 | 244.5 | 1.089 | 0.090 | 10 | 511 | 359 | 20 | 0 |
| Thailand | 5,480 | 0.075 | 0.004 | 0.029 | 0.029 | 107.4 | 1.045 | 0.122 | 10 | 324 | 398 | 86 | 32 |
| Turkey | 3,396 | 0.171 | 0.017 | 0.028 | 0.006 | 128.6 | 1.107 | 0.121 | 12 | 114 | 34 | 59 | 87 |
| United Kingdom | 17,159 | 1.053 | 0.003 | 0.053 | 0.030 | 244.4 | 1.319 | 0.128 | 14 | 1,279 | 276 | 8 | 0 |
| Total | 257,016 | 0.212 | 0.003 | 0.033 | 0.009 | 232.7 | 1.076 | 0.091 | 11 | 22,341 | 12,343 | 23 | 14 |

**TABLE 2**
**DOES EXPOSURE TO US PORTFOLIO FLOWS INFLUENCE HOW NON-US FIRMS AROUND THE WORLD BEHAVE?**

This table presents results from probit and OLS regression of the relation between firms' capital-raising, investment and employment behaviors and firms' sensitivity to US portfolio flows, defined as firms' beta to US flows, from 1990 to 2013. Using firm-level issuances, capital expenditure (CAPEX), research and development expense (RD), and firms' total employees (EMPLY), I estimate forms of the following regression:

$$Outcome_{i,j,k,t} = a + \text{USFlowBeta}_{i,j,t-1} + \text{USFlow}_{\text{US}\rightarrow J,t-1} + \text{X}_{i,j,t} + b_{i/j,k} + c_t + e_{j,t}$$

the dependent variable is the issuance, investment, or employment outcome of firm $i$ in country $j$ in industry $k$ in year $t$. $USFlowBeta_{i,j,t}$ is the sensitivity of firm $i$'s monthly stock returns to US investors' monthly portfolio flows to country $j$ at time $t$. $USFlow_{US\rightarrow J,t}$ is the annual total portfolio flow from US investors to country $j$ at time $t$. I examine the following behaviors: (1) SEO, identifies firms' secondary stock issuance-year; (2) NewDebt, identifies firms' bond issuance-year; (3) total investment, the ratio of CAPEX+RD relative to lagged total assets; (4) employment growth, the natural log of the ratio of EMPLY scaled by lagged EMPLY. I set CAPEX and RD equal to zero when missing. All other variables are defined in the data appendix. Columns 1, 2, 3, 4 report probit regressions; Columns 5, 6, 7, 8 report OLS panel regressions. Sample labels the firm samples. "No US Sales" identifies firms that do not report any geographic segment exposure to the "United States", "North America", or "the Americas" in their geographic segment data as reported to Worldscope at any time over the sample period. Firms are required to have liquid stock returns, defined using the Lesmond, Ogden, Trzcinka (1999) measure applied to weekly local-currency returns; firms' stock is required to have traded at 30% of the previous year. All flows data are downloaded from the U.S. TIC database. All firm-level returns are obtained from Datastream. All accounting data are in USD and downloaded from Worldscope. All issuance data are obtained from SDC and matched at the ultimate-parent level. All macro-economic data are obtained from the World Bank. All issuance models include country, industry, and year-fixed effects; the investment and employment models include firm and year-fixed effects. All flow-betas, total flows, and firms-level accounting data are winsorized at the 1% level. All standard errors are clustered by country and year. ***,**,* denote significance at the 1%, 5%, and 10% level, respectively.

**TABLE 2, PROBIT/OLS**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Dependent Variable | SEOs | SEOs | NewDebt | NewDebt | CAPEX+RD | CAPEX+RD | EmpG | EmpG |
| Sample | All | No US Sales | All | No US Sales | All | No US Sales | All | No US Sales |
| VARIABLES | | | | | | | | |
| $USFlowBeta_{i,j,t-1}$ | 0.0216*** | 0.0231*** | 0.0221*** | 0.0269*** | -0.0017*** | -0.0016*** | -0.0020* | -0.0020* |
| | (0.006) | (0.007) | (0.008) | (0.010) | (0.000) | (0.000) | (0.001) | (0.001) |
| $USFlow_{US \rightarrow J,t-1}$ | 0.0831 | 0.1049 | 1.3335** | 1.3831** | 0.0401 | 0.0390 | 0.2172* | 0.1935* |
| | (0.438) | (0.453) | (0.634) | (0.626) | (0.025) | (0.025) | (0.118) | (0.102) |
| $Q_{i,j,t-1}$ | 0.0930*** | 0.0914*** | 0.0535*** | 0.0484*** | 0.0143*** | 0.0140*** | 0.0330*** | 0.0309*** |
| | (0.008) | (0.009) | (0.014) | (0.014) | (0.001) | (0.001) | (0.003) | (0.003) |
| $Cashflow_{i,j,t-1}$ | -1.1753*** | -1.1558*** | 0.4272*** | 0.4825*** | 0.0188*** | 0.0181*** | 0.1985*** | 0.1885*** |
| | (0.054) | (0.060) | (0.124) | (0.129) | (0.005) | (0.005) | (0.015) | (0.017) |
| $LnTotalAssets_{i,j,t-1}$ | 0.0287*** | 0.0226*** | 0.4405*** | 0.4361*** | -0.0191*** | -0.0189*** | -0.0597*** | -0.0606*** |
| | (0.007) | (0.008) | (0.009) | (0.010) | (0.001) | (0.001) | (0.003) | (0.004) |
| $LnFirmAge_{i,j,t-1}$ | -0.1728*** | -0.1851*** | 0.0328** | 0.0162 | -0.0017 | -0.0029 | -0.0064 | -0.0058 |
| | (0.014) | (0.016) | (0.015) | (0.017) | (0.002) | (0.002) | (0.010) | (0.011) |
| $Leverage_{i,j,t-1}$ | 0.7651*** | 0.8070*** | 1.3576*** | 1.4059*** | -0.0157*** | -0.0129*** | 0.0165 | 0.0209* |
| | (0.036) | (0.038) | (0.068) | (0.071) | (0.003) | (0.003) | (0.011) | (0.013) |
| $GdpGrowth_{j,t-1}$ | -0.2094 | -0.0419 | 1.4083* | 1.1338 | 0.0473* | 0.0419 | -0.1385 | -0.1071 |
| | (0.635) | (0.671) | (0.773) | (0.781) | (0.028) | (0.029) | (0.162) | (0.145) |
| $MarketGdp_{j,t-1}$ | -0.0029 | 0.0005 | -0.0144 | 0.0093 | -0.0035** | -0.0031* | -0.0000 | 0.0063 |
| | (0.028) | (0.032) | (0.047) | (0.048) | (0.002) | (0.002) | (0.006) | (0.007) |
| Constant | -2.2617*** | -2.1140*** | -5.1516*** | -4.6093*** | 0.1454*** | 0.1380*** | 0.2862*** | 0.2780*** |
| | (0.236) | (0.255) | (0.259) | (0.279) | (0.007) | (0.009) | (0.027) | (0.028) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Observations | 210,082 | 173,368 | 210,073 | 173,359 | 210,196 | 173,482 | 164,516 | 133,543 |
| Firm Eff | N | N | N | N | Y | Y | Y | Y |
| Country Eff | Y | Y | Y | Y | N | N | N | N |
| Industry Eff | Y | Y | Y | Y | N | N | N | N |
| Year Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Pseudo/Adj R-sq | 0.168 | 0.181 | 0.349 | 0.339 | 0.532 | 0.519 | 0.127 | 0.123 |

**TABLE 3**
**DOES EXPOSURE TO US PORTFOLIO FLOWS INFLUENCE NON-US FIRMS' CAPITAL RAISING WHEN DISASTERS STRIKE?**

This table presents probit regression results of the relation between the firms' capital-raising around disasters and firms' sensitivity to US portfolio flows, defined as firms' beta to US flows, from 1990 to 2013. Using firm-level issuances, I estimate forms of the following regression:

$$Outcome_{i,j,k,t} = a + Disaster_{j,t-1,1,t+3} * \text{USFlowBeta}_{i,j,t-1} + Disaster_{j,t-1,1,t+3} + \text{USFlowBeta}_{i,j,t-1} + \text{USFlow}_{\text{US}\to J,t-1}$$
$$+\text{X}_{i,j,t} + b_{i/j,k} + c_t + e_{j,t}$$

the dependent variable is the issuance outcome of firm $i$ in country $j$ in industry $k$ in year $t$. $Disaster_{J,t}$ labels country-years in which disasters in country $j$ have resulted in at least 100 deaths. *Natural* labels natural disaster treatment years; *Industrial* labels industrial disasters treatment years. Disasters are collected from the EM-DAT provided by the Centre for Research on the Epidemiology of Disasters/OFDA International Disaster Database website, produced by Université Catholique de Louvain, Brussels, Belgium. As before, $USFlowBeta_{i,j,t}$ is the sensitivity of firm $i$'s monthly stock returns to US investors' monthly portfolio flows to country $j$ at time $t$. $USFlow_{US\to J,t}$ is the annual total portfolio flow from US investors to country $j$ at time $t$. I examine the following behaviors: (1) SEO, identifies firms' secondary stock issuance-year; (2) NewDebt, identifies firms' bond issuance-year. Sample labels the firm samples. "No US Sales" identifies firms that do not report any geographic segment exposure to the "United States", "North America", or "the Americas" in their geographic segment data as reported to Worldscope at any time over the sample period. As before, firms are required to have liquid stock returns, defined using the Lesmond, Ogden, Trzcinka (1999) measure applied to weekly local-currency returns; firms' stock is required to have traded at 30% of the previous year. All flows data are downloaded from the U.S. TIC database. All firm-level returns are obtained from Datastream. All accounting data are in USD and downloaded from Worldscope. All issuance data are obtained from SDC and matched at the ultimate-parent level. All macro-economic data are obtained from the World Bank. All issuance models include country, industry, and year-fixed effects. All flow-betas, total flows, and firms-level accounting data are winsorized at the 1% level. All standard errors are clustered by country and year. ***,**,* denote significance at the 1%, 5%, and 10% level, respectively.

**TABLE 3, CAPITAL RAISING PROBITS**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Dependent Variable | SEOs | SEOs | NewDebt | NewDebt | SEOs | SEOs | NewDebt | NewDebt |
| Treatment | Natural | Natural | Natural | Natural | Industrial | Industrial | Industrial | Industrial |
| Sample | All | No US Sales | All | No US Sales | All | No US Sales | All | No US Sales |
| VARIABLES | | | | | | | | |
| $Disaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | -0.0045 | -0.0075 | 0.0079 | -0.0001 | -0.0380 | -0.0174 | -0.0447 | -0.0443 |
| | (0.019) | (0.020) | (0.018) | (0.022) | (0.049) | (0.045) | (0.028) | (0.029) |
| $PreDisaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | 0.0123 | 0.0056 | 0.0378 | 0.0441 | 0.0049 | 0.0155 | 0.0886* | 0.1043** |
| | (0.021) | (0.022) | (0.036) | (0.045) | (0.046) | (0.044) | (0.048) | (0.053) |
| $PostDisaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | -0.0536*** | -0.0515** | -0.0028 | -0.0111 | -0.0492 | -0.0824** | -0.0618* | -0.0892** |
| | (0.020) | (0.020) | (0.028) | (0.033) | (0.038) | (0.037) | (0.035) | (0.037) |
| $Disaster_{J,t}$ | 0.0008 | -0.0077 | 0.0453 | 0.0547 | 0.1079* | 0.0949 | 0.0051 | 0.0007 |
| | (0.054) | (0.056) | (0.045) | (0.047) | (0.055) | (0.060) | (0.052) | (0.056) |
| $PreDisaster_{J,t}$ | -0.1217*** | -0.1417*** | -0.0069 | -0.0004 | -0.0077 | -0.0211 | -0.0382 | -0.0309 |
| | (0.046) | (0.048) | (0.056) | (0.060) | (0.081) | (0.080) | (0.079) | (0.082) |
| $PostDisaster_{J,t}$ | -0.0561 | -0.0507 | -0.0672 | -0.0711 | 0.0376 | 0.0592 | 0.0855 | 0.1098* |
| | (0.052) | (0.054) | (0.048) | (0.049) | (0.052) | (0.053) | (0.056) | (0.058) |
| $USFlowBeta_{i,j,t-1}$ | 0.0274*** | 0.0313*** | 0.0078 | 0.0146 | 0.0281*** | 0.0315*** | 0.0227** | 0.0299** |
| | (0.007) | (0.007) | (0.012) | (0.016) | (0.006) | (0.006) | (0.010) | (0.012) |
| $USFlow_{US\rightarrow J,t-1}$ | 0.1027 | 0.1061 | 1.3481** | 1.3678** | 0.0668 | 0.0785 | 1.2822** | 1.3151** |
| | (0.407) | (0.422) | (0.631) | (0.624) | (0.427) | (0.440) | (0.626) | (0.613) |
| $Q_{i,j,t-1}$ | 0.0935*** | 0.0917*** | 0.0544*** | 0.0498*** | 0.0923*** | 0.0905*** | 0.0533*** | 0.0482*** |
| | (0.008) | (0.009) | (0.014) | (0.014) | (0.008) | (0.009) | (0.014) | (0.014) |
| $Cashflow_{i,j,t-1}$ | -1.1721*** | -1.1501*** | 0.4210*** | 0.4725*** | -1.1774*** | -1.1581*** | 0.4262*** | 0.4821*** |
| | (0.053) | (0.059) | (0.124) | (0.128) | (0.054) | (0.060) | (0.125) | (0.129) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $LnTotalAssets_{i,j,t-1}$ | 0.0282*** | 0.0218*** | 0.4406*** | 0.4362*** | 0.0286*** | 0.0223*** | 0.4405*** | 0.4361*** |
| | (0.007) | (0.008) | (0.009) | (0.010) | (0.007) | (0.008) | (0.009) | (0.010) |
| $LnFirmAge_{i,j,t-1}$ | -0.1725*** | -0.1846*** | 0.0326** | 0.0161 | -0.1728*** | -0.1850*** | 0.0340** | 0.0178 |
| | (0.014) | (0.016) | (0.015) | (0.017) | (0.014) | (0.016) | (0.015) | (0.017) |
| $Leverage_{i,j,t-1}$ | 0.7722*** | 0.8153*** | 1.3598*** | 1.4080*** | 0.7638*** | 0.8053*** | 1.3589*** | 1.4060*** |
| | (0.036) | (0.038) | (0.067) | (0.070) | (0.036) | (0.037) | (0.067) | (0.070) |
| $GdpGrowth_{j,t-1}$ | 0.0668 | 0.2430 | 1.3334* | 1.0582 | -0.3183 | -0.1180 | 1.4370* | 1.1885 |
| | (0.608) | (0.633) | (0.758) | (0.756) | (0.612) | (0.646) | (0.754) | (0.747) |
| $MarketGdp_{j,t-1}$ | -0.0035 | -0.0029 | -0.0071 | 0.0191 | -0.0057 | -0.0035 | -0.0167 | 0.0066 |
| | (0.028) | (0.032) | (0.045) | (0.046) | (0.028) | (0.031) | (0.046) | (0.047) |
| Constant | -2.2996*** | -2.1544*** | -5.1622*** | -4.6183*** | -2.2683*** | -2.1243*** | -5.1595*** | -4.6232*** |
| | (0.239) | (0.259) | (0.250) | (0.272) | (0.235) | (0.253) | (0.258) | (0.278) |
| Observations | 210,082 | 173,368 | 210,073 | 173,359 | 210,082 | 173,368 | 210,073 | 173,359 |
| Country Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Industry Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Year Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Pseudo R-sq | 0.169 | 0.182 | 0.349 | 0.339 | 0.169 | 0.181 | 0.349 | 0.339 |

## TABLE 4
## DOES EXPOSURE TO US PORTFOLIO FLOWS INFLUENCE NON-US FIRMS' INVESTMENT AND EMPLOYMENT WHEN DISASTERS STRIKE?

This table presents probit regression results of the relation between the firms' capital-raising around disasters and firms' sensitivity to US portfolio flows, defined as firms' beta to US flows, from 1990 to 2013. Using firm-level issuances, I estimate forms of the following regression:

$$Outcome_{i,j,k,t} = a + Disaster_{j,t-1,1,t+3} * \text{USFlowBeta}_{i,j,t-1} + Disaster_{j,t-1,1,t+3} + \text{USFlowBeta}_{i,j,t-1} + \text{USFlow}_{\text{US}\rightarrow J,t-1} + \text{X}_{i,j,t} + b_{i/j,k} + c_t + e_{j,t}$$

the dependent variable is the issuance outcome of firm $i$ in country $j$ in industry $k$ in year $t$. $Disaster_{J,t}$ labels country-years in which disasters in country $j$ have resulted in at least 100 deaths. *Natural* labels natural disaster treatment years; *Industrial* labels industrial disasters treatment years. Disasters are collected from the EM-DAT provided by the Centre for Research on the Epidemiology of Disasters/OFDA International Disaster Database website, produced by Université Catholique de Louvain, Brussels, Belgium. As before, $USFlowBeta_{i,j,t}$ is the sensitivity of firm $i$'s monthly stock returns to US investors' monthly portfolio flows to country $j$ at time $t$. $USFlow_{US\rightarrow J,t}$ is the annual total portfolio flow from US investors to country $j$ at time $t$. I examine the following behaviors: (1) total investment, the ratio of CAPEX+RD relative to lagged total assets; (2) employment growth, the natural log of the ratio of EMPLY scaled by lagged EMPLY. I set CAPEX and RD equal to zero when missing. Sample labels the firm samples. Panel A reports results for all firms; "No US Sales" identifies firms that do not report any geographic segment exposure to the "United States", "North America", or "the Americas" in their geographic segment data as reported to Worldscope at any time over the sample period. Panel B groups firms by their lagged leverage relative to their country-year medians: "High Lev" identifies firms with lagged leverage about their country-year median; "Low Lev" identifies firms that are below the country-year median. As before, firms are required to have liquid stock returns, defined using the Lesmond, Ogden, Trzcinka (1999) measure applied to weekly local-currency returns; firms' stock is required to have traded at 30% of the previous year. All flows data are downloaded from the U.S. TIC database. All firm-level returns are obtained from Datastream. All accounting data are in USD and downloaded from Worldscope. All issuance data are obtained from SDC and matched at the ultimate-parent level. All macro-economic data are obtained from the World Bank. All issuance models include country, industry, and year-fixed effects; all investment and employment models include firm and year-fixed effects. All flow-betas, total flows, and firms-level accounting data are winsorized at the 1% level. All standard errors are clustered by country and year. ***,**,* denote significance at the 1%, 5%, and 10% level, respectively.

## TABLE 4, PANEL A: OLS

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Dependent Variable | CAPEX+RD | CAPEX+RD | EmpG | EmpG | CAPEX+RD | CAPEX+RD | EmpG | EmpG |
| Treatment | Natural | Natural | Natural | Natural | Industrial | Industrial | Industrial | Industrial |
| Sample | All | No US Sales | All | No US Sales | All | No US Sales | All | No US Sales |
| VARIABLES | | | | | | | | |
| $Disaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | -0.0008 | -0.0006 | -0.0029 | -0.0032 | -0.0016 | -0.0016 | 0.0037 | 0.0031 |
| | (0.001) | (0.001) | (0.002) | (0.002) | (0.002) | (0.001) | (0.005) | (0.005) |
| $PreDisaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | 0.0014 | 0.0017 | -0.0007 | -0.0012 | 0.0032 | 0.0036 | 0.0074** | 0.0073** |
| | (0.001) | (0.001) | (0.002) | (0.002) | (0.002) | (0.002) | (0.003) | (0.003) |
| $PostDisaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | -0.0018** | -0.0022*** | 0.0012 | 0.0013 | -0.0027 | -0.0027 | -0.0143** | -0.0135*** |
| | (0.001) | (0.001) | (0.003) | (0.003) | (0.002) | (0.002) | (0.006) | (0.005) |
| $Disaster_{J,t}$ | 0.0014 | 0.0008 | -0.0099* | -0.0098* | -0.0020 | -0.0019 | -0.0115 | -0.0114 |
| | (0.002) | (0.002) | (0.005) | (0.005) | (0.002) | (0.002) | (0.012) | (0.011) |
| $PreDisaster_{J,t}$ | 0.0004 | 0.0004 | -0.0092* | -0.0083 | -0.0017 | -0.0016 | -0.0085 | -0.0088 |
| | (0.002) | (0.002) | (0.006) | (0.005) | (0.003) | (0.003) | (0.007) | (0.006) |
| $PostDisaster_{J,t}$ | -0.0033** | -0.0033** | -0.0125* | -0.0131* | -0.0032 | -0.0025 | 0.0057 | 0.0047 |
| | (0.002) | (0.002) | (0.008) | (0.007) | (0.002) | (0.002) | (0.007) | (0.007) |
| $USFlowBeta_{i,j,t-1}$ | -0.0014*** | -0.0013** | -0.0014 | -0.0011 | -0.0016*** | -0.0015*** | -0.0016 | -0.0015 |
| | (0.000) | (0.001) | (0.002) | (0.002) | (0.000) | (0.000) | (0.001) | (0.001) |
| $USFlow_{US\rightarrow J,t-1}$ | 0.0382 | 0.0365 | 0.2284* | 0.1992* | 0.0363 | 0.0349 | 0.2088* | 0.1826* |
| | (0.025) | (0.026) | (0.118) | (0.102) | (0.025) | (0.025) | (0.116) | (0.100) |
| $Q_{i,j,t-1}$ | 0.0143*** | 0.0140*** | 0.0327*** | 0.0307*** | 0.0143*** | 0.0140*** | 0.0330*** | 0.0310*** |
| | (0.001) | (0.001) | (0.003) | (0.003) | (0.001) | (0.001) | (0.002) | (0.003) |
| $Cashflow_{i,j,t-1}$ | 0.0185*** | 0.0178*** | 0.1996*** | 0.1898*** | 0.0187*** | 0.0180*** | 0.1976*** | 0.1877*** |
| | (0.005) | (0.005) | (0.015) | (0.017) | (0.005) | (0.005) | (0.015) | (0.017) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LnTotalAssets$_{i,j,t-1}$ | -0.0190*** | -0.0189*** | -0.0610*** | -0.0622*** | -0.0190*** | -0.0188*** | -0.0597*** | -0.0606*** |
| | (0.001) | (0.001) | (0.003) | (0.003) | (0.001) | (0.001) | (0.003) | (0.004) |
| LnFirmAge$_{i,j,t-1}$ | -0.0019 | -0.0032* | -0.0102 | -0.0096 | -0.0019 | -0.0031* | -0.0071 | -0.0066 |
| | (0.002) | (0.002) | (0.009) | (0.010) | (0.002) | (0.002) | (0.010) | (0.010) |
| Leverage$_{i,j,t-1}$ | -0.0156*** | -0.0128*** | 0.0178 | 0.0220* | -0.0158*** | -0.0130*** | 0.0162 | 0.0207 |
| | (0.003) | (0.003) | (0.011) | (0.013) | (0.003) | (0.003) | (0.011) | (0.013) |
| GdpGrowth$_{j,t-1}$ | 0.0513* | 0.0476 | -0.0689 | -0.0380 | 0.0494* | 0.0443 | -0.1193 | -0.0830 |
| | (0.029) | (0.029) | (0.140) | (0.128) | (0.027) | (0.027) | (0.156) | (0.141) |
| MarketGdp$_{j,t-1}$ | -0.0032** | -0.0028 | 0.0010 | 0.0073 | -0.0033** | -0.0030* | -0.0001 | 0.0063 |
| | (0.002) | (0.002) | (0.006) | (0.006) | (0.002) | (0.002) | (0.006) | (0.006) |
| Constant | 0.1455*** | 0.1383*** | 0.3037*** | 0.2976*** | 0.1466*** | 0.1390*** | 0.2890*** | 0.2810*** |
| | (0.008) | (0.009) | (0.024) | (0.025) | (0.007) | (0.009) | (0.026) | (0.027) |
| Observations | 210,196 | 173,482 | 164,516 | 133,543 | 210,196 | 173,482 | 164,516 | 133,543 |
| Firm Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Year Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Adjusted R-squared | 0.532 | 0.519 | 0.128 | 0.123 | 0.532 | 0.519 | 0.127 | 0.123 |

**TABLE 4, PANEL B: LEVERAGE**

| Treatment<br>Sample<br>VARIABLES | (1)<br>CAPEX+RD<br>Natural<br>HighLev | (2)<br>CAPEX+RD<br>Natural<br>LowLev | (3)<br>EmpG<br>Natural<br>HighLev | (4)<br>EmpG<br>Natural<br>LowLev | (5)<br>CAPEX+RD<br>Industrial<br>HighLev | (6)<br>CAPEX+RD<br>Industrial<br>LowLev | (7)<br>EmpG<br>Industrial<br>HighLev | (8)<br>EmpG<br>Industrial<br>LowLev |
|---|---|---|---|---|---|---|---|---|
| $Disaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | -0.0010 | -0.0008 | -0.0052** | -0.0004 | -0.0022 | -0.0009 | 0.0037 | 0.0045 |
| | (0.001) | (0.001) | (0.002) | (0.003) | (0.002) | (0.001) | (0.007) | (0.004) |
| $PreDisaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | 0.0019 | 0.0004 | -0.0030 | 0.0012 | 0.0038 | 0.0023 | 0.0040 | 0.0120*** |
| | (0.001) | (0.001) | (0.002) | (0.002) | (0.003) | (0.002) | (0.005) | (0.003) |
| $PostDisaster_{J,t}$*<br>$USFlowBeta_{i,j,t-1}$ | -0.0025** | -0.0009 | 0.0010 | 0.0037 | -0.0038* | -0.0019 | -0.0138** | -0.0140** |
| | (0.001) | (0.001) | (0.003) | (0.003) | (0.002) | (0.002) | (0.007) | (0.005) |
| $Disaster_{J,t}$ | 0.0011 | 0.0014 | -0.0108* | -0.0085* | -0.0021 | -0.0010 | -0.0145 | -0.0099 |
| | (0.002) | (0.002) | (0.006) | (0.005) | (0.002) | (0.002) | (0.015) | (0.010) |
| $PreDisaster_{J,t}$ | -0.0005 | 0.0012 | -0.0118* | -0.0061 | -0.0014 | -0.0011 | -0.0096 | -0.0060 |
| | (0.003) | (0.002) | (0.007) | (0.005) | (0.004) | (0.002) | (0.008) | (0.007) |
| $PostDisaster_{J,t}$ | -0.0042** | -0.0019 | -0.0127 | -0.0141** | -0.0032 | -0.0019 | 0.0107 | 0.0012 |
| | (0.002) | (0.002) | (0.009) | (0.006) | (0.002) | (0.002) | (0.008) | (0.007) |
| $USFlowBeta_{i,j,t-1}$ | -0.0012* | -0.0008 | 0.0001 | -0.0026 | -0.0012*** | -0.0011** | -0.0011 | -0.0014 |
| | (0.001) | (0.001) | (0.002) | (0.002) | (0.000) | (0.000) | (0.002) | (0.002) |
| $USFlow_{US\rightarrow J,t-1}$ | 0.0358 | 0.0426** | 0.2554* | 0.2193** | 0.0324 | 0.0426** | 0.2336 | 0.2021* |
| | (0.032) | (0.018) | (0.149) | (0.106) | (0.031) | (0.018) | (0.145) | (0.104) |
| $Q_{i,j,t-1}$ | 0.0204*** | 0.0109*** | 0.0410*** | 0.0287*** | 0.0203*** | 0.0109*** | 0.0411*** | 0.0289*** |
| | (0.002) | (0.001) | (0.005) | (0.002) | (0.002) | (0.001) | (0.005) | (0.002) |
| $Cashflow_{i,j,t-1}$ | 0.0336*** | 0.0037 | 0.2084*** | 0.1789*** | 0.0336*** | 0.0038 | 0.2059*** | 0.1771*** |
| | (0.007) | (0.005) | (0.019) | (0.019) | (0.007) | (0.005) | (0.019) | (0.019) |
| $LnTotalAssets_{i,j,t-1}$ | -0.0229*** | -0.0131*** | -0.0578*** | -0.0724*** | -0.0228*** | -0.0132*** | -0.0558*** | -0.0716*** |
| | (0.001) | (0.001) | (0.003) | (0.005) | (0.001) | (0.001) | (0.004) | (0.005) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $LnFirmAge_{i,j,t-1}$ | -0.0049** | 0.0041** | -0.0150 | -0.0009 | -0.0050** | 0.0043** | -0.0114 | 0.0024 |
| | (0.002) | (0.002) | (0.012) | (0.010) | (0.002) | (0.002) | (0.013) | (0.011) |
| $Leverage_{i,j,t-1}$ | -0.0233*** | -0.0365*** | 0.0113 | -0.0441 | -0.0238*** | -0.0364*** | 0.0089 | -0.0583 |
| | (0.003) | (0.013) | (0.014) | (0.047) | (0.003) | (0.014) | (0.014) | (0.045) |
| $GdpGrowth_{j,t-1}$ | 0.0497 | 0.0461* | -0.0975 | -0.0671 | 0.0430 | 0.0465* | -0.1504 | -0.1082 |
| | (0.034) | (0.026) | (0.168) | (0.121) | (0.032) | (0.025) | (0.187) | (0.132) |
| $MarketGdp_{j,t-1}$ | -0.0018 | -0.0050*** | -0.0011 | -0.0007 | -0.0021 | -0.0051*** | -0.0025 | -0.0014 |
| | (0.002) | (0.002) | (0.007) | (0.006) | (0.002) | (0.002) | (0.007) | (0.006) |
| Constant | 0.1815*** | 0.0924*** | 0.3125*** | 0.3228*** | 0.1822*** | 0.0932*** | 0.2929*** | 0.3120*** |
| | (0.009) | (0.007) | (0.029) | (0.029) | (0.009) | (0.007) | (0.033) | (0.030) |
| | | | | | | | | |
| Observations | 113,600 | 96,596 | 87,568 | 76,948 | 113,600 | 96,596 | 87,568 | 76,948 |
| Firm Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Year Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Adjusted R-squared | 0.532 | 0.597 | 0.148 | 0.177 | 0.532 | 0.597 | 0.147 | 0.177 |

## TABLE 5
## DOES EXPOSURE TO US PORTFOLIO FLOWS INFLUENCE NON-US FIRMS' COSTS OF CAPITAL WHEN DISASTERS OCCUR?

The table presents Fama MacBeth (1973) regression results of the relation between monthly stock returns and sensitivity to US investors' portfolio flows on stock returns conditional on natural disasters and industrial accident years as a proxy for uncertainty shocks from 1991 to 2013. Using firm-level stock returns from the countries in the sample, I estimate the following regression:

$$R_{i,j,t} - R_{f,t} = a + USFlowBeta_{i,j,t-1} + c * X_{i,t-1} + e_{i,t} \mid (Disaster_{J,t})$$

the dependent variable is the excess returns of firm *i* in country *j* in month *t*. $Disaster_{J,t}$ labels country-years in which disasters in country *j* have resulted in at least 100 deaths. *Natural* labels natural disaster treatment years; *Industrial* labels industrial disasters treatment years. Disasters are collected from the EM-DAT provided by the Centre for Research on the Epidemiology of Disasters/OFDA International Disaster Database website, produced by Université Catholique de Louvain, Brussels, Belgium. As before, $USFlowBeta_{i,j,t}$ is the sensitivity of firm *i*'s monthly stock returns to US investors' monthly portfolio flows to country *j* at time *t*. Columns labelled full sample report findings for the all country-months. Columns labelled $US\ Buys_{J,t}$ identify country-month observations in which US portfolio flows to country *j* are positive, i.e. US investors are net buyers; Columns labelled $US\ Sell_{J,t}$ do the same for country-month observations in which US investors are net sellers. As before, $X_{i,t-1}$ labels the control variables for firm *i* at time *t-1*. Firms are required to have at least 12 non-missing monthly stock return observations. Monthly returns are set to missing when they exceed 200% and are reversed. Using weekly local-currency returns, a firm's stock is required to have traded at 30% of the previous year. All stocks are required to be the primary and major listing for each firm and downloaded via Datastream; all accounting data are downloaded via Worldscope. Firm-level returns, characteristics, and volatility are calculated in USD; the zero return measure is calculated using local-currency returns. To avoid a look-ahead bias, sensitivities and characteristics are matched with returns in July of year t. All independent variables are previously defined and are winsorized at the 1% and 99% level. T-stats are reported parentheses. ***,**,** indicate significance at the 1%, 5%, and 10% level, respectively.

**TABLE 5, FAMA MACBETH**

| VARIABLES | (1) $Natural_{J,t}$ Full Sample | (2) $Natural_{J,t}$ US Buys | (3) $Natural_{J,t}$ US Buys | (4) $Natural_{J,t}$ US Sells | (5) $Natural_{J,t}$ US Sells | (6) $Industrial_{J,t}$ Full Sample | (7) $Industrial_{J,t}$ US Buys | (8) $Industrial_{J,t}$ US Buys | (9) $Industrial_{J,t}$ US Sells | (10) $Industrial_{J,t}$ US Sells |
|---|---|---|---|---|---|---|---|---|---|---|
| $b_{TotaflowUS \rightarrow FOR t-1}$ | -0.00151 | 0.00674 | 0.00243 | -0.02451*** | -0.01475** | -0.00240 | 0.00154 | 0.00504 | 0.12473 | -0.04190 |
| | (-0.627) | (1.483) | (0.347) | (-2.846) | (-2.102) | (-0.780) | (0.292) | (0.844) | (0.937) | (-0.814) |
| ln(Marketcap) | | | -0.00283 | | -0.00165* | | | -0.00064 | | 0.00616 |
| | | | (-1.294) | | (-1.756) | | | (-0.757) | | (1.165) |
| ln(B/M) | | | 0.00370** | | 0.00459** | | | 0.00341*** | | 0.04764* |
| | | | (2.466) | | (2.325) | | | (2.720) | | (1.672) |
| $Mom_{t-11,t-2}$ | | | 0.00826** | | 0.00014 | | | 0.00609* | | -0.01735 |
| | | | (2.055) | | (0.039) | | | (1.735) | | (-0.400) |
| $Shortrun_{t-1,t-0}$ | | | -0.06040*** | | -0.04427*** | | | -0.03379*** | | 0.05858 |
| | | | (-4.405) | | (-4.154) | | | (-3.273) | | (0.485) |
| ZeroRetunPercent | | | -0.00301 | | -0.00353 | | | -0.00863 | | 0.03931 |
| | | | (-0.173) | | (-0.265) | | | (-0.820) | | (0.417) |
| Volatility | | | -0.00249 | | -0.00116 | | | 0.00338 | | 0.08220 |
| | | | (-0.670) | | (-0.304) | | | (0.651) | | (0.977) |
| Constant | 0.00920** | 0.01400*** | 0.02567** | 0.01454*** | 0.02559*** | 0.01003** | 0.01829*** | 0.01556** | 0.01964 | -0.04314 |
| | (2.280) | (3.296) | (2.270) | (2.708) | (3.025) | (2.356) | (3.830) | (2.393) | (1.422) | (-0.646) |
| Observations | 942,243 | 514,057 | 497,634 | 428,342 | 405,183 | 618,772 | 284,113 | 273,424 | 334,005 | 312,784 |
| R-squared | 0.025 | 0.024 | 0.121 | 0.045 | 0.167 | 0.025 | 0.020 | 0.114 | 0.040 | 0.155 |
| Number of groups | 276 | 273 | 271 | 264 | 260 | 276 | 275 | 274 | 269 | 265 |

## TABLE 6
## PLACEBO-TEST: DOES EXPOSURE TO US FLOWS RANDOMLY INFLUENCE NON-US FIRMS' BEHAVIOR?

This table presents probit and OLS panel regression results of the relation between the firms' capital-raising and real behaviors around disasters and firms' sensitivity to US portfolio flows, defined as firms' beta to US flows, from 1990 to 2013. Using firm-level issuances, capital expenditure (CAPEX), research and development expense (RD), and firms' total employees (EMPLY), I estimate forms of the following regression:

$$Outcome_{i,j,k,t} = a + PlaceboDisaster_{j,t} * \text{USFlowBeta}_{i,j,t-1} + PlaeboDisaster_{j,t} + \text{USFlowBeta}_{i,j,t-1} + \text{USFlow}_{\text{US}\rightarrow J,t-1} + \text{X}_{i,j,t} + b_{i/j,k} + c_t + e_{j,t}$$

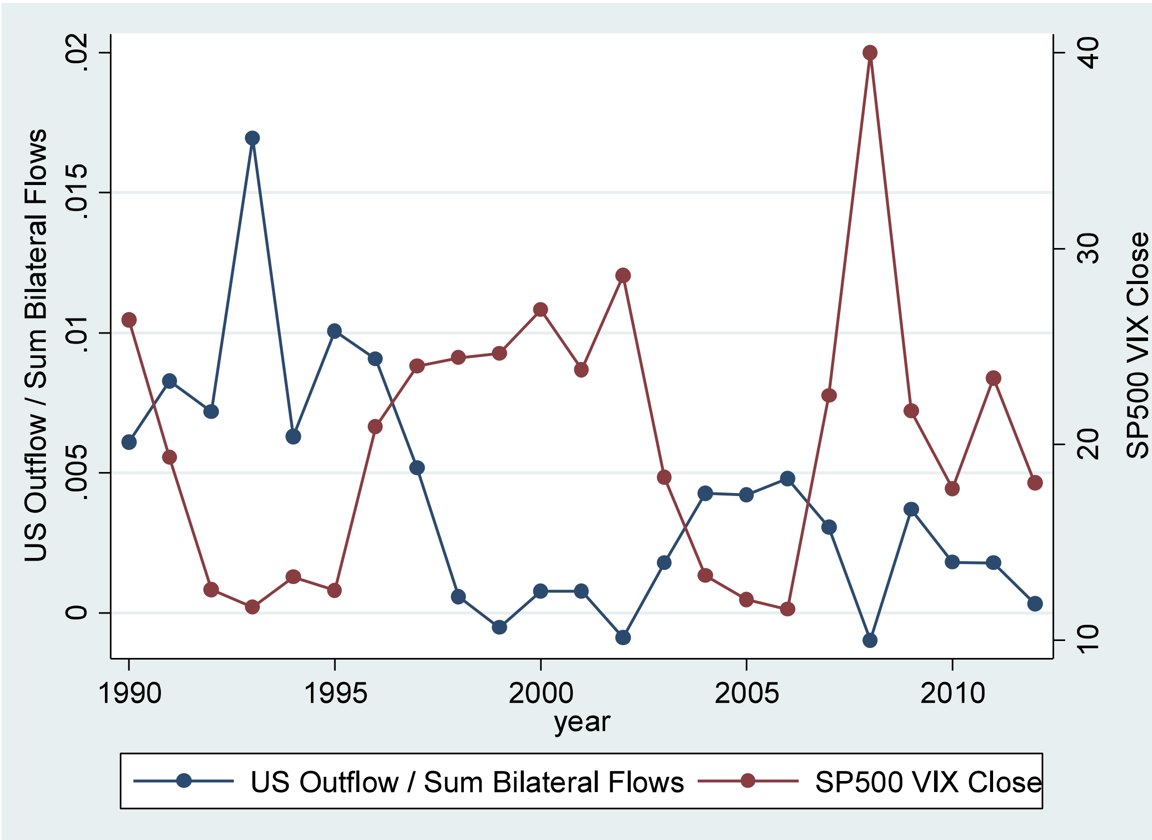
The dependent variable is the issuance, investment, or employment outcome of firm *i* in country *j* in industry *k* in year *t*. $PlaceboDisaster_{J,t}$ labels random country-years in which placebo-disaster treatments are identified. As before, $USFlowBeta_{i,j,t}$ is the sensitivity of firm *i*'s monthly stock returns to US investors' monthly portfolio flows to country *j* at time *t*. $USFlow_{US\rightarrow J,t}$ is the annual total portfolio flow from US investors to country *j* at time *t*. I examine the following behaviors: (1) total investment, the ratio of CAPEX+RD relative to lagged total assets; (2) employment growth, the natural log of the ratio of EMPLY scaled by lagged EMPLY. I set CAPEX and RD equal to zero when missing. As before, firms are required to have liquid stock returns, defined using the Lesmond, Ogden, Trzcinka (1999) measure applied to weekly local-currency returns; firms' stock is required to have traded at 30% of the previous year. All flows data are downloaded from the U.S. TIC database. All firm-level returns are obtained from Datastream. All accounting data are in USD and downloaded from Worldscope. All issuance data are obtained from SDC and matched at the ultimate-parent level. All macro-economic data are obtained from the World Bank. All issuance models include country, industry, and year-fixed effects; all investment and employment models include firm and year-fixed effects. All flow-betas, total flows, and firms-level accounting data are winsorized at the 1% level. All standard errors are clustered by country and year. ***,**,* denote significance at the 1%, 5%, and 10% level, respectively.

## TABLE 6, PLACEBO TEST OLS/ PROBIT

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Dependent Variable | SEO | SEO | NewIssue | NewIssue | CAPEX+RD | CAPEX+RD | EmpG | EmpG |
| Treatment | Placebo | Placebo | Placebo | Placebo | Placebo | Placebo | Placebo | Placebo |
| Sample | All | All | All | All | All | All | All | All |
| VARIABLES | | | | | | | | |
| $Disaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | -0.0037 | -0.0061 | 0.0036 | -0.0044 | 0.0005 | 0.0004 | 0.0026 | 0.0020 |
| | (0.013) | (0.015) | (0.017) | (0.022) | (0.001) | (0.001) | (0.002) | (0.002) |
| $Disaster_{J,t}$ | 0.0241 | 0.0121 | -0.0270 | 0.0225 | -0.0009 | 0.0000 | 0.0019 | 0.0025 |
| | (0.029) | (0.028) | (0.037) | (0.037) | (0.001) | (0.001) | (0.005) | (0.005) |
| $USFlowBeta_{i,j,t-1}$ | 0.0246*** | 0.0242*** | 0.0007 | 0.0242* | -0.0027*** | -0.0019*** | -0.0047*** | -0.0029* |
| | (0.008) | (0.008) | (0.010) | (0.013) | (0.000) | (0.000) | (0.002) | (0.002) |
| $USFlow_{US\rightarrow J,t-1}$ | 0.1463 | 0.0959 | 1.6176** | 1.3655** | 0.0547** | 0.0405 | 0.2436** | 0.2223* |
| | (0.416) | (0.443) | (0.671) | (0.639) | (0.027) | (0.025) | (0.115) | (0.121) |
| $Q_{i,j,t-1}$ | | 0.0932*** | | 0.0536*** | | 0.0142*** | | 0.0330*** |
| | | (0.008) | | (0.014) | | (0.001) | | (0.002) |
| $Cashflow_{i,j,t-1}$ | | -1.1755*** | | 0.4283*** | | 0.0188*** | | 0.1986*** |
| | | (0.054) | | (0.125) | | (0.005) | | (0.015) |
| $LnTotalAssets_{i,j,t-1}$ | | 0.0287*** | | 0.4406*** | | -0.0191*** | | -0.0596*** |
| | | (0.007) | | (0.009) | | (0.001) | | (0.003) |
| $LnFirmAge_{i,j,t-1}$ | | -0.1728*** | | 0.0327** | | -0.0017 | | -0.0065 |
| | | (0.014) | | (0.015) | | (0.002) | | (0.010) |
| $Leverage_{i,j,t-1}$ | | 0.7653*** | | 1.3587*** | | -0.0157*** | | 0.0165 |
| | | (0.036) | | (0.067) | | (0.003) | | (0.011) |
| $GdpGrowth_{j,t-1}$ | | -0.1990 | | 1.4269* | | 0.0470* | | -0.1396 |
| | | (0.632) | | (0.765) | | (0.028) | | (0.160) |
| $MarketGdp_{j,t-1}$ | | -0.0031 | | -0.0151 | | -0.0035** | | -0.0005 |
| | | (0.028) | | (0.047) | | (0.002) | | (0.006) |

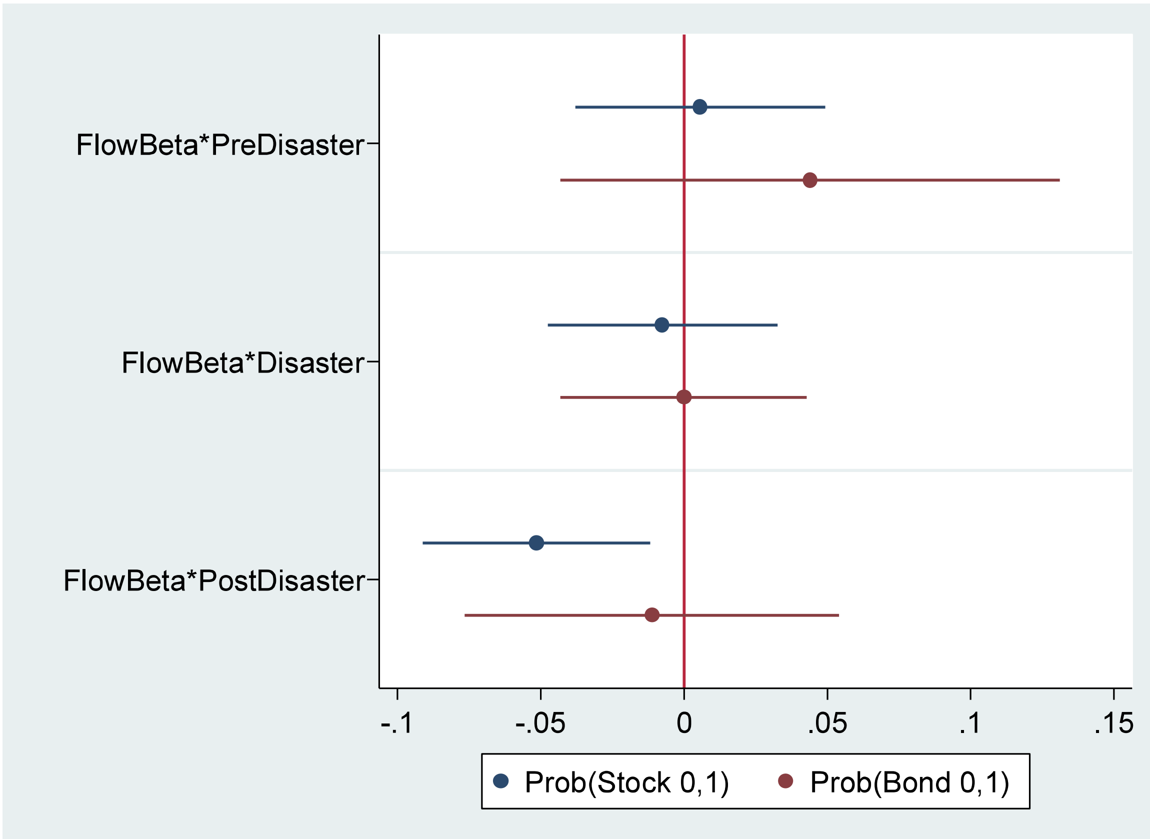
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Constant | -3.2184*** | -2.2647*** | -2.0392*** | -5.1527*** | 0.0852*** | 0.1456*** | 0.0741*** | 0.2869*** |
| | (0.207) | (0.236) | (0.213) | (0.256) | (0.014) | (0.007) | (0.015) | (0.027) |
| Observations | 247,256 | 210,082 | 247,213 | 210,073 | 247,366 | 210,196 | 190,439 | 164,516 |
| Firm Eff | N | N | N | N | Y | Y | Y | Y |
| Country Eff | Y | Y | Y | Y | N | N | N | N |
| Industry Eff | Y | Y | Y | Y | N | N | N | N |
| Year Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Controls | N | Y | N | Y | N | Y | N | Y |
| Adjusted/Pseudo R-squared | 0.145 | 0.168 | 0.127 | 0.349 | 0.490 | 0.532 | 0.095 | 0.127 |

**FIGURE 1**
**US PORTFOLIO FLOWS AND THE VIX INDEX, 1990 –2013**




This figure plots annual portfolio flows from residents of the United States to stocks and bonds in the 44 countries in my sample and the VIX index from 1990 to 2013. I obtain cumulative portfolio flows from the US TIC database, maintained by the US Treasury Department, and the VIX index from the Chicago Board of Options and Exchanges. To measure US Outflows, I follow Hua and Rey (2004) and take the sum of US residents' net purchases of foreign stocks and bonds of country j at time t, scaled by the sum of gross bilateral stock and debt transactions between residents of the United States and country j at time t. At the aggregate level, the correlation between US portfolio flows to the countries in my sample and the VIX index is -0.587.

**FIGURE 2**
**EFFECT OF EXPOSURE TO US PORTFOLIO FLOWS ON NON-US FIRMS' STOCK AND BOND ISSUANCE AROUND NATURAL DISASTERS**

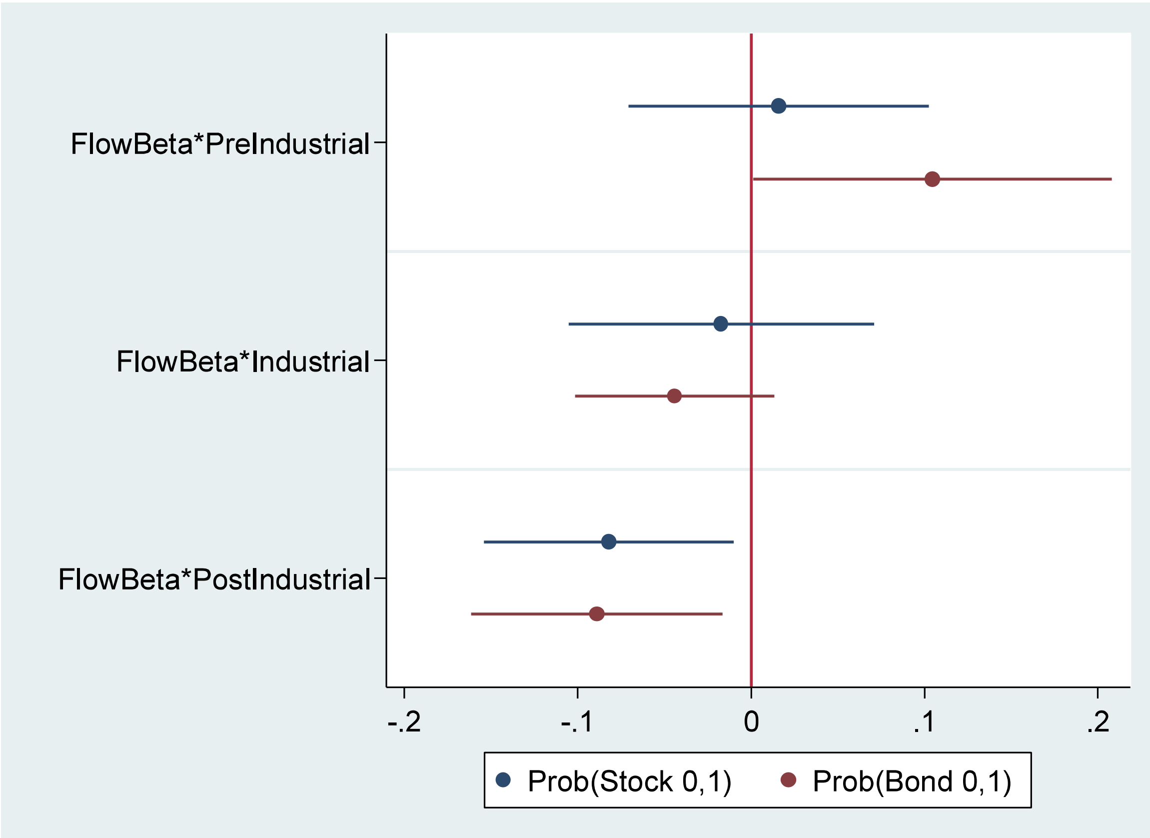



This figure plots coefficient estimates measuring the effect of non-US firms' exposure to US portfolio flows on the probability that firms issues stocks and bonds around large natural disasters. Estimates are from the probit panel regressions of Table 3, Models (2) and (4). The sample are firms that report no US sales in their Worldscope geographic segments over the sample period. Plotted are the coefficient estimates of C1,2,3*DisasterJ,t-1,t,+1*USFlowBetai,j,t-1 and their 95% confidence intervals (from standard errors clustered by country-year). Using firm-level stock and bond issuance, I estimate the following regression:

Outcomei,j,k,t = a +C1,2,3*DisasterJ,t-1,t,+1*USFlowBetai,j,t-1 +C4,5,6*DisasterJ,t-1,t,t+1 +C7*USFlowBetai,j,t-1 +C8*USFlow→J,t-1 + Xi,j,t +bj,k +ct +ej,t

where the dependent variable is the indicator variable for the stock or new debt issuance of firm i in country j in industry k in year t. Issuance are matched at the ultimate parent-level and obtained from SDC. USFlowBetas are the sensitivities of firms' monthly stock returns to US monthly portfolio flows. DisasterJ,t identifies country-years in which a country experiences natural disasters that have killed at least 100 people. USFlows labels the cumulative annual portfolio flows from US investors to country j, at time t. Natural disasters are obtained from the Centre for Research on the Epidemiology of Disasters. Xi,j,t labels control variables that are used in Table 3, Models (2) and (4).

**FIGURE 3**
**EFFECT OF EXPOSURE TO US PORTFOLIO FLOWS ON NON-US FIRMS' STOCK AND BOND ISSUANCE AROUND INDUSTRIAL DISASTERS**

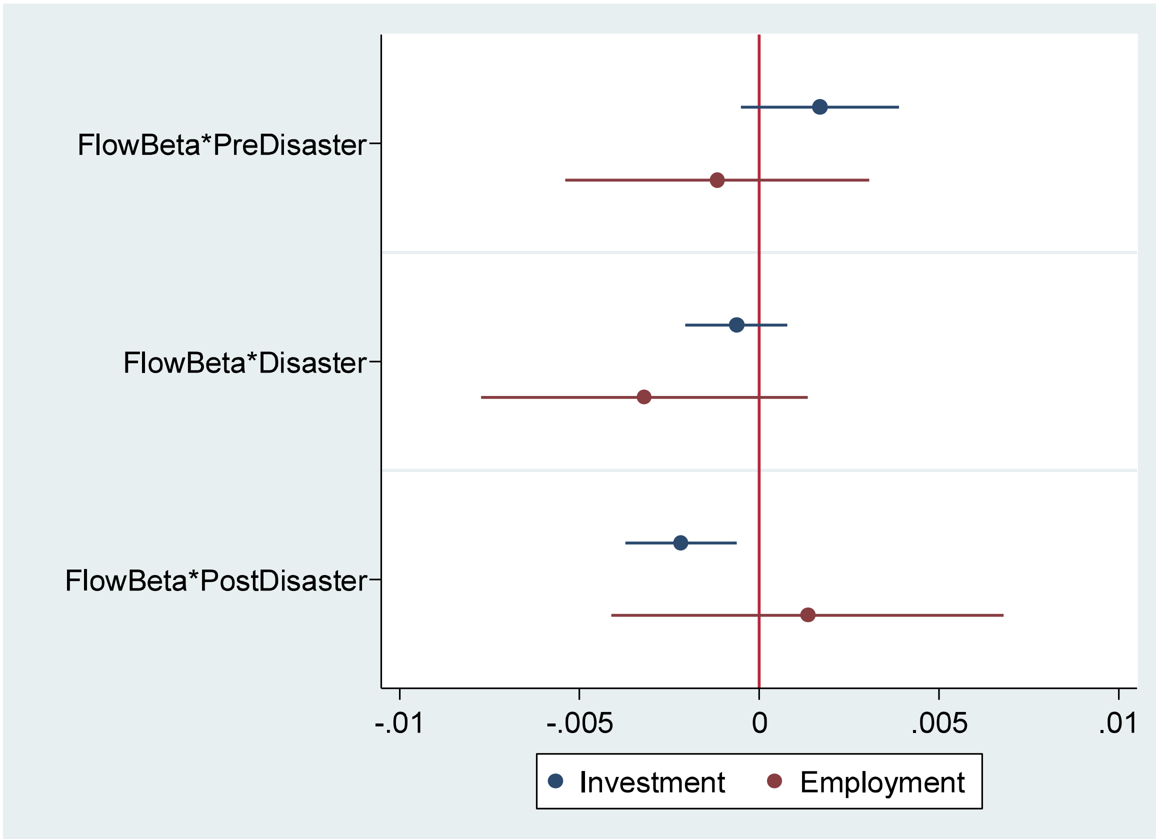



This figure plots coefficient estimates measuring the effect of non-US firms' exposure to US portfolio flows on the probability that firms issues stocks and bonds around large natural disasters. Estimates are from the probit panel regressions of Table 3, Models (6) and (8). The sample are firms that report no US sales in their Worldscope geographic segments over the sample period. Plotted are the coefficient estimates of C1,2,3*DisasterJ,t-1,t,+1*USFlowBetai,j,t-1 and their 95% confidence intervals (from standard errors clustered by country-year). Using firm-level stock and bond issuance, I estimate the following regression:

Outcomei,j,k,t = a +C1,2,3*DisasterJ,t-1,t,+1*USFlowBetai,j,t-1 +C4,5,6*DisasterJ,t-1,t,t+1 +C7*USFlowBetai,j,t-1 +C8*USFlow→J,t-1 + Xi,j,t + bj,k +ct +ej,t

where the dependent variable is the indicator variable for the stock or new debt issuance of firm i in country j in industry k in year t. Issuance are matched at the ultimate parent-level and obtained from SDC. USFlowBetas are the sensitivities of firms' monthly stock returns to US monthly portfolio flows. DisasterJ,t identifies country-years in which a country experiences industrial disasters that have killed at least 100 people. USFlows labels the cumulative annual portfolio flows from US investors to country j, at time t. Industrial disasters are obtained from the Centre for Research on the Epidemiology of Disasters. Xi,j,t labels control variables that are used in Table 3, Models (6) and (8).

**FIGURE 4**
**EFFECT OF EXPOSURE TO US PORTFOLIO FLOWS ON NON-US FIRMS' INVESTMENT AND EMPLOYMENT GROWTH AROUND NATURAL DISASTERS**

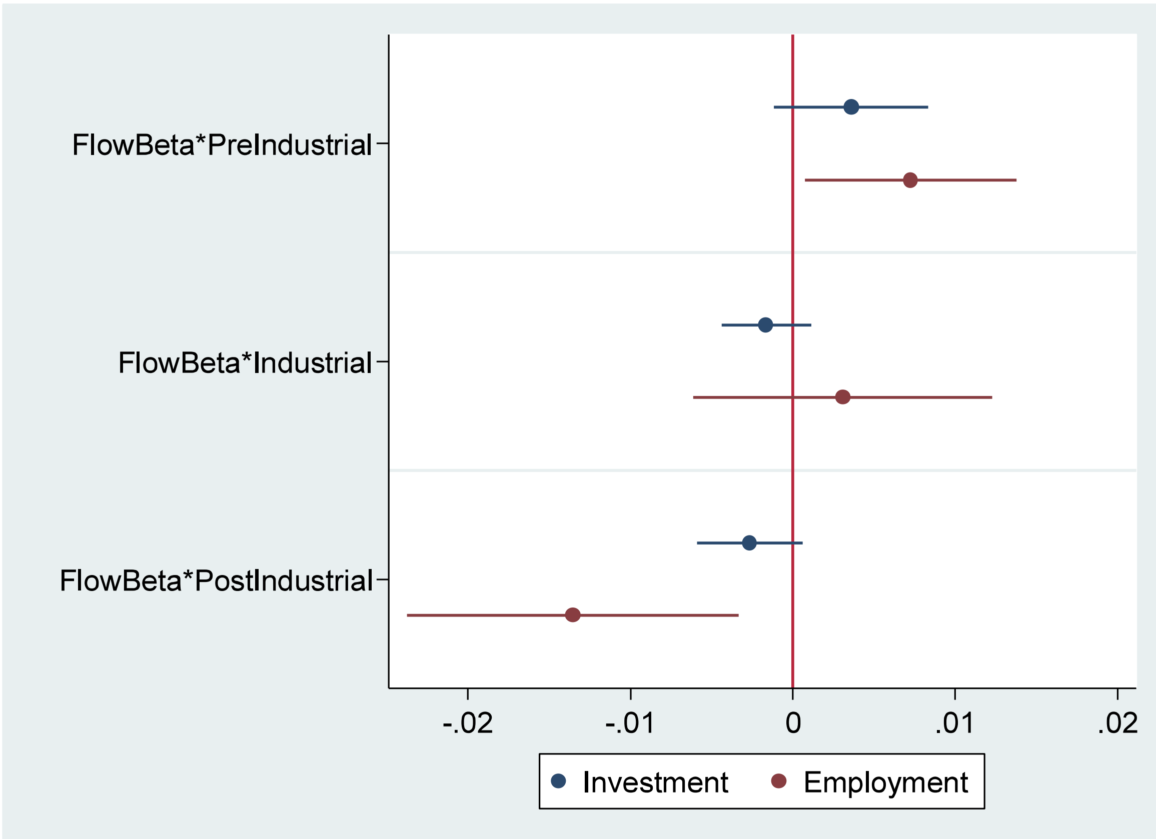



This figure plots coefficient estimates measuring the effect of non-US firms' exposure to US portfolio flows on the firms' investment and employment growth around large natural disasters. Estimates are from the OLS panel regressions of Table 4, Panel A, Models (2) and (4). The sample are firms that report no US sales in their Worldscope geographic segments over the sample period. Plotted are the coefficient estimates of $C_{1,2,3}$*Disaster$_{J,t-1,t,+1}$*USFlowBeta$_{i,j,t-1}$ and their 95% confidence intervals (from standard errors clustered by country-year). Using firm-level investment and employment, I estimate the following regression:

$$\textit{Real Outcome}_{i,j,t} = a + C_{1,2,3}\text{*Disaster}_{J,t-1,t,+1}\text{*USFlowBeta}_{i,j,t-1} + C_{4,5,6}\text{*Disaster}_{J,t-1,t,t+1}$$
$$+ C_7\text{*USFlowBeta}_{i,j,t-1} + C_8\text{*USFlow}{\rightarrow}J_{,t-1} + X_{i,j,t} + b_i + c_t + e_{j,t}$$

where the dependent variable is the total investment (CAPEX+RDX, scaled by lagged total assets), and employment growth (natural log of employees, scaled by lagged employees) of firm *i* in country *j* in year *t*. USFlowBetas are the sensitivities of firms' monthly stock returns to US monthly portfolio flows. $Disaster_{J,t}$ identifies country-years in which a country experiences natural disasters that have killed at least 100 people. USFlows labels the cumulative annual portfolio flows from US investors to country *j*, at time *t*. Natural disasters are obtained from the Centre for Research on the Epidemiology of Disasters. $X_{i,j,t}$ labels control variables that are used in Table 4, Panel A, Models (2) and (4).

**FIGURE 5**
**EFFECT OF EXPOSURE TO US PORTFOLIO FLOWS ON NON-US FIRMS' INVESTMENT AND EMPLOYMENT GROWTH AROUND INDUSTRIAL DISASTERS**




This figure plots coefficient estimates measuring the effect of non-US firms' exposure to US portfolio flows on the firms' investment and employment growth around large natural disasters. Estimates are from the OLS panel regressions of Table 4, Panel A, Models (6) and (8). The sample are firms that report no US sales in their Worldscope geographic segments over the sample period. Plotted are the coefficient estimates of $C_{1,2,3}$*Disaster$_{J,t-1,t,+1}$*USFlowBeta$_{i,j,t-1}$ and their 95% confidence intervals (from standard errors clustered by country-year). Using firm-level investment and employment, I estimate the following regression:

$$Real\ Outcome_{i,j,t} = a + C_{1,2,3}*\text{Disaster}_{J,t-1,t,+1}*\text{USFlowBeta}_{i,j,t-1} + C_{4,5,6}*\text{Disaster}_{J,t-1,t,t+1}$$
$$+C_7*\text{USFlowBeta}_{i,j,t-1} + C_8*\text{USFlow}\rightarrow J_{,t-1} + X_{i,j,t} + b_i + c_t + e_{j,t}$$

where the dependent variable is the total investment (CAPEX+RDX, scaled by lagged total assets), and employment growth (natural log of employees, scaled by lagged employees) of firm *i* in country *j* in year *t*. USFlowBetas are the sensitivities of firms' monthly stock returns to US monthly portfolio flows. $Disaster_{J,t}$ identifies country-years in which a country experiences industrial disasters that have killed at least 100 people. USFlows labels the cumulative annual portfolio flows from US investors to country *j*, at time *t*. Industrial disasters are obtained from the Centre for Research on the Epidemiology of Disasters. $X_{i,j,t}$ labels control variables that are used in Table 4, Panel A, Models (6) and (8).

## APPENDIX

### TABLE A1
### DO NON-US FIRMS' EXPOSURE TO US PORTFOLIO FLOWS IMPACT FIRMS' STOCK RETURNS?

The table presents Fama MacBeth (1973) regression results of a stock's sensitivity to US investors' portfolios flows on stock returns from 1991 to 2013. Using firm-level stock returns from the countries in the sample, I estimate the following regression:

$$R_{i,j,t} - R_{f,t} = a + \gamma * USFlowBeta_{i,j,t-1} + c*X_{i,t-1} + e_{i,t} \mid (US\ Buys_{J,t},\ US\ Sells_{J,t},\ \Delta Uncertainty_{t-1})$$

the dependent variable is the excess returns of firm *i* in country *j* in month *t*. $USFlowBeta_{i,j,t}$ is the sensitivity of firm *i*'s monthly stock returns to US investors' monthly portfolio flows to country *j* at time *t*, and is defined in the data appendix. Panel A conditions the time-series into country-months in which US portfolio flows to country *j* in month *t* are positive and negative. Columns labelled full sample report findings for the all country-months. Columns labelled $US\ Buys_{J,t}$ identify country-month observations in which US portfolio flows to country *j* are positive, ie US investors are net buyers; Columns labelled $US\ Sell_{J,t}$ do the same for country-month observations in which US investors are net sellers. Panel B conditions the time-series into months when the lagged monthly change in the SP500 VIX index and SP100 VXO index are positive and negative. Columns labelled *Up* identify sample-month observations in which the lagged change in the uncertainty proxy is positive, i.e. following an increase in aggregate uncertainty; *Down* does the same for sample-month observations following a decrease in aggregate uncertainty. VIX and VXO data are obtained from the Chicago Board of Options and Exchanges. As before, $X_{i,t-1}$ labels the control variables for firm *i* at time *t-1*. *Marketcap* is the natural log of price times shares outstanding in the June prior to the July of year *t*. *B/M* is the natural log of the ratio of book equity in fiscal year *t-1* relative to the stock market capitalization in December of year *t-1*. $Mom_{t-11,t-1}$ is the buy and hold return from *t-11* to *t-1*, i.e. the cumulative return for the 11-month period between 12 and 2 months prior to month *t*. $Shortrun_{t-1,t-0}$ is the cumulative return for the month prior to month *t*. *Zero Return Percent* is the percentage of weekly local-currency stock returns with zero return relative for the month prior to month *t*. *Volatility* is the annualized standard deviation of weekly stock returns in year *t-1*. Firms are required to have at least 12 non-missing monthly stock return observations. Monthly returns are set to missing when they exceed 200% and are reversed. Using weekly local-currency returns, a firm's stock is required to have traded at 30% of the previous year. All stocks are required to be the primary and major listing for each firm and downloaded via Datastream; all accounting data are downloaded via Worldscope. Firm-level returns, characteristics, and volatility are calculated in USD; the zero return measure is calculated using local-currency returns. To avoid a look-ahead bias, sensitivities and characteristics are matched with returns in July of year t. All independent variables are winsorized at the 1% and 99% level. T-stats are reported parentheses. ***,**,** indicate significance at the 1%, 5%, and 10% level, respectively.

**PANEL A**

| VARIABLES | (1) Full Sample (All) | (2) US Buys (All) | (3) US Buys (All) | (4) US Sells (All) | (5) US Sells (All) | (6) US Buys (Debt) | (7) US Buys (Debt) | (8) US Sells (Stock) | (9) US Sells (Stock) |
|---|---|---|---|---|---|---|---|---|---|
| $b_{TotaflowUS \to FOR t-1}$ | -0.00147* | 0.00252*** | 0.00268*** | -0.00730*** | -0.00685*** | 0.00350*** | -0.00500*** | 0.00736*** | -0.01709*** |
| | (-1.750) | (2.762) | (3.221) | (-6.432) | (-6.703) | (4.916) | (-6.152) | (3.252) | (-6.401) |
| ln(Marketcap) | | | -0.00038 | | -0.00078** | -0.00047 | -0.00092*** | -0.00068** | -0.00046 |
| | | | (-1.086) | | (-2.179) | (-1.276) | (-2.638) | (-2.005) | (-1.209) |
| ln(B/M) | | | 0.00412*** | | 0.00424*** | 0.00429*** | 0.00359*** | 0.00359*** | 0.00437*** |
| | | | (5.874) | | (5.013) | (5.727) | (4.411) | (4.369) | (5.260) |
| $Mom_{t-11,t-2}$ | | | 0.00354 | | 0.00680*** | 0.00434* | 0.00444* | 0.00283 | 0.00612** |
| | | | (1.484) | | (2.838) | (1.794) | (1.888) | (1.145) | (2.587) |
| $Shortrun_{t-1,t-0}$ | | | -0.02956*** | | -0.02226*** | -0.02514*** | -0.03019*** | -0.02449*** | -0.02633*** |
| | | | (-5.085) | | (-3.599) | (-4.398) | (-4.534) | (-3.898) | (-4.419) |
| ZeroReturnPercent | | | -0.00237 | | 0.00448 | -0.00205 | 0.00391 | 0.00139 | 0.00212 |
| | | | (-0.673) | | (1.034) | (-0.539) | (0.979) | (0.326) | (0.502) |
| Volatility | | | -0.00158 | | -0.00283 | -0.00175 | -0.00062 | -0.00123 | -0.00222 |
| | | | (-0.953) | | (-1.514) | (-0.990) | (-0.324) | (-0.703) | (-0.999) |
| Constant | 0.00681** | 0.00825*** | 0.01048*** | 0.00529* | 0.01045*** | 0.01021*** | 0.01058*** | 0.01119*** | 0.01048*** |
| | (2.323) | (2.724) | (3.260) | (1.703) | (3.101) | (3.026) | (3.192) | (3.388) | (3.031) |
| Observations | 3,262,189 | 1,753,584 | 1,690,481 | 1,501,596 | 1,435,547 | 1,354,424 | 1,751,848 | 1,918,596 | 1,204,571 |
| R-squared | 0.020 | 0.017 | 0.057 | 0.021 | 0.074 | 0.055 | 0.065 | 0.060 | 0.070 |
| Number of groups | 276 | 276 | 276 | 276 | 276 | 276 | 276 | 276 | 276 |

**PANEL B**

| VARIABLES | (1) ΔVIX (Up) | (2) ΔVIX (Up) | (3) ΔVIX (Down) | (4) ΔVIX (Down) | (5) ΔVXO (Up) | (6) ΔVXO (Up) | (7) ΔVXO (Down) | (8) ΔVXO (Down) |
|---|---|---|---|---|---|---|---|---|
| $b_{TotaflowUS \rightarrow FOR t-1}$ | -0.00244** | -0.00241** | 0.00012 | 0.00021 | -0.00213** | -0.00208* | -0.00013 | -0.00006 |
| | (-2.430) | (-2.302) | (0.117) | (0.187) | (-2.044) | (-1.933) | (-0.128) | (-0.059) |
| ln(Marketcap) | 0.00039 | 0.00029 | -0.00118*** | -0.00133*** | 0.00049 | 0.00030 | -0.00129*** | -0.00136*** |
| | (0.905) | (0.690) | (-2.825) | (-3.242) | (1.164) | (0.723) | (-3.070) | (-3.312) |
| ln(B/M) | 0.00340*** | 0.00330*** | 0.00486*** | 0.00467*** | 0.00412*** | 0.00394*** | 0.00423*** | 0.00412*** |
| | (3.688) | (3.818) | (5.078) | (4.964) | (4.614) | (4.679) | (4.311) | (4.285) |
| $Mom_{t-11,t-2}$ | 0.00792*** | 0.00753*** | 0.00184 | 0.00117 | 0.00976*** | 0.00936*** | 0.00018 | -0.00048 |
| | (3.287) | (3.161) | (0.515) | (0.326) | (3.843) | (3.717) | (0.052) | (-0.137) |
| $Shortrun_{t-1,t-0}$ | -0.01028 | -0.01349* | -0.03411*** | -0.03399*** | -0.01065 | -0.01358* | -0.03395*** | -0.03405*** |
| | (-1.345) | (-1.813) | (-4.592) | (-4.606) | (-1.416) | (-1.851) | (-4.508) | (-4.561) |
| ZeroRetunPercent | | 0.00636 | | -0.00118 | | 0.00443 | | 0.00045 |
| | | (1.165) | | (-0.262) | | (0.812) | | (0.100) |
| Volatility | | -0.00227 | | -0.00108 | | -0.00397* | | 0.00043 |
| | | (-1.068) | | (-0.557) | | (-1.799) | | (0.232) |
| Constant | -0.00464 | -0.00316 | 0.02022*** | 0.02166*** | -0.00552 | -0.00278 | 0.02116*** | 0.02149*** |
| | (-0.935) | (-0.676) | (5.089) | (5.751) | (-1.129) | (-0.598) | (5.295) | (5.653) |
| Observations | 1,492,396 | 1,432,929 | 1,769,793 | 1,699,588 | 1,509,648 | 1,449,462 | 1,752,541 | 1,683,055 |
| R-squared | 0.042 | 0.047 | 0.055 | 0.060 | 0.045 | 0.050 | 0.053 | 0.057 |
| Number of groups | 128 | 128 | 148 | 148 | 129 | 129 | 147 | 147 |

## APPENDIX

### TABLE A2
### ROBUSTNESS CHECK: FOREIGN OWNERSHIP STRUCTURE, STOCK RETURN VOLATILITY, AND NO US SALES

This table presents probit and OLS panel regression results of the relation between the firms' capital-raising and real behaviors around disasters and firms' sensitivity to US portfolio flows, defined as firms' beta to US flows, from 2003 to 2013. The models include additional control are for firms' ownership structure and firms' stock return volatility. $ForeignFreeFloat_{i,j,t}$ is the percentage of total shares of firm *i*'s issue in country *j* in year *t* that are available to non-domestic investors, as reported to Worldscope. The data are available beginning in 2003. $Volatility_{i,j,t}$ is standard deviation of firm *i*'s weekly USD stock returns for calendar year *t*. Using firm-level issuances, capital expenditure (CAPEX), research and development expense (RD), and firms' total employees (EMPLY), I estimate forms of the following regression:

$$Outcome_{i,j,k,t} = a + Disaster_{j,t-1,1,t+3} * \text{USFlowBeta}_{i,j,t-1} + Disaster_{j,t-1,1,t+3} + \text{USFlowBeta}_{i,j,t-1} + \text{USFlow}_{\text{US}\to J,t-1} + \text{X}_{i,j,t} + b_{i/j,k} + c_t + e_{j,t}$$

the dependent variable is the issuance, investment, or employment outcome of firm *i* in country *j* in industry *k* in year *t*. $Disaster_{J,t}$ labels country-years in which disasters in country *j* have resulted in at least 100 deaths. *Natural* labels natural disaster treatment years; *Industrial* labels industrial disasters treatment years. Disasters are collected from the EM-DAT provided by the Centre for Research on the Epidemiology of Disasters/OFDA International Disaster Database website, produced by Université Catholique de Louvain, Brussels, Belgium. As before, $USFlowBeta_{i,j,t}$ is the sensitivity of firm *i*'s monthly stock returns to US investors' monthly portfolio flows to country *j* at time *t*. $USFlow_{US\to J,t}$ is the annual total portfolio flow from US investors to country *j* at time *t*. I examine the following behaviors: (1) total investment, the ratio of CAPEX+RD relative to lagged total assets; (2) employment growth, the natural log of the ratio of EMPLY scaled by lagged EMPLY. I set CAPEX and RD equal to zero when missing. "No US Sales" identifies firms that do not report any geographic segment exposure to the "United States", "North America", or "the Americas" in their geographic segment data as reported to Worldscope at any time over the sample period. As before, firms are required to have liquid stock returns, defined using the Lesmond, Ogden, Trzcinka (1999) measure applied to weekly local-currency returns; firms' stock is required to have traded at 30% of the previous year. All flows data are downloaded from the US TIC database. All firm-level returns are obtained from Datastream. All accounting data are in USD and downloaded from Worldscope. All issuance data are obtained from SDC and matched at the ultimate-parent level. All macro-economic data are obtained from the World Bank. All issuance models include country, industry, and year-fixed effects; all investment and employment models include firm and year-fixed effects. All flow-betas, total flows, and firms-level accounting data are winsorized at the 1% level. All standard errors are clustered by country and year. ***,**,* denote significance at the 1%, 5%, and 10% level, respectively.

**TABLE A2**
**MORE CONTROLS**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Dependent Variable | SEOs | NewDebt | SEOs | NewDebt | CAPEX+RD | EmpG | CAPEX+RD | EmpG |
| Treatment | Natural | Natural | Industrial | Industrial | Natural | Natural | Industrial | Industrial |
| Sample | No US Sales | No US Sales | No US Sales | No US Sales | No US Sales | No US Sales | No US Sales | No US Sales |
| VARIABLES | | | | | | | | |
| $Disaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | 0.0236 | 0.0640* | -0.0343 | -0.1024 | 0.0000 | -0.0054** | -0.0087*** | -0.0082 |
| | (0.015) | (0.039) | (0.060) | (0.089) | (0.001) | (0.002) | (0.003) | (0.008) |
| $PreDisaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | 0.0309* | 0.1773*** | 0.0972*** | 0.3450*** | 0.0026 | 0.0000 | 0.0144*** | 0.0167** |
| | (0.018) | (0.052) | (0.036) | (0.079) | (0.002) | (0.004) | (0.004) | (0.008) |
| $PostDisaster_{J,t}$* $USFlowBeta_{i,j,t-1}$ | -0.0891*** | -0.1456*** | -0.1103* | -0.1644** | -0.0021 | -0.0024 | -0.0050 | -0.0141** |
| | (0.023) | (0.049) | (0.057) | (0.067) | (0.001) | (0.003) | (0.003) | (0.007) |
| $Disaster_{J,t}$ | -0.0498 | 0.1012 | 0.0993* | 0.0610 | 0.0047* | -0.0057 | 0.0026 | -0.0087 |
| | (0.044) | (0.066) | (0.052) | (0.068) | (0.002) | (0.008) | (0.003) | (0.008) |
| $PreDisaster_{J,t}$ | -0.1112* | -0.0212 | -0.0358 | -0.0887 | -0.0016 | 0.0018 | -0.0007 | -0.0130* |
| | (0.057) | (0.097) | (0.068) | (0.098) | (0.005) | (0.009) | (0.004) | (0.008) |
| $PostDisaster_{J,t}$ | -0.1115** | 0.0218 | -0.0072 | 0.2011*** | 0.0024 | -0.0040 | 0.0027 | 0.0063 |
| | (0.055) | (0.065) | (0.055) | (0.060) | (0.002) | (0.008) | (0.003) | (0.008) |
| $ForeignFreeFloat_{i,j,t-1}$ | -0.2988*** | -0.5198*** | -0.2931*** | -0.5148*** | -0.0095*** | -0.0001 | -0.0090*** | -0.0017 |
| | (0.046) | (0.078) | (0.046) | (0.076) | (0.003) | (0.016) | (0.003) | (0.016) |
| $Volatility_{i,j,t-1}$ | 0.0112 | 0.0045** | 0.0112 | 0.0040* | -0.0003 | -0.0017*** | -0.0003 | -0.0017*** |
| | (0.009) | (0.002) | (0.009) | (0.002) | (0.000) | (0.001) | (0.000) | (0.001) |
| $USFlowBeta_{i,j,t-1}$ | 0.0220*** | -0.0466** | 0.0256*** | -0.0237 | -0.0011* | -0.0031 | -0.0009* | -0.0036* |
| | (0.007) | (0.023) | (0.005) | (0.019) | (0.001) | (0.002) | (0.000) | (0.002) |
| $USFlow_{US \rightarrow J,t-1}$ | -0.1532 | 0.6381 | -0.3390 | 0.5980 | 0.0287 | 0.1443** | 0.0253 | 0.1273* |
| | (0.436) | (0.534) | (0.506) | (0.524) | (0.026) | (0.067) | (0.024) | (0.068) |
| $Q_{i,j,t-1}$ | 0.0661*** | 0.0415** | 0.0655*** | 0.0428** | 0.0167*** | 0.0289*** | 0.0166*** | 0.0291*** |
| | (0.008) | (0.017) | (0.008) | (0.018) | (0.002) | (0.004) | (0.002) | (0.004) |
| $Cashflow_{i,j,t-1}$ | -1.0902*** | 0.4600*** | -1.0889*** | 0.4736*** | 0.0004 | 0.1332*** | 0.0005 | 0.1328*** |
| | (0.059) | (0.163) | (0.059) | (0.165) | (0.005) | (0.022) | (0.005) | (0.022) |
| $LnTotalAssets_{i,j,t-1}$ | 0.0069 | 0.4493*** | 0.0065 | 0.4481*** | -0.0194*** | -0.0732*** | -0.0195*** | -0.0738*** |
| | (0.010) | (0.013) | (0.010) | (0.013) | (0.002) | (0.006) | (0.002) | (0.006) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $LnFirmAge_{i,j,t-1}$ | -0.1413*** | -0.0829*** | -0.1417*** | -0.0850*** | -0.0002 | -0.0310** | -0.0010 | -0.0343** |
| | (0.016) | (0.025) | (0.016) | (0.025) | (0.003) | (0.014) | (0.003) | (0.014) |
| $Leverage_{i,j,t-1}$ | 0.8250*** | 1.0917*** | 0.8218*** | 1.0924*** | -0.0161*** | -0.0212 | -0.0168*** | -0.0220 |
| | (0.046) | (0.077) | (0.046) | (0.076) | (0.004) | (0.018) | (0.004) | (0.018) |
| $GdpGrowth_{j,t-1}$ | 0.1730 | 0.1544 | -0.2303 | 0.1252 | -0.0377 | -0.0255 | -0.0263 | -0.0119 |
| | (0.762) | (0.845) | (0.809) | (0.821) | (0.037) | (0.127) | (0.035) | (0.132) |
| $MarketGdp_{j,t-1}$ | -0.0220 | -0.1164** | -0.0275 | -0.0746 | -0.0022 | -0.0059 | -0.0015 | -0.0048 |
| | (0.038) | (0.058) | (0.037) | (0.057) | (0.002) | (0.009) | (0.002) | (0.009) |
| Constant | -1.9509*** | -4.6377*** | -1.9489*** | -4.6341*** | 0.1392*** | 0.4180*** | 0.1425*** | 0.4255*** |
| | (0.176) | (0.251) | (0.178) | (0.255) | (0.011) | (0.044) | (0.010) | (0.043) |
| Observations | 86,682 | 86,673 | 86,682 | 86,673 | 86,762 | 61,026 | 86,762 | 61,026 |
| Firm Eff | N | N | N | N | Y | Y | Y | Y |
| Country Eff | Y | Y | Y | Y | N | N | N | N |
| Industry Eff | Y | Y | Y | Y | N | N | N | N |
| Year Eff | Y | Y | Y | Y | Y | Y | Y | Y |
| Pseudo/Adj R-sq | 0.194 | 0.362 | 0.193 | 0.363 | 0.560 | 0.102 | 0.561 | 0.102 |