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Policy Uncertainty and FDI Flows: The Role of Institutional Quality and Financial Development

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Abstract

While foreign direct investment is known to be the most stable type of capital flows, it may be particularly susceptible to heightened uncertainty due to its higher fixed costs than that of other types of capital flows. We investigate the effect of higher policy uncertainty on FDI inflows in 16 host countries using the OECD bilateral FDI panel dataset and the economic policy uncertainty index from 1985 to 2013. The bilateral structure of these data enables us to disentangle the host country factors affecting FDI inflows from the source country factors, thereby obtains a cleaner causal identification of the higher domestic policy uncertainty effect largely immune to endogeneity issues. To alleviate further endogeneity problems, we use the election timing data as an instrument. We find that domestic policy uncertainty in a host country robustly reduces the FDI inflows. As regards the channel through which policy uncertainty affects FDI inflows, the institutional quality and financial development of the host country are key to mitigating this adverse impact of policy uncertainty.

Keywords: Economic policy uncertainty; FDI inflows; Elections; Institutional quality; Financial development.

JEL codes: F21; F32; F42.

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I. INTRODUCTION

Foreign direct investment (FDI) has long been recognized as a channel for economic growth via the transmission of new ideas and technologies. Numerous empirical and theoretical studies in the literature examine the causal link between FDI and growth (e.g., Borensztein et al., 1998; Alfaro et al., 2004; Chowdhury and Mavrotas, 2006) as well as the determinants of FDI (Schneider and Frey, 1985; Froot and Stein, 1991; Bénassy-Quéré et al., 2007; Blonigen and Piger, 2014). A bulk of empirical studies focus on the cross-country determinant of FDI, analyzing the factors affecting the decision of firms to invest in a foreign country, such as market size, distance, income level, technological differences, market access costs, cultural proximity, and etc. Since these factors tend to persist over time, previous analyses have typically focused on the long-term determinants drawn from general equilibrium predictions that explain the distribution of the *level* of FDI across countries and their implications for economic growth.

Furthermore, since FDI flows are known to be the most stable and persistent type of financial flows among the portfolio or banking flows (Milesi-Ferretti and Tille, 2011), previous studies have often overlooked the importance of economic factors affecting the variations in FDI at a business cycle frequency. However, the significant decline in FDI during the period following the global financial crisis (GFC)—a period characterized by heightened uncertainty of economic policies in many advanced economies (e.g., unconventional monetary policies, EU referendum, and global trade wars)—suggests that heightened policy uncertainty may have discouraged FDI. This is an important distinction because the examination of changes in FDI flows belongs to the international finance literature, where the role of capital market shocks, exchange rates, and short-run changes to other financial variables are the main focus.

While the real-option value channel in Bernanke (1983) and Bloom (2009) predicts a negative relationship between uncertainty and investment through a "wait-and-see" behavior under some irreversibility of investment, several factors indicate that this relationship would be stronger for FDI. First, foreign investment is subject to higher fixed costs than is domestic

investment owing to factors associated with national boundaries.[1] Second, foreign investment is more sensitive to the political environment than domestic investment because foreign investors have limited protection from the host country's legal and political institutions (Aizenman and Spiegel, 2006; Dixit, 2011).

In particular, we consider the uncertainty of the host country's economic policy because it is more likely to affect FDI decisions than other types of uncertainty (Julio and Yook, 2012; Chen et al., 2019; Azzimonti, forthcoming; Honig, forthcoming). For example, new constructions of U.S. multinational corporations (MNCs) in Mexico are likely to depend on policy factors such as the Mexican government's tax treaty, labor market regulations, capital controls, and free trade agreements. If the Mexican economic policy is subject to high uncertainty, the U.S. MNCs would adopt a wait-and-see behavior and postpone their FDI, or reallocate their investment to a country showing no policy uncertainty. In spite of this important link between FDI and policy uncertainty, earlier empirical studies are biased toward the link between FDI and the uncertainty or volatility of other economic dimensions of the economy, such as exchange rates and often find mixed results (e.g., Campa, 1993; Goldberg and Kolstad, 1995).[2]

We fill the gap in the literature by providing the first systematic analysis of how policy uncertainty in a host country affects FDI inflows. From the literature, identifying a causal link between uncertainty and macroeconomic outcomes using aggregate data has been challenging due to the obvious reverse causality.[3] However, the use of bilateral data of a large number of countries over a reasonably long period offers another promising approach. This approach can overcome the difficulty of separating the effect of policy uncertainty from other demand and

[1] One can riase a similar argument on international trade, because exports are likely to be subject to higher fixed costs than are domestic sales, generating a higher option value of waiting (e.g., Handley and Limao, 2015; Feng et al., 2017).

[2] Wang and Wong (2007) also find that that volatility in economic growth has a negative and significant impact on FDI outflows at a business cycle frequency using aggregate data.

[3] This has motivated the use of "natural experiment" approaches to study the effect of policy uncertainty on FDI. For example, Julio and Yook (2016) and Chen et al. (2019) use election timing data to analyze the effect of policy uncertainty on FDI. However, the analysis in Julio and Yook (2016) is limited to the FDI of U.S. MNCs, while Chen et al. (2019) analyze the effect of elections on aggregate, not bilateral FDI.

supply factors affecting FDI flows when using aggregate-level data, given the integrated international financial market and the presence of MNCs. To the best of our knowledge, this is the first attempt to quantify the effect of time-varying policy uncertainty on FDI inflows using a large international panel dataset.

The limitation in aggregate-level FDI data calls for the use of bilateral data obtained from the OECD's International Direct Investment Database. The bilateral structure of this data enables us to control for the supply-side effects of using the source country-time fixed effect—that is, any global and country-level shock affecting FDI flows from a common source country—and thus helps in identifying the impact of higher domestic policy uncertainty on FDI inflows to a given host country. With the source country-time fixed effect, any time-varying regressors of host countries can be interpreted as the difference between the host-source country pairs. With this fixed effect, our policy uncertainty measure serves as an appropriate measure of country-specific uncertainty and mitigate the concern that policy uncertainty is often correlated across countries.

The bilateral structure also allows for subsuming time-invariant, pair-specific variables (such as distance, common language, and bilateral trade agreements or tax treaties) into country-pair fixed effects, which isolate the dynamic effects and leave out the cross-sectional variation. With a constellation of fixed effects, our empirical analysis is less vulnerable to endogeneity issues than are any analyses based on aggregate data. We further alleviate any remaining endogeneity concerns by using legislative and presidential elections to instrument our policy uncertainty measure.

Our identification strategy closely follows and extends the one used by Julio and Yook (2016), who examine the effect of heightened policy uncertainty on FDI inflows in a recipient country due to presidential elections. By limiting their analysis to FDI originated from U.S. MNCs, they effectively control for the supply-side effect on FDI and study how heterogeneity in election times across countries affects the FDI inflows to these economies. Our analysis extends Julio and Yook (2016) and confirms whether their findings can be generalized to international data.

We use the economic policy uncertainty (EPU) index constructed by Baker et al. (2016) to measure the degree of uncertainty with regard to the host country's economic policy. In constructing the index, Baker et al. (2016) use a narrative approach based on news coverage of policy-related economic uncertainty. Compared to a stock market-based uncertainty measure such as the VIX,[4] which includes the uncertainty mostly on financial markets as well as investor sentiment or risk aversion, the EPU index captures the uncertainty more specific to economic policy and thus serves our purpose better. Moreover, the EPU index is less prone to be affected by international financial markets than is stock market volatility, thus strengthening our identification strategy. Compared to the studies using an election dummy as a proxy for policy uncertainty, the EPU index captures the time-varying intensity of policy uncertainty. However, as of 2019, the EPU index of only 23 countries is available, restricting the cross-sectional dimension of the sample to a certain extent.

We find that an increase in domestic policy uncertainty in the 16 host countries robustly reduced the FDI inflows even after controlling for a large set of economic variables affecting FDI inflows. The effect is both statistically and economically significant in that a one-standard-deviation increase in domestic policy uncertainty is followed by a 15–25% decline in FDI inflows next year. Interestingly, we find no such tight relationship between policy uncertainty and FDI inflows with aggregate data, suggesting that controlling for the confounding factors using bilateral data is key to successful identification. To the extent that policy uncertainty increases in response to macroeconomic development, simultaneously affecting FDI inflows, our findings might suffer from endogeneity bias. To alleviate this concern, we instrument the EPU index using the host country's election timing data, which are exogenous to development of the macroeconomy and FDI, inflows and confirm the baseline findings.

For more clarity on the channel through which policy uncertainty affects FDI inflows, we investigate the role of institutional quality and financial development. We choose these two factors from among various structural characteristics for the following reasons. First, they are important factors for determining the level of FDI inflows (Busse and Hefeker, 2007; Bénassy-Quéré et al., 2007; Daude and Stein, 2007). Second, studies show that these factors determine

[4] For example, Fratzscher (2012) and Forbes and Warnock (2012) use the VIX as a measure of global uncertainty or global risk aversion and find that it is a strong global push factor of international capital flows.

the effectiveness of FDI in promoting growth (Hermes and Lensink, 2003; Alfaro et al., 2004; Alguacil et al., 2011; Jude and Levieuge, 2017). Third, better institutions or developed financial markets in a country ameliorate the dampening effect of uncertainty on domestic investment (Carrière-Swallow and Céspedes, 2013; Choi et al., 2018; Karaman and Yıldırım-Karaman, 2019). By estimating the interaction effect between policy uncertainty and institutional quality—measured by the government stability and bureaucratic quality indices—and financial development—measured by domestic private credit to GDP ratio—we can confirm that these factors mitigate the adverse impact of policy uncertainty on FDI inflows.

We perform extensive robustness checks on the main findings. For example, we confirm these findings by controlling for stock market volatility—an alternative measure of uncertainty. This suggests that the EPU index captures different aspects of uncertainty relevant to the MNC's FDI decisions distinct from the uncertainty of financial markets. Given the annual frequency of the data, we also confirm that our findings hold even with contemporaneous regressors. Despite the sharp slowdown in FDI during the GFC, our findings are robust to the exclusion of this period and its aftermath. While our findings are not driven by a particular group of source countries, we find that the adverse effect of domestic policy uncertainty is larger on the FDI flows from non-OECD countries.

The remainder of the paper is organized as follows. Section II describes the data on bilateral FDI flows, a measure of policy uncertainty, an indicator of government quality, and data on various macroeconomic controls. Section III illustrates the econometric methodology used to mitigate the endogeneity issues and disentangle the FDI demand and supply factors. Section IV presents the main results and a battery of robustness exercises. Finally, Section V concludes.

II. DATA

We analyze whether heightened policy uncertainty in a host country reduces the FDI flows from foreign MNCs, by exploiting bilateral FDI data. While a typical panel analysis using aggregate FDI flows data controls for the global factors common to all host countries using time fixed effects, it cannot control for the country-specific FDI flows push factors. Thus,

the use of aggregate FDI data makes it difficult to distinguish the domestic policy uncertainty effect from other confounding factors, especially the supply-side factors at the source country, including its own policy uncertainty.

Bilateral FDI data are taken from the OECD's International Direct Investment Database. While the bilateral FDI flow data obtained from the UNCTAD are often used for analysis in a large number of countries, including developing ones, the OECD database provides more accurate and consistent bilateral FDI data of its member countries.[5] It also has some coverage of FDI between OECD and non-OECD countries, although some transactions with non-OECD countries are missing. OECD does not report any observations of FDI between countries where they are both non-OECD. However, this limitation is not a concern for our study because the EPU index is seldom available in non-OECD countries.[6] We use the annual bilateral FDI flows data of 16 OECD host countries that have consistent data on the EPU index (Australia, Canada, Chile, France, Germany, Greece, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, Spain, Sweden, the U.K., and the U.S.) and of their (up to) 166 counterparty countries during the 1985–2013 period.

The counterparty coverage is quite unbalanced because we use 1,225 country pairs in the baseline analysis, although 2,656 (16 times 166) theoretical country pairs are available. Each host country has, on average, the FDI flows data of 76 countries, balanced between advanced and developing economies. Since the FDI flows data are taken from the balance of payments data based on financial transactions, which include the retained earnings and intra-firm transfers, they provide rather noisy and imperfect measures of direct investment flows. Thus, compared to the domestic investments data taken from the national income accounts, the FDI flows data may overestimate the amount of the true "new capital" in the economy (Alfaro et al., 2004).[7]

[5] See OECD (2008) for the operational guidelines on how FDI activity should be measured, and how it sets the world standard for the collection of direct investment statistics.

[6] The exceptions are Brazil, China, Colombia, Hong Kong, India, Russia, and Singapore.

[7] For example, the definition of FDI also involves a multinational enterprise buying out a local manufacturer without any greenfield investment. For this reason, Carr et al. (2001) emphasize the use of affiliate sales as the

To provide a sense of the FDI inflows across countries, the Columns (I) and (III) of Table 1 summarize the annual aggregate and bilateral FDI inflows to each host country, respectively. The FDI inflows amount varies heavily across countries. From the perspective of the size of the economy, some European countries such as France, Germany, and the U.K. as well as Canada and the U.S. are heavy recipients of inward FDI, while countries such as Greece, Japan, and Korea receive only limited FDI inflows. Columns (II) and (IV) of Table 1 summarize the aggregate and bilateral FDI inflows normalized by the size of inward FDI stock of the last year. The normalized FDI inflows are quite heterogeneous across countries. Not surprisingly, bilateral FDI inflows are much more volatile than aggregate FDI inflows.

For policy uncertainty measure, we employ the EPU index constructed by Baker et al. (2016). This index captures the uncertainty of "who will make economic policy decisions, what economic policy actions will be undertaken and when they will be enacted, the economic effects of past, present and future policy actions, and uncertainty induced by policy inaction." (pp. 1598) The index has been widely used in recent studies as an alternative to the VIX—the most popular uncertainty measure based on financial market data. For example, the EPU index has been extensively used to study the effect of policy uncertainty on the variables related to a firm's domestic investment decisions (Gulen and Ion, 2015; Kim and Kung, 2016), but not FDI.

In constructing the index, Baker et al. (2016) mainly adopt a narrative approach and utilized the news coverage of policy-related economic uncertainty. They counted the articles appearing in every newspaper containing terms related to economic and policy uncertainty.[8] To meet the criteria for inclusion, an article should contain terms related to the three categories of uncertainty, economy, and policy. For example, an article containing the words "uncertain," "Congress," and "economic" meets the criteria.[9] While many studies find policy uncertainty

most appropriate measure of actual FDI in a host country. However, affiliate sales data are much less available than FDI stock data.

[8] For the U.S. index, they refer to the ten largest newspapers: the USA Today, the Miami Herald, the Chicago Tribune, the Washington Post, the Los Angeles Times, the Boston Globe, the San Francisco Chronicles, the Dallas Morning News, the Houston Chronicle, and the Wall Street Journal.

[9] We downloaded the EPU index (Baker et al., 2016) from www.policyuncertainty.com. The EPU index is based on the national newspaper coverage frequency of policy-related economic uncertainty; this mitigates the concerns

effects qualitatively similar to those of other uncertainty measures such as the VIX, some show that their effects could be quite different (Choi and Shim, 2019).

Figure 1 shows the fluctuations in each country's total FDI inflows in billion USD, along with the evolution of the EPU index over the sample period. Since the EPU index does not always cover the period for which FDI data are available, the availability of EPU index is a constraint of the sample period of our analysis.[10] The aggregate data, however, does not clearly indicate whether policy uncertainty is related to FDI inflows. The average correlation between the two variables is 0.04, with significant variation in correlation, ranging from -0.52 (Greece) to 0.61 (Korea). This weak unconditional relationship suggests that other confounding factors may disguise some theoretical relationship between the two variables, thus motivating our use of bilateral FDI data and the constellation of control variables and fixed effects.

We employ several country-level control variables to capture the macroeconomic environment of the host countries, motivated by prior research examining the determinants of FDI flows at a business cycle frequency (Carstensen and Toubal, 2004; Yeyati et al., 2007; Eicher et al., 2012; Julio and Yook, 2016; Chen et al., 2019). To the extent that the bilateral data structure enables controlling for any time-invariant factors specific to the host-source country pair and those in source countries through the source country-time fixed effect, we need to control for only the macroeconomic variables in a host country to identify the effect of higher domestic policy uncertainty on FDI inflows. We obtain the data of real GDP per capita, the share of government expenditure to GDP, and trade openness measured by the sum of exports and imports over GDP from the World Bank database, and the data of real GDP growth, inflation rate, and policy rate from the IMF International Financial Statistics. We also use the data of annual stock market returns and realized stock market volatility from Baker and Bloom's (2013) database.

mentioned above. Baker et al. (2016) conduct comprehensive searches of newspapers for relevant terms such as "uncertain," "uncertainty," "economic," "economy," and "commerce," and policy-relevant terms such as "central bank," "deficit," "trade policy," and "ministry of finance." For countries other than Australia, Canada, the U.K., and the U.S., they search for the relevant terms in the native language of the newspapers.

[10] A negative value of inflows indicates that disinvestment is larger than investment.

For a later analysis of the channel through which domestic policy uncertainty affects FDI inflows, we measure the institutional quality by government stability and bureaucracy quality rating data obtained from the Political Risk Service's International Country Risk Guide (ICRG). The government stability index assigns numbers from 0 to 12, where higher values indicate more stable governments. This is an assessment of the government's ability to carry out its declared programs as well as to stay in office. The bureaucracy quality index assigns numbers from 0 to 4, where higher values indicate higher quality of bureaucracy. Institutional strength and quality of bureaucracy act as another shock absorber minimizing policy revisions when governments change. Thus, these two dimensions in the Political Risk Index are the most relevant government quality measures for MNCs to make investment decisions.[11] In line with much of the literature, we measure financial development considering the bank credit to the private sector and bank total assets as percentages of GDP. We do not consider alternative measures of financial development such as money stock (M2) as percentages of GDP because every host country in our sample is an OECD country. Table 2 presents the summary statistics of the variables used in our main analysis.

III. METHODOLOGY

Any empirical analysis of FDI flows should note that the variations in FDI flow volume reflect the conditions in the host country as well as the country of FDI origin. In our context, ignoring the supply-side factors would bias the estimation results to the extent the uncertainty in the host country is correlated to those factors. We exploit the bilateral structure of the OECD FDI statistics and control for the unobserved time-variant factors in the source country as well as the time-invariant factors for the host-source country pair, and thereby control for any supply-side factors. In this sense, our identification strategy is similar to that used by Julio and Yook (2016), who examine the effect of heightened policy uncertainty due to presidential elections in the host country on FDI inflows. By limiting their analysis to the FDI flows from the U.S., they control for the supply-side effect of FDI effectively and study how heterogeneity

[11] We also test the robustness of our findings using an overall political risk index consisting of 12 components such as government stability and socioeconomic conditions.

in election times across countries affects the FDI inflows to these economies. However, this paper does not exploit large-dimensional bilateral capital flows data.

To gauge a host country's higher policy uncertainty effect on FDI inflows, we first estimate the equation

$$\frac{Inflows_{i,j,t}}{Inward\ stock_{i,j,t-1}} = \alpha_{i,j} + \alpha_{j,t} + \beta X_{i,t-1} + \gamma EPU_{i,t-1} + \varepsilon_{i,j,t}, \quad (1)$$

where our main dependent variable $\frac{Inflows_{i,j,t}}{Inward\ stock_{i,j,t-1}}$ shows the annual bilateral FDI inflows from source country *j* to host country *i* scaled by the lagged cumulative position following Baker et al. (2008) and Julio and Yook (2016). Note that our analysis is not limited to the bilateral FDI flows of the 16 countries in the sample, but also covers the bilateral FDI inflows from a large number of source countries, including both advanced and developing economies. While estimating the gravity model with symmetric panel data is more common in the bilateral FDI literature (Bénassy-Quéré et al., 2007; Eicher et al., 2012; Cavallari and D'Addona, 2013; Blonigen and Piger, 2014), we use asymmetric panel data for more comprehensive implications. To the extent to which the FDI patterns between advanced economies may be quite different from those between advanced and developing economies, we later test the robustness of our findings by separating source countries into the two groups.

In the above equation, $\alpha_{i,j}$ is the host-source country fixed effect; it controls for any time-invariant factors specific to the country pair, such as distance, common languages, trade agreements, and tax treaties between the two countries,[12] and country-level time-invariant factors, such as the legal system and cultural origin. $\alpha_{j,t}$ is the source country-time fixed effect; it controls for any macroeconomic shocks or policy changes affecting the source country, including both external and source country-specific shocks as well as the indirect impact of policy uncertainty through other FDI origin countries. The inclusion of source-time fixed effect

[12] Although factors such as bilateral trade agreements or tax treaties can vary over time, they are likely to be absorbed by the fixed effect due to their persistency over time.

further maximizes the sample coverage of our analysis, enabling us to circumnavigate the limited data availability on some of the control variables for many source countries.

Furthermore, $X_{i,t}$ is a set of macroeconomic controls in a host country, as described earlier, and $EPU_{i,t}$ is the log of the host country-specific EPU index. To mitigate reverse causality concerns, all the independent variables are lagged by one year, but we test the robustness of our findings using contemporaneous independent variables, given the annual frequency of data. γ is the coefficient of interest: a negative (positive) γ indicates that EPU reduces (increases) FDI inflows in the host country when controlling for supply conditions in the country of FDI origin, with the global factors affecting FDI inflows. We adopt the most conservative setup by clustering the standard errors at the host and source-pair levels.

IV. EMPIRICAL FINDINGS

A. Baseline results

Table 3 summarizes the results obtained from baseline regression. After dropping the outliers and missing observations, our baseline estimation covers an unbalanced panel of 1,225 host-source country pairs from 1985 to 2013. Before investigating the EPU effects on FDI inflows, we show in Column (I) of Table 3, the estimation results from a specification without EPU. In baseline regression, we control for the real GDP growth, log GDP per capita, trade openness, stock market returns, nominal exchange rate growth, policy rate, ratio of government spending to GDP, and inflation rate of previous studies that are purported to affect FDI flows (Carstensen and Toubal, 2004; Yeyati et al., 2007; Eicher et al., 2012; Julio and Yook, 2016; Chen et al., 2019). The signs of these variables are mostly consistent with theoretical predictions or previous empirical studies, although some variables are not statistically significant.[13] For example, a country with higher government spending or inflation tends to

[13] Note that we analyze the short-run determinants of bilateral FDI inflows after controlling for the constellation of fixed effects. It is thus not surprising that some robust determinants of cross-sectional distribution of FDI such as real GDP per capita are not significant in our regression.

receive lower FDI inflows, with everything else equal. The real GDP growth or stock market returns of the host country does not affect FDI inflows.

Column (II) of Table 3 reports the estimation results from regressing the dependent variable on the EPU index as well as other control variables. The sign of the EPU coefficient is negative and remains statistically significant at the 1% level even after controlling for the other macroeconomic variables. The magnitude of the coefficient (-15.42) is also economically significant, in that a one-standard-deviation increase in log EPU (0.37) leads to a decline in FDI inflows by as much as 24.8% of its mean (22.9%). Since we include the EPU index in the regression, the government spending coefficients to GDP and inflation rate lose their statistical significance, but the positive sign of the policy rate coefficient continues to be statistically significant. We use the specification in Column (II) as a baseline for the rest of the paper.

Our finding that a rise in policy uncertainty in a host country reduces FDI inflows is consistent with the findings of the emerging literature analyzing the role of policy uncertainty in explaining FDI flows. For example, Julio and Yook (2016) report that during the period just before an election, which is associated with heightened policy uncertainty, the flow of FDI from U.S. firms to foreign affiliates dropped significantly. Azzimonti (forthcoming) analyzes how partisan conflicts on the trade policy affects FDI flows to the U.S. In the international context, taking the timing of national elections as a proxy for policy uncertainty, Chen et al. (2019) show that the net aggregate inflow of FDI of 126 countries dropped significantly during election years.

We repeat the exercise using each host country's total FDI inflows scaled by the total lagged FDI stock as a dependent variable, instead of using bilateral FDI inflows as in the baseline analysis, to highlight the advantage of employing bilateral FDI data in identifying the effect of policy uncertainty on FDI inflows. For this, we run the following regression, which can be reduced from the baseline specification.

We repeat the exercise with the total FDI inflows of each host country scaled by total lagged FDI stock as a dependent variable, instead of using the bilateral FDI inflows, as in baseline analysis, to highlight the advantage of employing bilateral FDI data to identify the

policy uncertainty effect on FDI inflows. For this, we run the following regression, which can be reduced from the baseline specification.

$$\frac{Total\ Inflows_{i,t}}{Total\ Inward\ stock_{i,t-1}} = \alpha_i + \alpha_t + \beta X_{i,t-1} + \gamma EPU_{i,t-1} + \varepsilon_{i,t}. \quad (2)$$

Since this specification has no source country dimension, we include the host country fixed effect α_i and time fixed effect α_t, instead of the host-source country pair and source country-time fixed effects.

Appendix Table A.1 summarizes the results of equation (2) with respect to the 16 host countries. Column (I) reports the estimated EPU index coefficient in a specification with only the EPU index, and Column (II) shows the coefficient in a specification controlling for the same set of macroeconomic variables shown in Table 3. Both specifications show no statistically significant relationship between policy uncertainty and FDI inflow; this is consistent with Honig (forthcoming), who finds no significant domestic policy uncertainty effect proxied by presidential elections on the aggregate FDI inflows of advanced economies.

This shows the limitation of examining the domestic policy uncertainty effect on FDI inflows using aggregate-level data. At the aggregate level, all peculiarities of each source country as well as other global factors are intermingled, making it difficult to properly separate the FDI push factors from the pull factors such as domestic policy uncertainty and thus confounding our analysis. By exploiting the bilateral data and controlling for the push factors with a constellation of fixed effects, we can capture the negative impact of higher policy uncertainty on FDI inflows.

B. Robustness checks

In this section, we conduct several robustness tests of our main empirical findings. Table 4 and 5, and appendix Table A.3 summarize the robustness test results.

Controlling for an alternative measure of uncertainty. So far, we relied on the EPU index constructed by Baker et al. (2016) as a benchmark for an uncertainty measure. Since the EPU index is based on the narrative approach of counting newspaper articles containing words related to the economy, policy, and uncertainty, it is widely considered to capture uncertainty

particularly with regard to economic policy. Thus, several recent studies have employed the EPU index along with other financial market-based measures such as the VIX to distinguish the policy uncertainty from the uncertainty of financial markets. As a robustness test, we further control for stock market volatility as constructed by Baker and Bloom (2013), to confirm that the significant effect we find is not driven simply by the effect of financial market uncertainty.

Appendix Table A.2 presents the correlation between stock market volatility and the EPU index for the 16 countries considered for baseline analysis. The correlation is far from perfect, except for a few cases. The correlation of the 16 countries ranges from -0.14 (Korea) to 0.89 (Mexico); the average is 0.36. Column (I) of Table 4 reports the estimation results from a specification including stock market volatility as an additional control. The inclusion of stock market volatility does not qualitatively affect the sign or statistical significance of the EPU coefficient, and the uncertainty measured by stock market volatility is statistically non-significant. This result corroborates the works by Julio and Yook (2012), Chen et al. (2019), and Azzimonti (forthcoming) who find that FDI decisions are particularly sensitive to the uncertainty on the host country's economic policy.

Controlling for the dominance of GFC. As Figure 1 shows, the EPU index rose to an unprecedented level in most countries during and after the GFC, coinciding with a rapid decline in (aggregate) FDI inflows across countries. Thus, the inclusion of GFC might have aggravated the policy uncertainty effect on FDI. Another possibility is that after the GFC, unconventional monetary policies such as quantitative easing might have altered the way policy uncertainty affected the FDI in advanced economies.

We check the robustness of our findings by dropping the samples during and after the GFC period (2008–2013). Column (II) of Table 4 shows the results from a specification using only the pre-GFC (1985–2007) samples. The magnitude reduces slightly, but the decline in FDI inflows in response to a rise in policy uncertainty is still statistically significant at the 5% level. It is also economically significant in that a one-standard-deviation increase in EPU during the pre-GFC sample period (0.31) would reduce the FDI inflows by as much as 14.7% of its mean (23.4%).

Contemporaneous independent variables. Lagged independent variables have been used in baseline analysis to mitigate the reverse causality issue. However, given the annual frequency of FDI data, this could be a rather stringent restriction. As a robustness test, we regress the FDI inflows on a set of contemporaneous regressors. Column (III) of Table 4 demonstrates that higher policy uncertainty significantly reduces FDI inflows under the alternative specification as well.

Maximum uncertainty within a year. Our baseline analysis used the average monthly EPU index value. However, using the maximum monthly EPU index value within a year as an alternative policy uncertainty measure might be an interesting exercise, given the potential nonlinear effect of policy uncertainty. Column (IV) of Table 4 shows that our main findings hold even with this alternative measure.

Treatment of outliers. In the baseline analysis, we control for outliers by dropping the top and bottom 1% of the dependent variable. For robustness checks, we use several alternative thresholds and winsorize the dependent variable. Columns (I) through (III) of appendix Table A.3 summarize the results using two different ways to control for outliers at the 1% and 2.5% threshold levels, respectively. Under all specifications, our baseline analysis results are found to be robust and not sensitive to different ways of treating outliers.

Standard error clustering. Standard errors in the baseline analysis are clustered at the host-source country level to account for possible serial correlations in the error term. In Column (VI) of appendix Table A.3, we confirm that our results are similar when clustering standard errors at the source country-time level.

Subsample analysis. We have included both advanced and developing economies as a source country of FDI flows to the 16 host countries. However, developing economies' FDI determinants might be systematically different from those of advanced economies (Blonigen and Wang, 2007). Furthermore, there are two distinct motivations for FDI: horizontal FDI, which is undertaken to access markets when firms encounter trade restrictions, and vertical FDI, which leverages low factor prices in host countries to reduce production costs (e.g., Markusen, 1984; Helpman, 1984). Given that these motivations are systematically related to the relative level of economic development between a host and source country, we test the

robustness of our findings by estimating equation (1) using two subsamples. Since all host countries are OECD countries, we divide source countries into OECD and non-OECD countries, which represent advanced and developing economies, respectively.

As shown in Table 5, the determinants of bilateral FDI inflows are indeed quite different between the two subsamples. Some regressors switch their sign across the subsamples. However, the adverse effect of policy uncertainty remains statistically significant for both groups. Interestingly, the effect is stronger when a source country is from the non-OECD sample.

C. Election timing as an instrument for policy uncertainty

While the use of bilateral FDI data alleviates endogeneity concerns, our findings might be subject to the problem in that the policy uncertainty increases in response to macroeconomic development, which affects FDI inflows simultaneously. Indeed, several recent studies argue that increase in uncertainty is an endogenous response to a negative economic condition, rather than a cause (Bachmann and Bayer, 2013; Plante et al., 2017; Fajgelbaum et al., 2017). To alleviate this concern, we instrument the EPU index using the host country election timing data, which are exogenous to changes in the macroeconomy and FDI inflows.

While most studies rely directly on election timing as the main determinant of FDI (Julio and Yook, 2012; Chen et al., 2019; Honig, forthcoming), they treat the level of uncertainty surrounding each election the same. We instead consider election timing as an instrument for the EPU index and thus draw more comprehensive implications. We obtain the election timing data from the Database of Political Institutions, which contains the election results of 180 countries from 1975 to 2015.[14] We use the legislative and presidential election dates as an instrument. The 16 host countries considered in our baseline analysis held legislative elections every 3.57 years and presidential elections every 5.84 years, on average, during the sample period.

[14] We use the updated version of Cruz et al. (2016).

Column (I) of Table 6 summarizes the IV regression results. First, these election dates seem to be a valid instrument for policy uncertainty. While legislative and presidential elections are generally exogenous to the economy, the question is whether they are relevant instruments. The standard rule of thumb is that an F-statistic below 10 indicates a potential problem with instrumental relevance (Staiger and Stock, 1997). The F-statistic in the baseline IV regression is 50.57, far exceeding the relevance threshold. Second, an overidentifying restrictions test using the Hansen J-statistic cannot reject the restrictions since the p-value is 0.39. Third, the finding that a rise in domestic policy uncertainty reduces FDI inflows holds in IV regression as well. If anything, a coefficient on the log EPU larger than that in the ordinary least squares (OLS) case suggests a downward bias in OLS estimation. Column (II) reports the results with contemporaneous regressors and IVs. Our results are consistent with Column (III) of Table 4 and hold in this case.

D. Role of institutional quality

If higher uncertainty in the host country discourages FDI through a real option value channel, this mechanism should be strengthened when the host country's government is considered politically less stable and unpredictable compared to others. In the case of a non-linear profit function due to price and productivity effects, the politically unstable and unpredictable government would induce MNCs to diversify production and invest less in this country (Aizenman, 2003). Aizenman and Spiegel (2006) also argue that compared to domestic investment, FDI will be more sensitive to institutional inefficiency, since domestic entrepreneurs have an advantage in overcoming institutional inefficiencies relative to their foreign competitors. Bénassy-Quéré et al. (2007) and Busse and Hefeker (2007) find supporting empirical evidence that government stability, democratic government accountability, and quality of bureaucracy themselves are highly significant determinants of FDI inflows.

To investigate the role of institutional quality in mitigating the adverse effect of policy uncertainty on FDI inflows, we run the following regression:

$$\frac{Inflows_{i,j,t}}{Inward\ stock_{i,j,t-1}} = \alpha_{i,j} + \alpha_{j,t} + \beta X_{i,t-1} + \gamma EPU_{i,t-1} + \delta EPU_{i,t-1} \times ICRG_{i,t-1} + \varepsilon_{i,j,t}, \quad (3)$$

where $ICRG_{i,t}$ is the most relevant institutional quality index (either government stability or bureaucracy quality index), and $X_{i,t}$ is the set of control variables including institutional quality measures. Now, δ is the coefficient of interest: a positive (negative) δ indicates that the negative effect of domestic policy uncertainty on FDI inflows is mitigated (amplified). Following Busse and Hefeker (2007), we adopt the Political Risk Index of ICRG to measure each host country's institutional quality, which is closely associated with the perception of the country's political risk.

Table 7 reports the estimation results of equation (3). From Column (I), a rise in uncertainty leads to a statistically significant decline in FDI inflows, as in the baseline analysis. Furthermore, the positive and statistically significant coefficient of the interaction term between EPU and the government stability measure implies that a more stable government can mitigate the adverse impact of uncertainty on FDI inflows. Column (II) presents the results of a similar analysis, where the government stability measure is replaced with the bureaucracy quality measure.

The economic significance of the estimated interaction coefficient between the log EPU and government stability index (3.99) is that, given the one-standard-deviation increase in policy uncertainty (0.37), the one-standard-deviation increase in government stability (1.55) mitigates the decline in FDI inflows by as much as 10.2%. Similarly, the interaction effect for the bureaucracy quality index is 15.6%. Compared to the EPU coefficient size, however, the interaction term is small, implying that the soothing effect of institutional quality is still not enough to nullify the adverse effect of higher policy uncertainty.

In the main analysis, we used the two most relevant components of the overall ICRG index, since some of the other components (i.e., religious/ethnic tensions, socioeconomic conditions, internal/external conflict, etc.) are less likely to be directly associated with the investor's investment decision. To confirm that our results are not driven by the selection of particular measures, we use the total ICRG index capturing a comprehensive dimension of institutional quality, which is the sum of 12 components beyond government stability and bureaucracy quality. The regression results reported in Column (III) of Table 7 are consistent with our findings.

Binary institutional quality measures. We estimate equation (3) using raw institutional quality measures. However, the industrialized countries in our sample might not be distributed evenly enough in this dimension and could concentrate in certain ranges instead. For instance, about 5,800 out of the 11,400 samples used in the analysis are concentrated in the rating range of 3.7 or above (out of 4) in bureaucracy quality. This skewness in the sample can bias the estimation results. To test the robustness of our findings, we construct and employ binary institutional quality indices, which take the value of 1 if the raw institutional quality index is larger than the median of samples, and zero otherwise. The results in appendix Table A.4 support our finding that better institutional quality mitigates the adverse effect of policy uncertainty on FDI inflows in whatever way the institutional quality is measured.

Time-invariant institutional quality measures. To the extent that institutional quality itself is a strong determinant of FDI inflows (Busse and Hefeker, 2007; Bénassy-Quéré et al., 2007; Daude and Stein, 2007), the inclusion of the time-varying measure of institutional quality could be an additional source of endogeneity. To alleviate this concern, we re-estimate equation (3) using the time-invariant measure of institutional quality (average over time). The results in appendix Table A.5, Columns (I) to (III), confirm the role of institutional quality in ameliorating the adverse effect of policy uncertainty.

E. Role of financial development

A large number of works focus on the importance of financial development in relation to investment and economic growth (King and Levine, 1993; Levin et al., 2000). The literature claims that by diversifying the risks of low returns and the potential risks of providing liquidity, a developed financial system alleviates investors' anxiety about their uncertain future liquidity needs and the possibility of failing projects, thus contributing to achieving a more favorable environment for investment and economic growth. Hermes and Lensink (2003) and Alfaro et al. (2004) report that a developed financial system plays a crucial role in enhancing the positive effect of FDI on economic growth. More recently, Carrière-Swallow and Céspedes (2013), Choi et al. (2018), and Karaman and Yıldırım-Karaman (2019) find less developed financial markets amplifying the adverse impact of uncertainty on investment using international data.

In a similar vein, we test whether financial development can undo the adverse effect of policy uncertainty on FDI inflows.

Of the several financial development measures, we first consider domestic private credit to GDP ratio, since it is widely used and supported in relevant studies (Demetriades and Hussein, 1996; Hermes and Lensink, 2003; Alfaro et al., 2004) as well as consistently available for the 16 host countries we consider. As with equation (3), we estimate the following regression with an interaction term:

$$\frac{Inflows_{i,j,t}}{Inward\ stock_{i,j,t-1}} = \alpha_{i,j} + \alpha_{j,t} + \beta X_{i,t-1} + \gamma EPU_{i,t-1} + \delta EPU_{i,t-1} \times FIN_{i,t-1} + \varepsilon_{i,j,t}, \quad (4)$$

where $FIN_{i,t}$ indicates financial development measured by the value of bank credit to the private sector as percentages of GDP.

Column (I) of Table 8 presents the results. The coefficient of the interaction term is positive and statistically significant at the 5% level, suggesting the possibility of financial depth moderating the adverse effect of policy uncertainty on FDI inflows. As with institutional quality, the size of the interaction term is not enough to cancel the negative effect of higher policy uncertainty. As a robustness check, we report in Column (II) of Table 8 the estimation results of equation (4) with the ratio of bank total assets to GDP—a broader measure of financial development—substituting the private credit to GDP ratio.[15] These results indicate that well-developed financial markets can mitigate the detrimental impact of policy uncertainty on FDI inflows, with moderate effect. Consistent with the institutional quality case, we use the time-invariant measure of financial depth to alleviate endogeneity issues. Columns (IV) and (V) of appendix Table A.5 confirm the main findings.

V. CONCLUSION

This paper contributes to the rapidly growing literature on the link between uncertainty, international capital flows, and firms' investment decisions. Unlike most prior studies focusing

[15] The total bank assets include credit to broader sectors other than the private sectors, such as households, nonprofit institutions, nonfinancial corporations, state and local governments, and social security funds.

on uncertainty as a global push factor of capital flows, we exploit the bilateral structure of the OECD FDI data to control for shocks affecting the economic conditions in both host and source countries, thereby better identify the role of host country policy uncertainty in explaining FDI inflows.[16]

The results suggest that higher policy uncertainty in the host country robustly reduces FDI inflows. Unlike previous studies using an exogenous election timing dummy as a proxy for uncertainty, we capture the time-varying intensity of policy uncertainty using the EPU index. Moreover, we use election timing as an instrument to mitigate any remaining endogeneity concerns and confirm our baseline findings. To further shed light on the channel through which heightened policy uncertainty in the host country reduces FDI inflows, we analyze the role of government quality and financial depth in amplifying/dampening the effect of higher uncertainty. We find the adverse effect of higher policy uncertainty mitigated in a host country with a stable government and developed financial markets, indicating important policy implications for securing financial stability and robust growth during the current period of heightened worldwide uncertainty.

[16] While the literature has recently focused on the effect of global uncertainty on international capital flows, only a few studies have used country-specific uncertainty to explain the pattern of bilateral capital flows (Gourio et al., 2015; Wang, 2018; Choi and Furceri, 2019).

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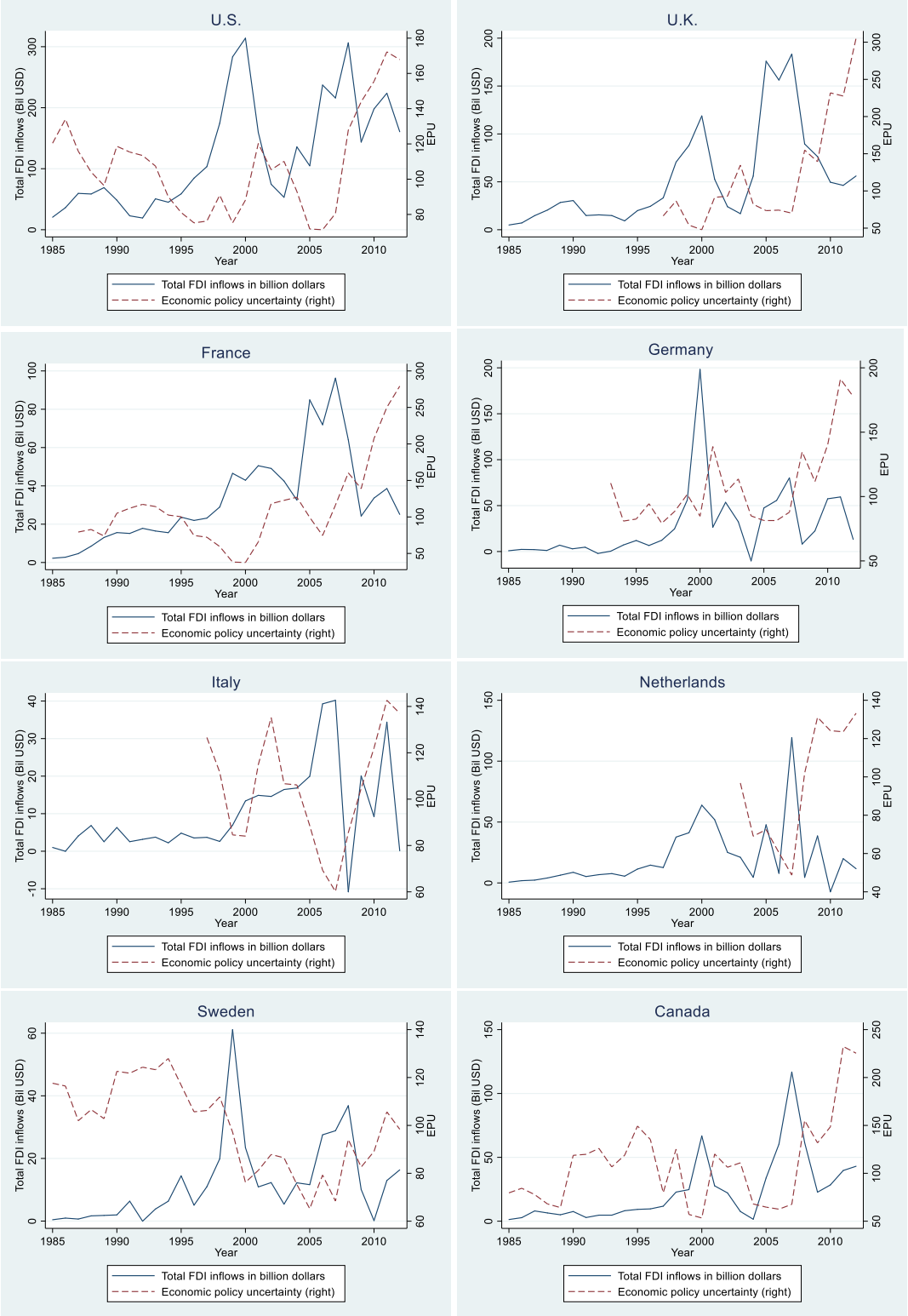
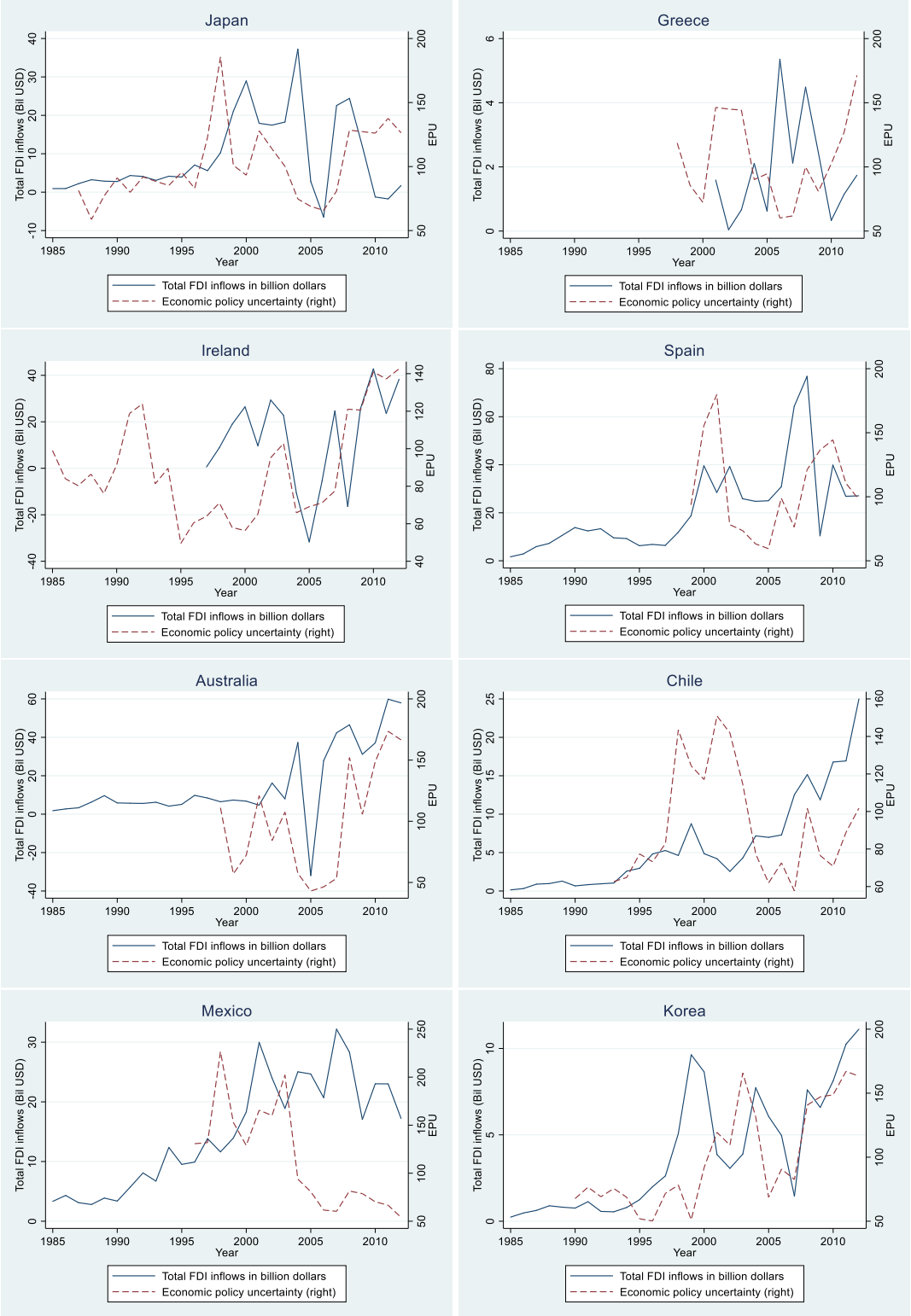
Figures and Tables

Figure 1. FDI inflows and economic policy uncertainty in 16 countries





Note: The left axis shows aggregate FDI inflows in billion USD, while the right axis shows the EPU index.

Table 1. FDI inflow summary statistics

Country	(I) Aggregate flows ($ millions)	(II) Aggregate flows/stock	(III) Bilateral flows ($ millions)	(IV) Bilateral flows/stock
Australia	25,085.42	9.46	1,269.74	14.04
	(24,933.93)	(7.51)	(4,783.30)	(36.89)
Canada	24,469.39	10.16	5,195.33	10.46
	(26,557.01)	(8.33)	(8,484.91)	(17.56)
Chile	16,606.73	13.33	343.09	22.91
	(4,352.65)	(2.52)	(1,002.24)	(100.23)
France	38,317.15	12.25	493.58	22.39
	(22,743.46)	(6.09)	(2,054.13)	(70.60)
Germany	40,165.09	9.79	686.92	23.01
	(45,279.13)	(14.63)	(3,685.95)	(106.90)
Greece	1,913.06	5.77	32.05	19.10
	(1,694.90)	(5.03)	(2,52.69)	(116.05)
Ireland	13,006.33	6.41	180.98	26.93
	(24,632.22)	(12.15)	(3,042.93)	(149.06)
Italy	15,867.89	8.54	166.57	31.69
	(14,113.78)	(5.80)	(1,850.10)	(107.54)
Japan	9,657.37	21.19	368.35	30.21
	(10,893.60)	(20.35)	(1,727.11)	(83.49)
Korea	6,037.93	15.68	76.78	28.93
	(2,985.03)	(12.69)	(336.77)	(82.75)
Mexico	18,866.89	18.30	271.10	26.97
	(6,132.23)	(10.27)	(1,488.88)	(100.17)
Netherlands	27,449.32	5.02	318.04	16.05
	(38,631.93)	(7.04)	(3,065.85)	(70.96)
Spain	34,564.17	8.51	1472.29	11.12
	(19,268.03)	(4.88)	(4,709.09)	(40.73)
Sweden	13,183.47	23.17	494.03	19.12
	(13,702.75)	(26.24)	(1,991.67)	(84.98)
U.K.	84,027.29	13.65	2,118.83	17.66
	(52,312.53)	(10.12)	(7,798.76)	(56.87)
U.S.	127,446.20	14.42	2,639.14	16.53
	(89,569.40)	(8.57)	(8,256.85)	(83.84)
Average	31,041.48	12.23	1,007.93	21.07
Standard deviation	32,149.07	5.35	1,352.19	6.64

Note: Columns (I) and (III) measure the aggregate and bilateral FDI inflows into each host country in million USD. Columns (II) and (IV) normalize the aggregate and bilateral FDI inflows by inward FDI stock of the last year. The sample covers the period from 1985 to 2013, and the numbers in parentheses denote standard deviations.

Table 2. Descriptive statistics

Variables	Mean	Median	Std. Dev.	Obs.
Log EPU	4.60	4.62	0.35	265
Real GDP growth (%)	1.98	2.35	2.71	265
Log GDP per capita	10.47	10.56	0.39	265
Trade openness (%)	46.76	43.80	23.31	265
Stock market returns (%)	2.94	9.60	24.69	265
Exchange rate growth (%)	-0.86	-0.63	10.01	265
Policy rate (%)	4.09	3.55	3.68	265
Government spending to GDP (%)	18.82	18.90	4.08	265
Inflation rate (%)	2.43	2.19	2.12	265
Log stock market volatility	2.85	2.84	0.40	265
ICRG				
government stability	8.10	8.08	1.54	265
bureaucracy quality	3.67	4.00	0.49	265
Total	81.55	81.31	5.47	265
Bank private credit to GDP (%)	115.90	112.29	46.12	240
Bank total assets to GDP (%)	146.74	140.15	49.34	158

Note: There are 16 host countries in the sample, which covers from 1985 to 2013.

Table 3. Baseline results

	Bilateral FDI inflows	
	(I)	(II)
Log EPU		-15.42***
		(4.84)
Real GDP growth	0.94	1.05
	(2.14)	(2.30)
Log GDP per capita	2.15	8.60
	(19.30)	(21.37)
Trade openness	-0.05	-0.20
	(0.13)	(0.18)
Stock market returns	-0.23	-0.25
	(0.23)	(0.25)
Exchange rate growth	0.65	0.37
	(0.49)	(0.58)
Policy rate	1.21**	1.36*
	(0.60)	(0.72)
Government spending to GDP	-3.09***	-1.55
	(1.13)	(1.34)
Inflation rate	-5.85*	-1.79
	(3.28)	(4.23)
Host-source fixed effect	Yes	Yes
Source-time fixed effect	Yes	Yes
R-squared	0.32	0.33
Observations	12,428	10,920

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period. Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table 4. Robustness checks

	(I) Including SMV	(II) Before GFC	(III) Contemporaneous regressors	(IV) Max EPU
Log EPU	-15.56***	-11.03**	-12.52***	-15.04***
	(4.84)	(5.43)	(4.80)	(3.88)
Real GDP growth	0.47	1.02	4.70*	1.22
	(2.35)	(3.24)	(2.61)	(2.30)
Log GDP per capita	11.73	3.72	2.88	2.67
	(22.21)	(31.37)	(19.22)	(21.41)
Trade openness	-0.14	0.07	-0.07	-0.21
	(0.19)	(0.27)	(0.16)	(0.17)
Stock market returns	-0.22	-0.44	-0.07	-0.16
	(0.24)	(0.40)	(0.25)	(0.25)
Exchange rate growth	0.42	0.44	-0.17	0.28
	(0.59)	(0.76)	(0.62)	(0.59)
Policy rate	1.32*	0.15	0.98	1.34*
	(0.77)	(0.95)	(0.79)	(0.77)
Government spending to GDP	-1.50	-4.20**	-3.07**	-1.97
	(1.33)	(1.75)	(1.28)	(1.33)
Inflation rate	-2.48	7.25	1.91	-1.68
	(4.28)	(5.49)	(4.35)	(4.15)
Stock market volatility	6.27			
	(6.82)			
Host-source fixed effect	Yes	Yes	Yes	Yes
Source-time fixed effect	Yes	Yes	Yes	Yes
R-squared	0.33	0.38	0.34	0.33
Observations	10,920	7,175	11,232	10,920

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period except for column (III). Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table 5. Subsample analysis

	Bilateral FDI inflows	
	(I) OECD source countries	(II) Non-OECD source countries
Log EPU	-9.53*	-24.04***
	(5.28)	(8.41)
Real GDP growth	2.60	5.66
	(2.52)	(4.09)
Log GDP per capita	46.52*	45.36
	(25.42)	(39.90)
Trade openness	-0.49**	-0.29
	(0.20)	(0.34)
Stock market returns	-0.19	0.74**
	(0.32)	(0.36)
Exchange rate growth	-0.31	1.27
	(0.63)	(0.27)
Policy rate	1.49*	1.15
	(0.80)	(1.60)
Government spending to GDP	-0.31	-3.51
	(1.40)	(3.08)
Inflation rate	-0.58	-4.76
	(4.33)	(8.76)
Host-source fixed effect	Yes	Yes
Source-time fixed effect	Yes	Yes
R-squared	0.27	0.38
Observations	5,419	5,501

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period. Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table 6. Using legislative and presidential elections as instruments

	(I) Baseline	(II) Contemporaneous regressors
Log EPU	-54.44**	-81.17**
	(26.61)	(33.42)
Real GDP growth	0.63	0.49
	(2.16)	(2.17)
Log GDP per capita	19.86	45.38
	(27.59)	(33.42)
Trade openness	-0.56*	-0.76**
	(0.31)	(0.35)
Stock market returns	-0.34*	-0.32*
	(0.19)	(0.19)
Exchange rate growth	0.04	0.01
	(0.50)	(0.50)
Policy rate	0.59	0.59
	(0.79)	(0.83)
Government spending to GDP	-0.26	-1.48
	(1.50)	(1.76)
Inflation rate	-13.62	-21.19**
	(8.33)	(10.19)
Cragg-Donald Wald F-statistics	50.57	38.16
Hansen J statistics (p-value)	0.39	0.11
Host-source fixed effect	Yes	Yes
Source-time fixed effect	Yes	Yes
R-squared	0.32	0.30
Observations	10,188	10,384

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period except for column (II). Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table 7. The role of institutional quality

	(I) Government stability	(II) Bureaucracy quality	(III) Total institutional quality
Log EPU	-46.58***	-81.16***	-106.09**
	(17.42)	(18.24)	(42.43)
Government stability × log EPU	3.99**		
	(1.97)		
Bureaucracy quality × log EPU		18.96***	
		(4.93)	
Total institutional quality × log EPU			1.17**
			(0.53)
Host-source fixed effect	Yes	Yes	Yes
Source-time fixed effect	Yes	Yes	Yes
R-squared	0.33	0.33	0.33
Observations	11,175	11,175	11,175

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period. The coefficients of the control variables are not presented here. Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table 8. The role of financial development

	(I) Private credit to GDP	(II) Total assets to GDP
Log EPU	-35.49***	-68.87***
	(8.68)	(14.93)
Private credit to GDP × log EPU	0.18**	
	(0.07)	
Total assets to GDP × log EPU		0.32***
		(0.10)
Host-source fixed effect	Yes	Yes
Source-time fixed effect	Yes	Yes
R-squared	0.34	0.34
Observations	9,921	8,234

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period. The coefficients of the control variables are not presented here. Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Appendix

Table A.1. The effect of host-country policy uncertainty on total FDI inflows

	Total FDI inflows	
	(I)	(II)
Log EPU	2.46	2.58
	(3.12)	(2.80)
Controls	No	Yes
Host country-fixed effect	Yes	Yes
Time-fixed effect	Yes	Yes
R-squared	0.44	0.48
Observations	281	276

Note: The dependent variables are the aggregate FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period. The coefficients of the control variables are not presented here to save space. Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table A.2. Correlation between economic policy uncertainty and stock market volatility

Country	Corr (EPU, SMV)	Country	Corr (EPU, SMV)
Australia	0.452	Japan	0.608
Canada	0.033	Korea	-0.140
Chile	-0.138	Mexico	0.889
France	0.209	Netherlands	0.555
Germany	0.420	Spain	0.792
Greece	0.368	Sweden	-0.135
Ireland	0.582	United Kingdom	0.295
Italy	0.503	United States	0.434
Average	0.358	Median	0.427

Note: The correlation between the economic policy uncertainty index and realized stock market volatility.

Table A.3. Additional robustness checks

	(I)	(II)	(III)	(VI)
	winsorized (1%)	trimmed (2.5%)	winsorized (2.5%)	Alternative standard error clustering
Log EPU	-21.64***	-5.29**	-12.41***	-15.42***
	(6.82)	(2.54)	(3.71)	(4.66)
Real GDP growth	3.39	1.59	1.70	1.05
	(4.20)	(1.21)	(2.01)	(2.12)
Log GDP per capita	11.71	1.41	0.65	8.60
	(31.10)	(11.55)	(17.18)	(19.91)
Trade openness	-0.17	-0.10	-0.16	-0.20
	(0.29)	(0.10)	(0.15)	(0.21)
Stock market returns	-0.69*	-0.06	-0.37*	-0.25
	(0.36)	(0.12)	(0.19)	(0.27)
Exchange rate growth	-0.11	-0.41	-0.01	0.37
	(0.84)	(0.34)	(0.46)	(0.55)
Policy rate	0.77	-0.04	0.49	1.35
	(1.20)	(0.44)	(0.64)	(0.79)
Government spending to GDP	-2.64	-1.22	-1.57	-1.55
	(1.78)	(0.85)	(1.11)	(1.63)
Inflation rate	-6.76	-1.38	-1.95	-1.79
	(6.64)	(2.34)	(3.44)	(4.31)
Host-source fixed effect	Yes	Yes	Yes	Yes
Source-time fixed effect	Yes	Yes	Yes	Yes
Standard error clustering	Host-source	Host-source	Host-source	Source-time
R-squared	0.33	0.35	0.33	0.33
Observations	11,175	10,515	11,175	10,920

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period except for column (III). Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table A.4. Robustness checks: a binary measure of institutional quality

	(I)	(II)	(III)
	Government stability (binary)	Bureaucracy quality (binary)	Total institutional quality (binary)
Log EPU	-18.96***	-20.43***	-15.01***
	(5.10)	(4.51)	(3.90)
Binary government stability × log EPU	10.61**		
	(5.06)		
Binary bureaucracy quality × log EPU		14.56***	
		(4.88)	
Total binary institutional quality × log EPU			9.59**
			(4.83)
Host-source fixed effect	Yes	Yes	Yes
Source-time fixed effect	Yes	Yes	Yes
R-squared	0.33	0.33	0.33
Observations	11,175	11,175	11,175

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period. The coefficients of the control variables are not presented here. Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.

Table A.5. Robustness checks: time-invariant measures of institutional quality and financial development

	(I)	(II)	(III)	(VI)	(V)
	Government stability	Bureaucracy quality	Total institutional quality	Private credit to GDP	Total assets to GDP
Log EPU	-138.67**	-65.70***	-85.88*	-29.79***	-42.40***
	(56.64)	(20.23)	(44.98)	(9.09)	(10.99)
Government stability × log EPU	15.78**				
	(7.04)				
Bureaucracy quality × log EPU		15.27***			
		(5.67)			
Total institutional quality × log EPU			0.93*		
			(0.51)		
Private credit to GDP × log EPU				0.18**	
				(0.09)	
Total assets to GDP × log EPU					0.24***
					(0.08)
Host-source fixed effect	Yes	Yes	Yes	Yes	Yes
Source-time fixed effect	Yes	Yes	Yes	Yes	Yes
R-squared	0.33	0.33	0.33	0.33	0.34
Observations	11,175	11,175	11,175	11,175	10,625

Note: The dependent variables are the bilateral FDI inflows normalized by the lagged cumulated stock. All the independent variables are lagged by one period. The coefficients of the control variables are not presented here. Heteroskedasticity-robust standard errors in parentheses. Standard errors are clustered at the host-source country levels. *** denotes 1% significant level, ** denotes 5% significance level, and * denotes 10% significance level.