

# Foreign Direct Investment under Uncertainty

## Evidence from a large panel of countries

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### Abstract

We examine the effect of uncertainty on foreign direct investment inflows for advanced, emerging market and developing countries over a 25 year long (pre-Covid) sample. Using a push-pull framework, and controlling for both global and local factors, we find policy uncertainty has discernable and significant effects on inflows, varying in strength and direction between different groups of countries. Moreover, it is not host country uncertainty that seems to matter the most, but rather global uncertainty. Additionally, we find that high levels of uncertainty matter disproportionately. Finally, financial openness accentuates the impact of uncertainty for emerging market and developing countries.

**JEL classification:** F21, F38, D80,

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## 1. Introduction

Flows of foreign direct investment (FDI) have surged and receded over the past three decades, peaking as recently in 2015-2016 at 2.7% of world GDP. Inflows have been decreasing since, but were still equal to slightly less than 2% of world GDP on the eve of the Covid-19 pandemic, as shown in Figure 1. Not surprisingly, FDI inflows contracted sharply in 2020 to reach levels seen only during the mid-nineties, close to 1.2% of world GDP and less than 1 trillion dollars, that is more than 30% below the investment trough that followed the 2008-2009 Global Financial Crisis (GFC).

[Figure 1 ]

While the sharp contraction in FDI during the pandemic is less of a surprise, the relatively low share of FDI in the years leading up to 2019 is somewhat puzzling. Many of the usual forces were supportive of FDI flows: economic growth was robust, equity prices were high, while interest rates in the core financial centers of the US, UK, the euro area and Japan were low by historical standards. High equity prices could encourage cross-border acquisitions boosting inward FDI. Low interest rates in the core should've spurred a search for yield that manifested in those countries with higher returns, such as emerging market and developing countries. FDI flows and the real Standard and Poors (S&P 500) index are shown in Figure 2 and show a disconnect during the latest decade. The S&P index has been growing rapidly whereas FDI inflows have been rather muted.

[Figure 2 ]

The resolution of this puzzle *might* lie in the unprecedentedly high levels of uncertainty – political, economic, policy – in the three years leading ending in 2019, especially in advanced economies. The significant decline in FDI in the aftermath of the GFC suggests that beyond structural factors usually driving FDI inflows, short-term factors may also play a role - including policy uncertainty. As such, one might reasonably ask whether FDI inflows were even too high given the level of uncertainty, as shown in Figure 3.

[Figure 3 ]

The challenge of explaining the pattern of FDI inflows both across countries and over time motivates our study. While there is extant an enormous literature analyzing the empirical determinants FDI, analysis on the role of uncertainty are relatively scarce, partly explained by the lack of consistent cross-country measures of policy uncertainty. There have been few cross-country studies, mostly focused on advanced economies (Cahn et al. 2020, Hsieh et al. 2019, Choi et al. 2020), and yet fewer studies encompassing broad cross-country samples, spanning advanced, emerging and developing economies (namely Nguyen and Lee (2021) and Avom et al. (2020)).

The need to fill in this gap in the literature is further reinforced by the fact that FDI appears as the type of capital flows most exposed to host-country political and institutional uncertainty (Dixit, 2011), due

to its long-term commitment to the local economy. However, global risk aversion can lower growth prospects everywhere or encourage flight-to-quality behavior by international investors. As such, we seek to investigate uncertainty both as a global factor driving FDI flows, and in the host country (push and pull factors, respectively). We find this distinction to be crucial from a policy maker's perspective, as the appropriate policy reaction depends on the source of uncertainty: external or domestic.

Studies of FDI inflows suggest general patterns that hold across countries. Yet, these results appear fragile when aggregating countries that exhibit different characteristics. Recent studies like Nguyen and Lee (2021), Choi et al. (2020), Avom et al. (2020) or Kilembe (2020) all suggest a heterogeneous effect of uncertainty across advanced, emerging and developing economies. Moreover, the growing realization that the mismeasurement of FDI flows is both large (discussed in Blanchard and Acalin (2016) and Damgaard et al. (2019)), and increasing, tempers our faith in previously identified patterns.

In this paper, we examine the impact of economic uncertainty on FDI inflows a heterogeneous sample of 129 countries over a relatively long (pre-Covid) period extending from 1995 to 2019. Our analysis thus relates to Nguyen and Lee (2021) and Avom et al (2020). However, we substantially depart from their work on several points. First, we control for both global and local factors in a push-pull framework. Second, we add to the existing literature by computing several measures of foreign and domestic uncertainty in order to capture the distinction between push and pull drivers, and perform numerous robustness checks using all available uncertainty measures. Third, we investigate the impact of the persistence of uncertainty. Finally, we allow for nonlinearities in the relationship between uncertainty and FDI inflows, especially concerning financial development but also institutional variables.

To anticipate our results, we find that uncertainty matters for inward FDI, but the direction of results is not always as expected. In particular, it's critical to distinguish between country groups, specifically between advanced, emerging market, and developing countries. Examination of all countries in a single pool leads to misleading inferences. Moreover, global uncertainty matters more consistently than host country uncertainty. We also highlight some flight-to-quality behavior by international investors who favor advanced countries when global uncertainty proves to be persistent. Finally, we detect nonlinearities in the effect of uncertainty, with high global uncertainty having a large effect, and low uncertainty much smaller. The effect of uncertainty also seems to be mediated by financial openness.

Section 2 reviews the empirical literature on FDI, with special emphasis on the estimated effects of uncertainty. In Section 3, we recount the empirical specification used, which incorporates push and pull factors. The data and sources are also recounted. Section 4 provides some tests of extensions (for nonlinearities, interactions, and persistence). Section 5 concludes.

## **2. Literature Review**

### ***2.1. Uncertainty and Macro Variables***

Spurred by the seminal paper of Bloom (2009), an enormous literature examining the effect of uncertainty on macroeconomic outcomes has developed. Using a variety of proxy variables, economic uncertainty has been shown to weigh on domestic output. Heightened uncertainty adversely affects consumption, investment, production and employment (Bloom, 2009; Baker et al. 2016, Jurado et al., 2015). Additionally, a series of papers have documented that uncertainty has a negative impact on financial variables, like credit (Bordo et al., 2016), the risk premium (Bloom, 2014) or stock market volatility (Liu and Zhang, 2015).

A priori, investment is the component of aggregate output the most sensitive to uncertainty shocks, due to its irreversibility. The theoretical literature of investment under uncertainty, initiated by Bernanke (1983), shows that high uncertainty encourages firms to delay investment when the investments are irreversible or costly to undo. Therefore, the decision to invest becomes similar to exercising a financial option, where high uncertainty increases the value of waiting. Stokey (2016) develops a model where firms adopt a wait-and-see strategy when tax policy is uncertain and temporarily hold back on investment until uncertainty is resolved. Similarly, Bloom, et al. (2007) show that the value of waiting increases when uncertainty related to changes in government policy is high. Moreover, they show that the wait and see strategy in a context of high uncertainty typically halves the first year investment response to demand shocks. Gulen and Ion (2015) further confirm the option value of waiting, especially when uncertainty is associated with future policy outcomes and when investment is costly to reverse. Specifically, they show that when the level of economic policy uncertainty doubles, capital spending by US companies decreases by 8.7% and the effect lasts for up to two years.

### ***2.2. Uncertainty and FDI vs. Other Capital Flows***

While all investment is exposed to uncertainty, FDI is found to be more sensitive than domestic investment (Julio and Yook, 2016). Just like domestic investment, foreign investment-type decisions involve fixed sunk costs, but these are expected to be higher for FDI (Choi et al, 2020). Exchange rate exposure, differential tax treatments or restrictive regulation on capital repatriation make FDI more difficult to reverse (Gulen and Ion, 2015). Also, foreign investors have limited information about the host country and enjoy weaker protection from the host country's legal and political institutions (Dixit, 2011; Julio and Yook, 2016). Furthermore, foreign investors face an expropriation risk and legal courts in host countries may have a bias towards domestic firms in cases of disputes (Bhattacharya et

al., 2007). For these reasons, the benefits of waiting during periods of high uncertainty may be more valuable for foreign investors.

Rodrik (1991) and Chen and Funke (2011) model FDI decision in the presence of a possible policy reversal. When investment is at least partially irreversible, they show that political uncertainty acts like a tax on investment. Rodrik (1991) demonstrates that a 10% probability of policy reversal requires an investment subsidy of 7.5 percentage points to compensate the adverse effects on FDI. When examining the difference in the degree of irreversibility between exports and FDI, Rajan and Marwah (1998) present a model in which the policies that are perceived as weakly credible lead firms to favor servicing foreign markets through exports rather than by undertaking FDI.

### ***2.3. Push and pull uncertainty***

The vast literature explaining the drivers of FDI (Bénassy-Quéré et al., 2007; Blonigen and Piger, 2014) has typically focused on structural long term determinants like market size, growth perspectives, distance and cultural proximity, income level, technological differences, labor costs, trade openness, human capital, et However, the significant decline in FDI in the aftermath of Global Financial Crisis (GFC) suggests that short-term factors -- including policy uncertainty -- also affect FDI flows. While the adverse effects of uncertainty on portfolio and bank flows have been largely documented (Gauvin et al., 2014; Choi and Furceri, 2019), the literature on the impact on FDI is more limited (Julio and Yook, 2016).

The literature on the determinants of capital flows considers uncertainty either as a push factor (or external, either global or source country) or as a pull factor (domestic). For a policy maker's perspective, this distinction is crucial, as the policy reactions differ depending on the source of uncertainty.

One specific strand of the literature investigates uncertainty as a global factor driving capital flows. A blurry global environment can lower the prospects of global growth, thus reducing the attractiveness of investing in a specific country, or by encouraging flight-to-quality effects (Baker et al., 2013; Gauvin et al. 2014). Koepke (2015) reviews 40 papers and concludes that it is typically the worsening in global risk conditions, as measured by the VIX, which lowers capital flows to emerging markets. However, FDI flows seem to respond much less to global push factors than portfolio flows and banking flows (Koepke, 2015; Belke and Volz, 2018). Schmidt and Zwicka (2015) confirm that country-specific uncertainty seems to be more relevant for direct investors than for portfolio investors during extreme contraction of capital flows in the Euro Area.

#### *2.4. Country specific uncertainty*

There are a limited number of studies investigating country-specific uncertainty as a driver of FDI flows (Julio and Yook, 2016; Azzimonti, 2019; Chen et al. 2019; Honig, 2020). Most of them focus on political uncertainty, assuming that uncertainty about the outcome of an election translates into uncertainty about which policies will be implemented. This is not surprising, considering that FDI is the most exposed type of capital flow to the political and institutional uncertainty of the host country (Dixit, 2011). Julio and Yook (2016) argue that FDI from US companies to their foreign affiliates in 44 destination countries drop significantly during the period just before an election in the host country and increase after the uncertainty is resolved. Azzimonti (2019) constructs an indicator to measure the degree of partisan conflict over trade policy using text from newspapers. She finds that an increase in partisan conflict lowers FDI inflows to the US during the period 1985–2016. In large panels of countries, both Chen et al. (2019) and Honig (2020) show that the FDI inflows drop significantly during election years. Specifically, Honig (2020) argues that FDI inflows in emerging countries contract by 11 percentage points in the year before an election compared to nonelection periods. These studies suggest that political uncertainty has a negative effect on FDI inflows. However, the election indicator is not informative about how much the level of uncertainty rises during elections and also assumes that uncertainty remains unchanged over nonelection years (Gulen and Ion, 2016).

Despite the importance of policy uncertainty for FDI, empirical studies focusing specifically on policy uncertainty have only recently emerged, following the development of uncertainty measures like those of Baker et al. (2016) or Ahir et al. (2018). These papers show that when the policy uncertainty is high in a destination country, FDI flows to that country are expected to decrease. Hsieh et al. (2019) show that FDI flows from the US to a panel of twenty destinations decrease two quarters after a shock in the host country's EPU Index. Canh et al. (2020) rely on the world economic uncertainty index from Ahir et al. (2018) to confirm this adverse effect on total net inflows in a sample of 21 mostly advanced economies during 2003–2013. This conclusion is further supported by Avom et al (2020) and Nguyen and Lee (2021), who use the same indicator in a larger panels of more than 100 countries over a period from 1996 to 2017-2018. However, the results in Nguyen and Lee (2021) only hold for developing countries and when considering the volatility of the uncertainty.

Finally, Choi et al. (2020) and Kilembe (2020) adopt a bilateral perspective to examine how FDI flows respond to higher uncertainty in both the origin and host economies. The former uses OECD data on bilateral FDI flows from 76 source countries to 16 host countries that have consistent EPU index (including some of the tax havens), for the period 1985–2013. Using a similar database for the period 2003–2013, Kilembe (2020) extends the analysis to several other sources of uncertainty, thus enlarging the host country dimension to close to 40 countries (excluding this time the tax havens).

Overall, both papers find bilateral FDI to be associated with both host and source country policy uncertainty.

Several papers document the adverse impact of uncertainty in the source country on outward FDI. They predict either an increase in outflows as investors look for less risky investment abroad, or a decrease due to a wait and see attitude of multinationals before venturing abroad. Das (2013) for example suggests that higher domestic political risk in the US encourages American firms to send their capital to their foreign subsidiaries and thus increase their outward FDI. Hung and Cheng (2017) focus on the Korean case and find both foreign and domestic policy uncertainty to exert a negative impact on output, with foreign economic policy uncertainty playing a dominant role. Additionally, papers using bilateral datasets indicate that source country uncertainty, additional to host country uncertainty, can dampen FDI inflows (Kilembe, 2020; Hsieh et al. 2019; Canh et al. 2020; Cai et al. 2018).

## ***2.6. Patterns by country grouping***

The literature has highlighted a differential impact of uncertainty in advanced versus emerging and developing economies. As the latter are mostly receivers of FDI and typically have less outward investment, there is potentially a larger role for foreign uncertainty shocks affecting emerging and developing countries as inflows and outflows cannot offset each other. Carrière-Swallow and Céspedes (2013) show that uncertainty shocks in emerging countries have a much greater impact on investment and consumption compared to advanced economies. They also do not observe a subsequent overshoot in investment, as it is the case in advanced economies. While showing that host country economic policy uncertainty reduces FDI inflows, Choi et al (2020) also suggest that this is of different magnitude for advanced and developing economies. Avom et al (2020) confirm emerging and developing countries to have a stronger reduction in FDI from economic policy uncertainty compared to advanced economies, while Nguyen and Lee (2021) even argue advanced countries to experience a flight to quality effect when uncertainty is high. Kilembe (2020) finds significantly heterogeneous responses of advanced and emerging countries to different sources of uncertainty. FDI inflows in advanced countries are sensitive to all forms of host country uncertainty, including macroeconomic, financial, political uncertainty and policy uncertainty. However, she finds none of them to be relevant for FDI flows to emerging countries. She thus suggests that uncertainty may not be a major determinant for FDI in emerging countries, owing to the greater relevance of other host country factors. This conclusion corroborates Cai et al. (2018), who find sovereign risk to play a positive role in attracting FDI inflows in non-OECD countries, while playing a negative one in OECD countries.

## ***2.7. Factors potentially modulating the impact of uncertainty on FDI***

The different response of FDI flows to uncertainty shocks in different groups of countries could be explained by several factors. Carrière-Swallow and Céspedes (2013) attribute the stronger reaction of investment to uncertainty shocks in emerging economies to their less-developed financial markets. Choi et al. (2020) also find developed financial markets to mitigate the adverse effect of uncertainty on FDI inflows. Nguyen and Lee (2021) on the contrary, find the interaction with financial market development to reinforce the negative impact of uncertainty of FDI inflows. The compositional differences of FDI flows between mergers and acquisitions (M&A) and greenfield investment might be another factor. M&A activity is thought to be more sensitive to temporary shocks (mostly financial, but also uncertainty). Bonaime et al. (2018) confirmed policy uncertainty to be strongly negatively associated with M&A. Greenfield investment, on the other hand, is expected to be more driven by long term structural factors<sup>1</sup>. Finally, Julio and Yook (2016) and Honig (2020) suggest that countries with better institutional quality or more open capital accounts experience significantly less variation in FDI around election cycles.

## ***2.8. Proxy variables for uncertainty***

The main challenge when trying to understand the impact of uncertainty on FDI comes from the difficulty of quantifying economic uncertainty. Most of the literature has only been able to focus on one or a few aspects of economic uncertainty, mostly due to data availability for international comparison. In the aftermath of the global financial crisis, uncertainty has been captured by the volatility of financial variables like the stock market, or the credit rating, essentially measuring investor sentiment or risk aversion (Bloom, 2009; Choi and Furceri 2019; Cai et al. 2018; Asamoah et al., 2016). Researchers were further interested in elections and political risk as a driver of uncertainty (Julio and Yook, 2016; Gulen and Ion, 2016; Honing, 2020). Finally, the development of news-based measures like the policy uncertainty index of Baker et al. (2016) shed some light onto the uncertainty linked to economic policies and institutions (Bonaime et al., 2018; Choi et al. 2020, Kilembe, 2020). More recently, cross-country studies have favored another news-based index – the World Uncertainty Index by Ahir et al. (2018) – due to its wider country coverage (Avom et al 2020, Canh et al. (2020). In a recent paper, Nguyen and Lee (2021) use both the WUI index and its volatility as a measure of uncertainty.

## **2. The Specification and Data**

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<sup>1</sup> In an earlier version of the [paper](#), we included an analysis splitting FDI into greenfield versus M&A which confirms these results



## 2.1 Specification

The variable of interest is FDI net inflows as a share of GDP, that is the inward direct investment made by non-residents in the reporting economy, including equity, intra-company loans and reinvested earnings, and net of repatriation of capital and repayment of loans. We focus here on FDI inflows and put aside the outflows as they are motivated by different factors.

In examining the empirical determinants of FDI inflows, we rely upon a familiar framework which distinguishes between push and pull factors. Hence, in a time series panel regression context, we examine the general specification:

$$fdi_{i,t} = f(\underbrace{hostcountry_{i,t}}_{pull\ factors}, \underbrace{globalfincycle_t}_{push\ factors}, uncert_{i,t}, uncert_t^{global})$$

Where  $fdi_{i,t}$  is FDI inflow/GDP for country  $i$  and year  $t$

- $hostcountry_{i,t}$  is a country  $i$  attribute at time  $t$
- $globalfincycle_t$  is a global financial cycle variable<sup>2</sup> or variables at time  $t$
- $uncert_{i,t}$  is an uncertainty measure for country  $i$  at time  $t$
- $uncert_t^{global}$  is a global uncertainty measure at time  $t$

The sample is broad, and heterogenous. It includes 129 countries, of which 22 are classified as advanced, 57 as emerging, and another as 50 developing, using the IMF's classification. The data set extends from 1995 to 2019 (25 years), and is annual in frequency.

## 2.2 Data sources

The key dependent variable, FDI inflow as a share of GDP, is sourced from UNCTAD, offering the broadest cross-country coverage as well as the longest time span. Given the increasing acknowledgment of severe mismeasurement of FDI flows and stocks<sup>3</sup>, we would ideally like to isolate true FDI flows - implying links with the local economy- from financial flows officially registered as FDI, but only transiting through intra-group finance activities associated with tax optimization strategies. The latter is usually hosted by Special Purpose Entities (SPE), also called phantom FDI

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<sup>2</sup> The global financial cycle is time varying and common to all countries. Alternatively, we could have used time fixed effects instead of the global financial cycle. We have run robustness checks doing so and results are overall similar.

<sup>3</sup> This mismeasurement has been attributed to active tax avoidance measures, as discussed by Blanchard and Acalin (2016) and Damgaard et al. (2019).

(Damgaard et al. 2019), which are holdings channeling financial flows in and out of the country on their way to a third destination.

The OECD has recently constructed a FDI database disentangling SPE and non-SPE flows. While we could alternatively use this database, doing so would limit the sample enormously. UNCTAD reports FDI data for more than 180 countries starting in the '80s, while only 16 countries report non-zero SPE to the OECD, starting in 2013 at the earliest. Surprisingly, large countries like the US, France or Germany report zero SPE. When reported, SPE is mostly small, with five notable exceptions: Switzerland, Belgium, Netherlands, Luxembourg, and Hungary. The SPE data also exhibit significant revisions for the last 3 years. A comparison with the UNCTAD database shows that SPE data is often already accounted for by UNCTAD, and differences persist only for a very small number of countries. We thus construct our final data set based on UNCTAD data, and omit Switzerland, Belgium, Netherlands, Luxembourg, Ireland, Hungary and other countries listed as tax havens (33 countries excluded, the list is provided in Table 2). We only use the OECD data to cross-check our results.

The Pull Factors encompass local host country variables. They include most importantly the FDI stock as share of GDP (from UNCTAD) as a proxy for the agglomeration effects, GDP per capita to proxy market size, GDP growth, the terms of trade, trade openness and government consumption as a share of GDP, all from the World Bank. Financial Openness is measured using the Chinn and Ito *de jure* measure. Financial development is proxied by the ratio of private credit to GDP, and as stock market capitalization/GDP from the World Bank.

We also include institutional development indicators are based on measures drawn from the World Bank's World Governance Indicators. They include Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption. We also use a composite measure named *legal* calculated by Chinn and Ito (2006), which is the first principal component of law and order, bureaucratic quality, and anti-corruption measures drawn from the *International Credit Risk Guide*.

The standard push factors are the global financial cycle variables. We investigate the importance of several such indicators. These include the Fed funds rate, and the shadow Fed funds rate from Wu and Xia, the real value of the Standard and Poor's 500 stock price index as provided by Robert Shiller, and the VIX, from the Chicago Board of Options Exchange. We also use a world interest rate measured as a weighted average of advanced economies' interest rates and central banks' balance sheets (US, Euro area, Japan, UK).

The main innovation of our analysis is the inclusion of several measures of uncertainty. For the host countries, these include the World Uncertainty Index (WUI) of Ahir, Bloom and Furceri (2018), the well-known Economic Policy Uncertainty (EPU) index from Baker et al. (2016) and the VIX. Based

on WUI, we also construct two measures of foreign uncertainty (see section 3.1) and a measure of domestic uncertainty.

The World Uncertainty Index (WUI) is available for 143 countries for the past 60 years. The index captures both economic and political uncertainty, both short and long term. Text mining analysis of Economist Intelligence Unit (EIU) reports provides the basis for the series. The use of a common international source and common methodology means that the indices are comparable across a wide set of countries. The source also provides a global weighted WUI using current market exchange rate GDP.<sup>4</sup>

The EPU measures are created using text mining methods, and applied to different sets of news sources. The indices are available for 22 countries, over varying periods. The global measure of EPU is a GDP-weighted average of national EPU indices for 21 countries,<sup>5</sup> as reported by the authors.

Elections data drawn from Cruz et al. (2018), updated by the authors is also used (as an instrumental variable). The VIX, a measure of market perceived risk in the equity market, is drawn from CBOE.

Greater detail on the sources and construction of the data series are contained in Table 1. The list of countries by country grouping is available in Table 2. Correlation analysis for the different domestic and global uncertainty measures are presented in Tables 3.1 and 3.2.

### **3. Empirical Results**

#### ***3.1 Augmenting the Standard Model with the World Uncertainty Index***

In Table 4.1, we report the results of our baseline specification omitting any uncertainty measure, the baseline specification, as applied to the full sample, and subsamples. In this specification, we have selected for the global (push) factor the real S&P500 index, and for our measure of uncertainty, the WUI, as it provides the broadest coverage.

Column 0 reports the results for the full sample with standard regressors. As anticipated, the stock of inward FDI has a positive statistically significant impact on inward investment, as does real GDP growth and trade openness. Nonetheless, certain variables show up with unexpected sign, in particular

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<sup>4</sup> We also consider a rest-of-world WUI which we call WUI foreign, defined subtracting the corresponding GDP weight. The results do not change in any appreciable way for any of the country groupings. This occurs because, with the exception of the US, the rest-of-world and global versions of the WUI are very similar, as shown in correlation table 3.2.

<sup>5</sup> In the GDP weighting, the countries used are Australia, Brazil, Canada, Chile, China, Colombia, France, Germany, Greece, India, Ireland, Italy, Japan, Mexico, the Netherlands, Russia, South Korea, Spain, Sweden, the United Kingdom, and the United States. We use the PPP weights.

GDP per capita. Higher per capita income is associated with less inward FDI, contrary to findings in a substantial number of studies.

In terms of push factors, the stock market's value seems to have a negative effect on FDI inflows. This makes sense to the extent that higher returns in the US would depress investment of all types in the rest of the world. However, as noted in Baker et al. (2009), Di Giovanni (2005) or Desbordes and Wei (2017), FDI flows increase with source-country stock market valuations, as higher equity values make FDI cheaper to undertake. Hence, it's not clear what prior one should have for this variable. Using other measures of the global push factor – including the world interest rate and the shadow Fed funds rate – indicate lower rates have no significant impact on FDI inflows.

These mixed results suggest two paths forward: inclusion of uncertainty measures and stratifying the sample. In column 1, we take that first step, and report the full sample results including both host country and global uncertainty as measured by the WUI. The global WUI is a GDP-weighted WUI. The full sample results incorporating uncertainty in the host country and global are not much changed, although the trade openness coefficient becomes statistically significant. The within- $R^2$  rises from about 17.5% to 18.5%. Interestingly, the global uncertainty becomes important. Higher global uncertainty decreases inward FDI, whereas the effect of the local uncertainty on host country FDI is not statistically significant.

While the inclusion of uncertainty is important, it seems that home and global uncertainty have differential effects for different countries. This suggests in turn that it is inappropriate to pool all the countries together. A formal test for constancy of coefficients across groups of countries defined by income groups strongly rejects the null hypothesis at the 1% level ( $p$ -value =  $1.8e-23$ ).

The results for the stratified samples are shown in columns 2-4. The results indicate that the impact of the stock of inward FDI varies drastically across groupings, with an insignificant coefficient of about 0.03 in advanced economies, but significant and economically larger coefficients of 0.08 to 0.11 in emerging market and developing economies respectively.

The statistically significant effect of growth in the full sample appears to be driven by the significance in the developing country sample. There is a large impact – of about 0.11 – in that group, and a comparable size impact on advanced economies. However, in the latter, the effect is imprecisely estimated, so is not statistically significant.

Stratification is also seemingly important for identifying the effect of the global factor. In the case of advanced economies, higher equity prices enable easier cross-border acquisition of firms, i.e., mergers and acquisitions. A higher real stock price index in the United States does spur FDI inflows; a 100 point increase in the real S&P 500 drives the FDI inflows to GDP ratio by 0.1 percentage points. Additionally, the shadow rate and world interest rate exhibit the expected negative – and statistically

significant – impact on FDI inflows to developing economies, while they show up with positive impact for advanced economies. The aggregate sample findings are thus a consequence of inappropriate pooling (see the online appendix tables A9-A12).

The story is different for emerging market and developing economies, where the reverse appears to be true – higher equity prices abroad in the US (and likely other advanced economies) leads to lower FDI inflows as prospective returns in the advanced economies seem higher than those in host economies.

As for the key variables of interest, home country uncertainty does not seem to be of great importance. While the coefficient is large – and positive – in advanced economies and small and negative in developing countries, in no case are the coefficients statistically significant. In contrast, global uncertainty has a large and statistically significant impact on inward FDI for advanced and emerging market economies.

One of the shortcomings of these uncertainty indicators provided by Ahir et al. (2018) is that they might be correlated across countries, or put it another way, that global uncertainty may translate into domestic uncertainty, making it difficult to disentangle between the two in an empirical setting.

As a first robustness check to address this issue, for each country we construct a measure of foreign WUI by excluding from the WUI global uncertainty measure the reporting country according to its specific weight<sup>6</sup>. Results are provided in columns 1-4 of Table 4.2. They are very similar as the individual weights of countries are fairly small, thus the foreign WUI measure is similar to the Global WUI measure. Substituting this variable for global WUI does not change the results appreciably, in terms of coefficients or statistical significance.

Second, for each host country  $i$  we compute a measure of effective foreign uncertainty, as an average of domestic WUI in the origin countries  $j$  of foreign investors, weighted by the share of these origin countries in the total FDI stock of country  $i$  in 2020<sup>7</sup>. Results using this constructed measure are in columns 5-8 of Table 4.2.

Third, given the weights used in constructing the global WUI, the US WUI is likely to dominate, and potentially spillover to domestic uncertainty as we have argued before. As shown in table 3.2, the domestic US WUI is highly correlated with the global WUI (0.91). As such, we try to purge domestic

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<sup>6</sup>  $Foreign\_WUI_{it} = (WUI_{globalit} - WUI_{it} * weight\ of\ country_{it}) / (1 - weight\ of\ country_{it})$

<sup>7</sup>  $Effective\ foreign\ WUI_{it} = \sum_{j=1}^n WUI_{jt} * \frac{FDI\ stock\ from\ country\ j\ in\ country\ i\ in\ 2020}{FDI\ stock_{i2020}}$

Where  $i$  is the host country and  $j$  is the origin country of FDI inflows.

The distribution of the FDI stock by origin country has been provided by UNCTAD for 2020 only. We thus assume these shares to be constant throughout the period. This is not such a strong assumption to the extent that the stock of FDI is accumulated through the year and it suffers only small changes from a year to another. The bilateral data exists for a more limited number of countries, which explains why we lose some observations in Table 4.2.

uncertainty of this global factor represented by US uncertainty. To this end, we fit a standard regression of domestic WUI on US WUI and take the residuals as the new measure of domestic uncertainty. Results of the baseline estimation using residual domestic uncertainty measure as well as US WUI as measure of global uncertainty are provided in Table 4.3.

Robustness checks provided in tables 4.2 and 4.3 confirm our baseline estimations in table 4.1. Global uncertainty as a push factor lowers FDI inflows everywhere, whereas domestic uncertainty as a pull factor seems less important, with potentially an exception in emerging economies. In column 3 of Table 4.3 we do obtain a negative and significant contribution of residual domestic WUI to FDI inflows in emerging countries.

These results are in accord with Belke and Volz (2018), who found that push factors and specifically global EPU were statistically important for emerging market and developing country FDI (although they could not test for host country uncertainty since EPUs are not available for a broad set of countries).

Returning to the point estimates of the global uncertainty impact obtained, we can evaluate whether this estimate is economically large by considering a counterfactual. Using the group-specific point estimates, we can consider what FDI inflows would have been had the level of global uncertainty from 2015 to 2019 been at 2014 levels (that is 0.18 instead of 0.41). This leads to the results shown in Figure 4.

[Figure 4 ]

Our estimates imply a large impact on FDI inflows, perhaps unsurprisingly because of the large postulated change in global uncertainty levels. FDI inflows rise by about a percentage point of GDP for emerging market economies, and by about 1.5 percentage points for advanced economies.

While there is widespread agreement on the “pull” determinants of inward FDI, there is less consensus on the “push” variables – in our context, the global financial factor. We examine the sensitivity of our results to using alternative measures of the global financial factor, and summarize the results in Table 5.1. The specifications are the same as in Table 4.1, save that the real S&P 500 is replaced with the world interest rates, the nominal shadow Fed funds rate and, and the world central bank assets as a share of GDP (these last variables to proxy for unconventional monetary policies). We anticipate tighter monetary policy (essentially in core financial centers) to correlate with lower FDI inflows into emerging market or developing countries.

The results indicate that in the full sample, the impact of interest rates of either type are a wash. In advanced countries, the higher rates are associated with higher inflows; while this finding seems counterintuitive, it might arise because higher rates are associated with booms in the core financial centers, and GDP growth does not fully capture that business cycle effect. No statistically significant

effect is evidenced for the emerging market economies. For developing countries, the core interest rates have the anticipated effect – higher rates induce less FDI inflows.

How does the impact of our uncertainty measure change as we replace the S&P 500 with these alternative global factors? We consider first the impact on the host country uncertainty (results summarized in Table 5.2), and then second the global uncertainty (results summarized in Table 5.3).

As shown in Column 1 of Table 5.2, none of the different measures of the global factor results in uncertainty having a statistically significant effect in the full sample. Nor does exclusion of a financial factor alter this pattern. In fact, host country uncertainty is not statistically significant using any measure of the global factor, when examining the advanced or developing subgroups (columns 2 and 4 respectively). Interestingly, for emerging market economies (column 3), host country uncertainty does exhibit a dampening effect on FDI inflows using any global factor (or none at all), except for the real equity index used in our baseline specification and central banks' balance sheet. This finding suggests that even though host country uncertainty doesn't appear as a significantly negative effect for our baseline emerging market specification, there is some evidence for a fairly large impact generally.

Table 5.3 summarizes the estimated effect of global uncertainty. As before, global uncertainty has a negative and relatively large impact on FDI inflows for the full sample; however, this result again seems to be largely driven by emerging market economies. In other words, regardless of global financial factor used, global uncertainty has a depressing effect on FDI inflows for this group of countries (except for central banks' balance sheet). For advanced economies, the significantly negative effect of uncertainty only holds for the baseline specification using the S&P 500 and central banks' balance sheet. For the developing, it holds when the shadow rate and the world interest rate are used.

[Table 5.1 ]

[Table 5.2 ]

[Table 5.3 ]

### ***3.2 Alternative Measures of Uncertainty***

Our results have thus far focused on the Ahir et al. (2018) measure of economic and political uncertainty. Several alternative measures of uncertainty at the global level have been developed in recent years, augmenting the familiar standby of the VIX, a measure of risk in the US equity markets. As stated in the previous section and Tables 4.2 and 4.3, we have also computed some adjusted measures of foreign and domestic uncertainty. We summarize the impact of these different, mostly global but also domestic, uncertainty proxy measures in Table 6, for the full sample as well as the stratified ones.

[Table 6]

Contrary to results obtained using the global WUI, heightened levels of the VIX are associated with *increases* in inward FDI, for all country groupings. In some sense, this is unsurprising as the VIX actually bears a small negative correlation with the global WUI (see table 3.2). This finding of elevated risk/uncertainty is a counter-intuitive result, for which we are unable to provide a rationale.

Overall, results in Table 6 confirm our previous findings, and namely the importance of global uncertainty, measured by either global weighted WUI, foreign WUI, effective foreign WUI, US WUI, global EPU. These results seem to hold for advanced and emerging economies, but not for developing ones. Domestic uncertainty deter FDI inflows only in emerging economies, and in some specifications (when proxied by domestic WUI and residual WUI).

Among the recently developed indices, the economic policy uncertainty (EPU) index of Baker, Bloom and Davis (2016) is perhaps the most well-known. Relying upon a narrative approach, using text mining methods applied to newspapers, they have produced measures of economic policy uncertainty for a select number of countries.<sup>8</sup> The global WUI and the global EPU are highly correlated (0.85, see table 3.2). Unfortunately, their data covers only 22, mostly advanced, countries, over varying time periods. Given that we want to include both host country and global uncertainty, this means that results are really only pertain to the advanced country setting (the “all sample” is then effectively the same as the advanced).

It turns out that the host country EPU and WUI uncertainty measures are not as highly correlated (0.44 for the whole sample, 0.57 for advanced countries), although the correlation is statistically significant. This correlation is shown in Table 2.1.

For the advanced sample, the host country EPU is not statistically significant, either when entered alone or when entered jointly with a global EPU. Only the global EPU measure appears statistically significant, with a negative coefficient, consistent with the baseline results using the world uncertainty index.

### ***3.3 Other variables***

We consider two other factors: financial development and institutions. For financial development, we use several proxies, including credit-to-GDP, stock market valuation to GDP, and bond stock to GDP. As reported in the online Appendix Tables A5-A8, while the proxy variable is sometimes significant



(e.g., stock market for advanced), inclusion of these variables does not affect overall the pattern of results regarding the WUI index.

Institutional variables – corruption, law and order etc – should also have an effect on inward FDI. Using a variety of institutional variables, we find that they are sometimes statistically significant in their effect, but the significant variables vary by country grouping. These results are shown in the online Appendix in Tables A17-A20. However, central to our concerns, in no case does inclusion of institutional variables alter the pattern of results we obtain – namely that host country uncertainty is usually not significant, while global uncertainty always is.

Finally, it bears recalling that uncertainty is potentially an endogenous variable. The correlation between uncertainty and host-country FDI inflows could be causal in nature – high uncertainty deters inflows – or it could be due to reverse causality, where FDI inflows affect uncertainty. Perhaps more plausible, both FDI inflows and uncertainty could be caused by a third omitted variable. The standard approach is to implement an instrumental variables approach, like two-stage least squares. A desirable instrumental variable would have a high correlation with the left-hand side variable (in this case host country WUI) and at the same time exogenous with respect to FDI inflows. We use the elections (dummy) variable constructed by Cruz et al. (2018), and re-estimate using two-stage least squares. The results are largely unchanged, as reported in the online Appendix Tables A13-A16.

To sum up, host country economic and political uncertainty is usually statistically insignificant for FDI inflows, while global uncertainty is typically statistically significant. This is true despite variations in the global factor, and inclusion of factors to account for financial development and institutional development.

## **4. Extensions**

### ***4.1 Nonlinearities in Uncertainty***

One possibility is that high levels of uncertainty have an effect on FDI inflows, while low levels do not. In order to investigate this possibility, we define host country uncertainty as high when taking on values above 0.05, and global uncertainty as high when taking on values above 0.18. In both cases, this means that high is whenever WUI is above mean.

In Table 7, we examine adding a nonlinearity in the global country uncertainty, while maintaining linearity for domestic uncertainty (columns 1-3), and then maintaining linearity for global country uncertainty, while allowing for nonlinear effects for host country uncertainty (columns 4-6).

[Table 7]

Inspecting Table 7, one finding remains unchanged from earlier; the linear effect of host country uncertainty remains insignificant in all cases. When a nonlinearity is allowed for host country uncertainty (but not for global), then global uncertainty is significant for advanced and emerging market economies (columns 4-5). No significant uncertainty coefficients are detected for developing countries. Interestingly, the high uncertainty in advanced economies (column 4) shows up with a positive sign.

When the nonlinearity is allowed in the global uncertainty, then the high uncertainty shows up with significance (but not below-mean uncertainty). In general, the coefficients on the uncertainty and interacted terms are imprecisely estimated, likely due to multicollinearity.

We estimated specifications allowing the nonlinearities simultaneously in both host country uncertainty and globally, in Table 8. Then high host country uncertainty shows up as significant (and positive) for advanced countries. Host country uncertainty is not significant in any other case. High global uncertainty shows up as a significant (negative) determinant for FDI inflows in emerging market economies (column 2). In all the other cases, both the linear and nonlinear effects of global uncertainty are not statistically significant.

[Table 8]

#### **4.2 Financial Openness**

We examine whether inclusion of measures of financial openness could change the results overall, and with respect to uncertainty. Financial openness should come into play insofar as capital controls could make it harder to invest in a country, and also harder to divest; as a consequence, one might think that financial openness could mediate the impact of uncertainty.

The financial openness variable we use is the *de jure* measure developed by Chinn and Ito (2006). The variable takes on higher values when financial openness is greater, and is constructed by taking the variable is the first principal component of variables – multiple exchange rates, surrender of export proceeds, current account restrictions (smoothed), and capital account restrictions. This variable has a high degree of correlation with other *de jure* measures, such as Quinn, et al. (2011).

[Table 9]

We investigate the impact of financial openness by augmenting the baseline specification with the variable, and adding a term interacting uncertainty with financial openness. These results are shown in Table 9. For all three groupings, the financial openness variable is estimated to have a positive impact on the level of the ratio FDI inflows to GDP. However, it only has a statistically significant effect for the emerging market and developing countries. This outcome is likely because the level of financial

openness is almost uniformly high in the advanced countries, while there is more variation in the other groups.

As in the baseline results, uncertainty has a negative and significant effect on FDI inflows for emerging and developing countries, and has a positive effect on advanced economies. More interesting is the fact that higher financial openness makes the negative impact of uncertainty more pronounced. For the advanced countries, greater financial openness impacts overall FDI inflows by decreasing the positive sensitivity of FDI inflows to uncertainty. As such, when evaluated at the mean of financial openness, the impact of uncertainty on FDI inflows in advanced economies is negative (-7.15).

### ***4.3 Persistence of Uncertainty***

When investigating the impact of uncertainty on capital flows, and especially on FDI, the persistence of uncertainty may play a role beyond the level of uncertainty itself. One could argue that temporary uncertainty, if quickly resolve, should not significantly influence FDI inflows. Conversely, if longer lasting, uncertainty persistence could deter FDI inflows beyond the negative effect of high, but temporary, uncertainty levels. In this vein, Yarba and Guner (2020) have shown that the persistence of uncertainty is a more relevant factor for the leverage decisions of Turkish firms than uncertainty itself.

We seek to address uncertainty persistence by looking at the quarterly frequency of our variable of interest, the WUI. For each year, we count the number of quarters which are above the three year moving average and take that as a measure of persistence. We then interact that measure with both domestic WUI and global WUI. Results of these estimations are provided in Table 10, in the aggregate sample and for country groups.

[Table 10]

They seem to confirm previous results emphasizing the role if global uncertainty over domestic uncertainty in driving FDI inflows. Moreover, uncertainty persistence, be it domestic or global, does not seem to be a crucial factor. The one exception is the persistence of global uncertainty for advanced countries (columns 5-6). While global uncertainty always has a strong negative effect of FDI inflows everywhere, when persistent, it seems to encourage a behavior of flight-to-quality for international investors, which mitigates some of the negative effects of global uncertainty on FDI inflows. This effect has also been confirmed by the recent analysis of Nugyen and Lee (2021).

## **5. Conclusions**

FDI flows have been particularly weak in the years preceding the pandemic, while traditional drivers like growth or historically low interest rates should have been supportive of a stronger dynamic. This suggests that structural factors beyond those usually found to drive FDI inflows, such as the increased economic uncertainty in the aftermath of the GFC, may have deterred FDI inflows. While there is an enormous extant literature analyzing the empirical determinants FDI, the empirical analysis of uncertainty's impact is relatively small, partly explained by the lack of consistent cross-country measures of policy uncertainty.

In this paper, we examine the role of uncertainty in driving FDI inflows in a heterogeneous sample of advanced, emerging market and developing countries over a 25 year long pre-Covid period sample from 1995 to 2019. By relying on a push-pull framework, we control for both host country as well as global uncertainty. Stratifying the sample according the development levels allows us to discern effect of different strength and directions among the country groups.

We thus find that it is not host country uncertainty that seems to matter the most for FDI inflows, but rather global uncertainty. Domestic economic and political uncertainty is usually statistically insignificant for FDI inflows. These results hold despite variations in the global and host country measures of uncertainty.

For emerging countries, and in certain conditions, host countries uncertainty seems to also have a negative effect on FDI flows, but to a lesser extent compared to global uncertainty. Domestic uncertainty does not seem to be an important driver of FDI inflows in advanced or developing economies.

We also highlight a flight-for-safety phenomenon when global uncertainty is high or persistent, thus leading foreign investors to redirect FDI to advanced countries, perceived as safe heavens.

Finally, our results suggest that higher financial openness reinforces the negative impact of global uncertainty.

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**Table 1. Variable labels, description and sources**

| <b>Variable name</b>                   | <b>Description</b>   | <b>Source</b>  |
|--|--|--|
| <b>Dependent variables</b>             |  |  |
| FDI                                    | FDI net inflows (% GDP)  | UNCTAD   |
| <b>Variables measuring uncertainty</b> |  |  |
| EPU global                             | Global Economic Policy Uncertainty index   | Baker et al. (2016)  |
| EPU                                    | Economic Policy Uncertainty yearly observation computed as an average of the monthly EPU index                   | Baker et al. (2016)  |
| WUI                                    | Country level World Uncertainty Index computed as an average of quarterly observations of the smoothed WUI Index | Ahir, Bloom, Furceri (2018)                                |
| WUI_global                             | Global Weighted World Uncertainty index  | Ahir, Bloom, Furceri (2018)                                |
| WUI_foreign                            | Global weighted WUI index excluding the reporting country  | Authors' calculations based on Ahir, Bloom, Furceri (2018) |
| VIX                                    | Volatility Index for the US S&P500 stock market  | Chicago Board Options Exchange                             |
| Elections                              | Dummy variable equal to 1 if presidential or legislative elections that year, 0 otherwise                        | Cruz et al. (2018) updated by authors for 2018-2019        |
| <b>Control variables</b>               |  |  |
| fdi_stock                              | FDI accumulated stock (% GDP)  | UNCTAD   |
| gdp/capita                             | Log of GDP per capita constant 2010 US\$   | World Bank   |
| growth                                 | Real percentage GDP growth   | World Bank   |
| trade                                  | Trade openness computed as the sum of imports and exports (% GDP)  | World Bank   |
| gov_cons                               | General government final consumption expenditure (% of GDP)  | World Bank   |
| terms_trade                            | Net barter terms of trade 2000=100   | World Bank   |
| real S&P                               | Real S&P500 computed as the nominal S&P500 value index adjusted for CPI Inflation                                | Robert Shiller (2021)                                      |
| world_interest                         | The weighted average of advanced economies' policy interest rates (US, EA, JP, UK)                               | National sources   |
| shadow rate                            | Wu-Xia shadow interest rate for the US   | Wu and Xia (2016)  |
| ka_open                                | Financial Openness indicator   | Chinn and Ito (2006)                                       |
| credit                                 | Domestic credit to private sector (% GDP)  | World Bank   |
| stock_mkt                              | Stock market capitalization (% GDP)  | World Bank   |
| bond_mkt                               | Bond market size (bonds outstanding % GDP)   | World Bank   |



**Table 2. List of countries in the sample according to the IMF classification****Advanced countries**

|                |         |                 |                |
|----------------|---------|-----------------|----------------|
| Australia      | France  | Korea           | Spain          |
| Austria        | Germany | New Zealand     | Sweden         |
| Canada         | Greece  | Norway          | United Kingdom |
| Czech Republic | Israel  | Portugal        | United States  |
| Denmark        | Italy   | Slovak Republic |                |
| Finland        | Japan   | Slovenia        |                |

**Emerging countries**

|                    |                    |             |                      |
|--------------------|--------------------|-------------|----------------------|
| Albania            | Croatia            | Latvia      | Russia               |
| Algeria            | Dominican Rep.     | Lebanon     | Saudi Arabia         |
| Angola             | Ecuador            | Libya       | South Africa         |
| Argentina          | Egypt              | Lithuania   | Sri Lanka            |
| Armenia            | El Salvador        | Malaysia    | Taiwan               |
| Azerbaijan         | Gabon              | Mexico      | Thailand             |
| Belarus            | Georgia            | Morocco     | Tunisia              |
| Bosnia Herzegovina | India              | Macedonia   | Turkey               |
| Botswana           | Indonesia          | Pakistan    | Turkmenistan         |
| Brazil             | Iran, Islamic Rep. | Paraguay    | Ukraine              |
| Bulgaria           | Iraq               | Peru        | United Arab Emirates |
| Chile              | Jamaica            | Philippines | Uruguay              |
| China              | Jordan             | Poland      |                      |
| Colombia           | Kazakhstan         | Qatar       |                      |
| Costa Rica         | Kuwait             | Romania     |                      |

**Developing countries**

|                      |               |                  |              |
|----------------------|---------------|------------------|--------------|
| Afghanistan          | Eritrea       | Malawi           | Senegal      |
| Bangladesh           | Ethiopia      | Mali             | Sierra Leone |
| Benin                | Gambia        | Mauritania       | Sudan        |
| Bolivia              | Ghana         | Moldova          | Tajikistan   |
| Burkina Faso         | Guinea        | Mongolia         | Tanzania     |
| Burundi              | Guinea-Bissau | Mozambique       | Togo         |
| Cambodia             | Haiti         | Myanmar          | Uganda       |
| Cameroon             | Honduras      | Nepal            | Uzbekistan   |
| Central African Rep. | Kenya         | Nicaragua        | Vietnam      |
| Chad                 | Kyrgyz Rep.   | Niger            | Zambia       |
| Congo, Dem. Rep.     | Lao P.D.R.    | Nigeria          | Zimbabwe     |
| Congo, Republic of   | Lesotho       | Papua New Guinea |              |
| Côte d'Ivoire        | Madagascar    | Rwanda           |              |

**Excluded countries (financial centers and tax heavens):** Antigua and Barbuda, Aruba, Bahamas, Bahrain, Barbados, Belgium, Belize, Brunei Darussalam, Cyprus, Djibouti, Fiji, Grenada, Guatemala, Hong Kong, Hungary, Ireland, Liberia, Luxembourg, Macao SAR, Malta, Namibia, Netherlands, Oman, Panama, Samoa, Seychelles, Singapore, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Switzerland, Trinidad and Tobago, Vanuatu.

**Table 3.1. Correlation of different measures of domestic uncertainty**

|                             | <b>WUI</b> | <b>WUI residual</b> | <b>EPU</b> |
|-----------------------------|------------|---------------------|------------|
| <b>All sample</b>           |            |                     |            |
| WUI                         | 1          |                     |            |
| WUI residual                | 0.85       | 1                   |            |
| EPU                         | 0.44       | 0.28                | 1          |
| <b>Advanced countries</b>   |            |                     |            |
| WUI                         | 1          |                     |            |
| WUI residual                | 0.83       | 1                   |            |
| EPU                         | 0.57       | 0.33                | 1          |
| <b>Emerging countries</b>   |            |                     |            |
| WUI                         | 1          |                     |            |
| WUI residual                | 0.84       | 1                   |            |
| EPU                         | 0.24       | 0.22                | 1          |
| <b>Developing countries</b> |            |                     |            |
| WUI                         | 1          |                     |            |
| WUI residual                | 0.86       | 1                   |            |

**Table 3.2. Correlation of different measures of global uncertainty for the whole sample**

|                       | <b>WUI global</b> | <b>WUI foreign</b> | <b>Effective Foreign WUI</b> | <b>WUI USA</b> | <b>EPU global</b> | <b>VIX</b> |
|-----------------------|-------------------|--------------------|------------------------------|----------------|-------------------|------------|
| WUI global            | 1                 |                    |                              |                |                   |            |
| WUI foreign           | 0.99              | 1                  |                              |                |                   |            |
| Effective Foreign WUI | 0.83              | 0.85               | 1                            |                |                   |            |
| WUI US                | 0.91              | 0.91               | 0.71                         | 1              |                   |            |
| EPU global            | 0.85              | 0.85               | 0.76                         | 0.64           | 1                 |            |
| VIX                   | -0.15             | -0.15              | -0.25                        | 0.00           | -0.21             | 1          |

**Table 4.1. Baseline Specification**

| Dep var. FDI inflows | (0)<br>All sample    | (1)<br>All sample    | (2)<br>Advanced     | (3)<br>Emerging      | (4)<br>Developing    |
|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
| fdi_stock            | 0.090***<br>(0.018)  | 0.091***<br>(0.020)  | 0.027<br>(0.028)    | 0.105***<br>(0.029)  | 0.083***<br>(0.027)  |
| gdp/capita           | -1.258<br>(1.038)    | -1.222<br>(1.096)    | -4.130<br>(3.503)   | -2.243<br>(1.359)    | 1.664<br>(1.782)     |
| growth               | 0.126***<br>(0.032)  | 0.103***<br>(0.032)  | 0.097<br>(0.080)    | 0.064<br>(0.042)     | 0.107**<br>(0.043)   |
| trade                | 0.017<br>(0.013)     | 0.028**<br>(0.012)   | -0.054**<br>(0.023) | 0.012<br>(0.012)     | 0.060***<br>(0.016)  |
| gov_cons             | -0.003<br>(0.054)    | 0.029<br>(0.049)     | -0.056<br>(0.228)   | 0.017<br>(0.083)     | -0.013<br>(0.063)    |
| terms_trade          | 0.001<br>(0.004)     | 0.001<br>(0.005)     | -0.007<br>(0.020)   | -0.002<br>(0.003)    | -0.001<br>(0.011)    |
| real S&P             | -0.001***<br>(0.000) | -0.001***<br>(0.000) | 0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) |
| WUI                  |                      | -0.711<br>(2.331)    | 4.752<br>(4.284)    | -2.774<br>(2.000)    | -0.135<br>(4.353)    |
| WUI_global           |                      | -3.857**<br>(1.537)  | -7.268**<br>(2.983) | -5.322***<br>(1.408) | -1.487<br>(3.017)    |
| Observations         | 2,983                | 2,762                | 446                 | 1,252                | 1,064                |
| R-squared            | 0.176                | 0.194                | 0.195               | 0.207                | 0.247                |
| Number of countries  | 142                  | 129                  | 22                  | 57                   | 50                   |
| Country FE           | YES                  | YES                  | YES                 | YES                  | YES                  |

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 4.2. Robustness checks for the baseline specification by using different measures of external global uncertainty**

|                       | (1)                  | (2)                 | (3)                  | (4)                  | (5)                   | (6)                  | (7)                   | (8)                  |
|-----------------------|----------------------|---------------------|----------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|
| Dep var. FDI inflows  | All sample           | Advanced economies  | Emerging economies   | Developing economies | All countries         | Advanced economies   | Emerging economies    | Developing economies |
| fdi_stock             | 0.091***<br>(0.020)  | 0.027<br>(0.028)    | 0.105***<br>(0.029)  | 0.083***<br>(0.027)  | 0.066***<br>(0.016)   | 0.036<br>(0.029)     | 0.095*<br>(0.047)     | 0.049***<br>(0.016)  |
| gdp/capita            | -1.218<br>(1.097)    | -4.181<br>(3.495)   | -2.234<br>(1.364)    | 1.663<br>(1.782)     | -0.585<br>(1.419)     | -4.631<br>(3.416)    | -1.985<br>(1.789)     | 6.134**<br>(2.191)   |
| growth                | 0.103***<br>(0.032)  | 0.098<br>(0.079)    | 0.064<br>(0.042)     | 0.107**<br>(0.043)   | 0.136**<br>(0.064)    | 0.097<br>(0.076)     | 0.079<br>(0.059)      | 0.240<br>(0.183)     |
| trade                 | 0.028**<br>(0.012)   | -0.054**<br>(0.023) | 0.012<br>(0.012)     | 0.060***<br>(0.016)  | 0.013<br>(0.015)      | -0.047**<br>(0.022)  | -0.002<br>(0.012)     | 0.065**<br>(0.030)   |
| gov_cons              | 0.029<br>(0.049)     | -0.053<br>(0.228)   | 0.017<br>(0.083)     | -0.013<br>(0.063)    | 0.053<br>(0.105)      | -0.006<br>(0.221)    | 0.021<br>(0.098)      | -0.008<br>(0.180)    |
| terms_trade           | 0.001<br>(0.005)     | -0.007<br>(0.021)   | -0.002<br>(0.003)    | -0.001<br>(0.011)    | 0.005<br>(0.008)      | -0.005<br>(0.020)    | -0.009<br>(0.007)     | 0.012<br>(0.017)     |
| real S&P              | -0.001***<br>(0.000) | 0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001**<br>(0.000)   | 0.001***<br>(0.000)  | -0.001*<br>(0.000)    | -0.002**<br>(0.001)  |
| WUI                   | -0.772<br>(2.331)    | 4.177<br>(4.021)    | -2.853<br>(1.997)    | -0.138<br>(4.352)    | 1.327<br>(3.202)      | 5.559<br>(4.369)     | -1.831<br>(2.615)     | 1.591<br>(8.034)     |
| Foreign WUI           | -3.844**<br>(1.532)  | -7.212**<br>(2.859) | -5.274***<br>(1.408) | -1.480<br>(3.007)    |                       |                      |                       |                      |
| Effective Foreign WUI |                      |                     |                      |                      | -12.819***<br>(3.976) | -20.803**<br>(7.866) | -13.717***<br>(4.485) | -6.951<br>(11.533)   |
| Observations          | 2,762                | 446                 | 1,252                | 1,064                | 1,776                 | 446                  | 900                   | 430                  |
| R-squared             | 0.194                | 0.195               | 0.207                | 0.247                | 0.117                 | 0.205                | 0.156                 | 0.235                |
| Number of countries   | 129                  | 22                  | 57                   | 50                   | 82                    | 22                   | 40                    | 20                   |
| Country FE            | YES                  | YES                 | YES                  | YES                  | YES                   | YES                  | YES                   | YES                  |

Note: Foreign WUI is the global uncertainty index reported by Ahir et al (2018) excluding the reporting country according to its weight in the index. The effective foreign WUI is computed by the authors as a weighted average of individual origin country WUI weighted by the share of that country in the total stock FDI stock of the reporting economy for 2020. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4.3. Robustness checks by using US WUI as a measure of global uncertainty**

| Dep var.<br>inflows | FDI | (1)<br>All sample    | (2)<br>Advanced<br>economies | (3)<br>Emerging<br>economies | (4)<br>Developing<br>economies |
|---------------------|-----|----------------------|------------------------------|------------------------------|--------------------------------|
| fdi_stock           |     | 0.089***<br>(0.020)  | 0.026<br>(0.029)             | 0.102***<br>(0.029)          | 0.081***<br>(0.027)            |
| gdp/capita          |     | -1.479<br>(1.094)    | -4.600<br>(3.738)            | -2.508*<br>(1.333)           | 1.396<br>(1.813)               |
| growth              |     | 0.107***<br>(0.032)  | 0.119<br>(0.080)             | 0.069<br>(0.042)             | 0.106**<br>(0.043)             |
| trade               |     | 0.029**<br>(0.011)   | -0.054**<br>(0.023)          | 0.013<br>(0.012)             | 0.060***<br>(0.016)            |
| gov_cons            |     | 0.025<br>(0.050)     | -0.075<br>(0.238)            | 0.005<br>(0.082)             | -0.013<br>(0.064)              |
| terms_trade         |     | 0.001<br>(0.005)     | -0.008<br>(0.022)            | -0.003<br>(0.003)            | -0.001<br>(0.011)              |
| real S&P            |     | -0.001***<br>(0.000) | 0.001**<br>(0.000)           | -0.001***<br>(0.000)         | -0.001***<br>(0.000)           |
| WUI_resid           |     | -1.068<br>(2.485)    | 3.003<br>(4.696)             | -3.498*<br>(1.983)           | -0.195<br>(4.569)              |
| WUI_US              |     | -2.435<br>(2.690)    | -8.213**<br>(3.315)          | -5.085**<br>(2.175)          | 2.732<br>(5.118)               |
| Observations        |     | 2,738                | 422                          | 1,252                        | 1,064                          |
| R-squared           |     | 0.191                | 0.185                        | 0.200                        | 0.247                          |
| Number of countries |     | 128                  | 21                           | 57                           | 50                             |
| Country FE          |     | YES                  | YES                          | YES                          | YES                            |

Note: coefficients based on baseline regression as in Table 4.1, and using the WUI\_US as the measure of global uncertainty and WUI\_resid as the measure of domestic uncertainty. WUI\_resid is obtained as a residual from a fitted standard regression of domestic WUI on WUI\_US. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Tables 5. Robustness checks by using different measures of the Global Financial Factor

### (5.1) Impact of the Global Financial cycle factor

|                           | All countries | Advanced | Emerging  | Developing |
|---------------------------|---------------|----------|-----------|------------|
| Shadow rate               | -0.007        | 0.277*** | 0.075     | -0.213**   |
| World interest rate       | -0.015        | 0.591*** | 0.115     | -0.387**   |
| World central bank assets | -0.076***     | 0.004    | -0.122*** | -0.045*    |
| Real S&P                  | -0.001***     | 0.001*** | -0.001*** | -0.001***  |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: impact of the global financial cycle on FDI inflows.

### (5.2) Impact of WUI for different measures of global financial cycle

|                           | All countries | Advanced | Emerging | Developing |
|---------------------------|---------------|----------|----------|------------|
| No financial cycle        | -1.513        | 5.676    | -4.254*  | -0.615     |
| Shadow rate               | -1.536        | 6.596    | -4.372** | -2.183     |
| World interest rate       | -1.535        | 6.565    | -4.322*  | -1.912     |
| World central bank assets | 0.025         | 4.996    | -1.670   | 0.144      |
| Real S&P                  | -0.711        | 4.752    | -2.774   | -0.135     |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Impact of WUI on FDI inflows (when WUI\_global included in regressions).

### (5.3) Impact of WUI\_global for different measures of global financial cycle

|                           | All countries | Advanced  | Emerging  | Developing |
|---------------------------|---------------|-----------|-----------|------------|
| No financial cycle        | -5.297***     | -4.586    | -6.777*** | -3.677     |
| Shadow rate               | -5.368***     | -3.355    | -6.115*** | -6.028**   |
| World interest rate       | -5.445***     | -0.300    | -5.714*** | -7.856***  |
| World central bank assets | -1.523        | -4.555*   | -1.536    | -1.740     |
| Real S&P                  | -3.857***     | -7.268*** | -5.322*** | -1.487     |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Impact of WUI\_global on FDI inflows (when WUI included in regressions).

**Table 6. Variations in uncertainty measures**

|                                    | <b>All countries</b> | <b>Advanced countries</b> | <b>Emerging countries</b> | <b>Developing countries</b> |
|------------------------------------|----------------------|---------------------------|---------------------------|-----------------------------|
| <b>EPU</b>                         | -0.001               | 0.000                     | 0.000                     |                             |
| <b>EPU + EPUglobal</b>             | 0.000/-0.006**       | 0.003/-0.010*             | 0.000/-0.003              |                             |
| <b>WUI</b>                         | -1.53                | 0.755                     | -3.558*                   | -0.365                      |
| <b>WUI + WUI_global</b>            | -0.711/-3.857**      | 4.752/-7.268**            | -2.774/-5.322***          | -0.135/-1.487               |
| <b>WUI + WUI_foreign</b>           | -0.773/-3.844**      | 4.177/-7.212**            | -2.854/-5.275***          | -0.138/-1.480               |
| <b>WUI + Effective Foreign WUI</b> | 1.327/ -12.819***    | 5.559/-20.803**           | -1.831 / -13.717***       | 1.591 / -6.951              |
| <b>Residual WUI + WUI_US</b>       | -1.068 / -2.435      | 3.003/-8.213**            | -3.498* / -5.085**        | -0.195 / 2.732              |
| <b>VIX</b>                         | 0.054***             | 0.061**                   | 0.044**                   | 0.073***                    |

Note: coefficients on uncertainty measures and control variables fdi\_stock, gdp/capita, growth trade, terms\_trade and real S&P.

**Table 7. Non linearities in uncertainty measures**

| Dep var.            | (1)                 | (2)                  | (3)                  | (4)                 | (5)                  | (6)                  |
|---------------------|---------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
| FDI inflows         | Advanced            | Emerging             | Developing           | Advanced            | Emerging             | Developing           |
| fdi_stock           | 0.028<br>(0.028)    | 0.106***<br>(0.029)  | 0.083***<br>(0.027)  | 0.029<br>(0.029)    | 0.105***<br>(0.029)  | 0.083***<br>(0.027)  |
| gdp/capita          | -4.295<br>(3.582)   | -2.444*<br>(1.380)   | 1.617<br>(1.758)     | -4.177<br>(3.478)   | -2.225<br>(1.353)    | 1.667<br>(1.777)     |
| growth              | 0.092<br>(0.077)    | 0.053<br>(0.041)     | 0.105**<br>(0.043)   | 0.093<br>(0.078)    | 0.064<br>(0.042)     | 0.107**<br>(0.043)   |
| trade               | -0.056**<br>(0.023) | 0.009<br>(0.012)     | 0.058***<br>(0.016)  | -0.054**<br>(0.022) | 0.013<br>(0.012)     | 0.060***<br>(0.016)  |
| gov_cons            | -0.056<br>(0.228)   | 0.031<br>(0.085)     | -0.009<br>(0.063)    | -0.069<br>(0.220)   | 0.016<br>(0.082)     | -0.013<br>(0.062)    |
| terms_trade         | -0.008<br>(0.020)   | -0.004<br>(0.004)    | -0.001<br>(0.011)    | -0.008<br>(0.020)   | -0.002<br>(0.003)    | -0.001<br>(0.011)    |
| real S&P            | 0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) | 0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) |
| WUI                 | 4.625<br>(4.326)    | -2.443<br>(1.968)    | -0.295<br>(4.365)    | -12.596<br>(10.842) | 2.895<br>(5.283)     | 1.577<br>(14.068)    |
| WUI_global          | -4.289<br>(4.277)   | 4.302<br>(3.044)     | 2.703<br>(3.841)     | -6.997**<br>(3.075) | -5.376***<br>(1.425) | -1.473<br>(3.047)    |
| WUI_global_h        | -1.727<br>(1.386)   | -5.713***<br>(1.623) | -2.484<br>(2.041)    |                     |                      |                      |
| WUI_h               |                     |                      |                      | 13.776*<br>(7.128)  | -5.047<br>(5.028)    | -1.539<br>(14.022)   |
| Observations        | 446                 | 1,252                | 1,064                | 446                 | 1,252                | 1,064                |
| R-squared           | 0.196               | 0.216                | 0.248                | 0.201               | 0.208                | 0.247                |
| Number of countries | 22                  | 57                   | 50                   | 22                  | 57                   | 50                   |
| Country FE          | YES                 | YES                  | YES                  | YES                 | YES                  | YES                  |

Note: WUI\_global\_h means WUI\_global>0.18; WUI\_h is for WUI>0.05. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table 8. Non linearities in uncertainty measures**

| Dep var.<br>FDI inflows | (1)<br>Advanced     | (2)<br>Emerging      | (3)<br>Developing    |
|-------------------------|---------------------|----------------------|----------------------|
| fdi_stock               | 0.030<br>(0.029)    | 0.106***<br>(0.029)  | 0.083***<br>(0.027)  |
| gdp/capita              | -4.325<br>(3.546)   | -2.425*<br>(1.374)   | 1.619<br>(1.753)     |
| growth                  | 0.089<br>(0.076)    | 0.053<br>(0.041)     | 0.105**<br>(0.043)   |
| trade                   | -0.056**<br>(0.023) | 0.010<br>(0.012)     | 0.058***<br>(0.016)  |
| gov_cons                | -0.069<br>(0.220)   | 0.030<br>(0.084)     | -0.010<br>(0.062)    |
| terms_trade             | -0.008<br>(0.020)   | -0.004<br>(0.003)    | -0.001<br>(0.011)    |
| real S&P                | 0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) |
| WUI                     | -12.313<br>(10.534) | 3.903<br>(5.317)     | 1.167<br>(14.114)    |
| WUI_high                | 13.460*<br>(6.838)  | -5.647<br>(5.007)    | -1.314<br>(14.065)   |
| WUI_global              | -4.317<br>(4.186)   | 4.314<br>(3.055)     | 2.701<br>(3.834)     |
| WUI_global_high         | -1.557<br>(1.253)   | -5.757***<br>(1.636) | -2.475<br>(2.043)    |
| Observations            | 446                 | 1,252                | 1,064                |
| R-squared               | 0.203               | 0.217                | 0.248                |
| Number of countries     | 22                  | 57                   | 50                   |
| Country FE              | YES                 | YES                  | YES                  |

Note: WUI\_global\_high means WUI\_global>0.18; WUI\_high is for WUI>0.05.

Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 9. Financial openness impact**

| Dep var. FDI inflows | (1)<br>Advanced       | (2)<br>Emerging      | (3)<br>Developing    |
|----------------------|-----------------------|----------------------|----------------------|
| fdi_stock            | 0.032<br>(0.029)      | 0.115***<br>(0.031)  | 0.091***<br>(0.026)  |
| gdp/capita           | -2.789<br>(1.941)     | -2.488*<br>(1.435)   | 1.694<br>(1.914)     |
| growth               | 0.066<br>(0.072)      | 0.077<br>(0.051)     | 0.100**<br>(0.044)   |
| trade                | -0.059***<br>(0.021)  | 0.012<br>(0.012)     | 0.070***<br>(0.018)  |
| gov_cons             | -0.111<br>(0.217)     | 0.036<br>(0.076)     | 0.000<br>(0.055)     |
| terms_trade          | -0.004<br>(0.019)     | -0.002<br>(0.003)    | -0.003<br>(0.012)    |
| real S&P             | 0.001***<br>(0.000)   | -0.001**<br>(0.000)  | -0.001**<br>(0.000)  |
| ka_open              | 1.016<br>(0.876)      | 1.416***<br>(0.338)  | 1.068***<br>(0.395)  |
| WUI                  | 1.280<br>(5.300)      | -4.887**<br>(2.359)  | 1.327<br>(6.667)     |
| WUI*ka_open          | 2.019<br>(4.276)      | -2.552<br>(1.547)    | 0.592<br>(4.019)     |
| WUI_global           | 14.800***<br>(4.207)  | -6.178***<br>(1.742) | -5.636<br>(3.986)    |
| WUI_global*ka_open   | -11.677***<br>(2.912) | -6.889***<br>(1.695) | -6.252***<br>(1.793) |
| Observations         | 406                   | 1,138                | 962                  |
| R-squared            | 0.237                 | 0.249                | 0.264                |
| Number of countries  | 22                    | 57                   | 49                   |
| Country FE           | YES                   | YES                  | YES                  |

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Note : ka\_open is the financial openness measure developed by Chinn and Ito (2006). WUI\*ka\_open and WUI\_global\*ka\_open are interaction terms.

**Table 10. Persistence of uncertainty and FDI inflows**

| Dep var. FDI inflows      | (1)<br>All countries | (2)<br>All countries | (3)<br>All countries | (4)<br>Advanced countries | (5)<br>Advanced countries | (6)<br>Advanced countries | (7)<br>Emerging countries | (8)<br>Emerging countries | (9)<br>Emerging countries | (10)<br>Develop. countries | (11)<br>Develop. countries | (12)<br>Develop. countries |
|---------------------------|----------------------|----------------------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| fdi_stock                 | 0.089***<br>(0.021)  | 0.091***<br>(0.020)  | 0.090***<br>(0.021)  | 0.027<br>(0.028)          | 0.030<br>(0.028)          | 0.030<br>(0.028)          | 0.105***<br>(0.029)       | 0.105***<br>(0.030)       | 0.105***<br>(0.030)       | 0.081***<br>(0.028)        | 0.083***<br>(0.027)        | 0.081***<br>(0.028)        |
| gdp/capita                | -1.138<br>(1.120)    | -1.113<br>(1.091)    | -1.023<br>(1.114)    | -4.140<br>(3.517)         | -3.866<br>(3.467)         | -3.898<br>(3.480)         | -2.243<br>(1.358)         | -2.227*<br>(1.330)        | -2.227*<br>(1.330)        | 1.869<br>(1.847)           | 1.783<br>(1.756)           | 2.001<br>(1.825)           |
| growth                    | 0.102***<br>(0.032)  | 0.103***<br>(0.032)  | 0.102***<br>(0.032)  | 0.100<br>(0.079)          | 0.095<br>(0.080)          | 0.097<br>(0.080)          | 0.063<br>(0.042)          | 0.064<br>(0.042)          | 0.063<br>(0.042)          | 0.106**<br>(0.044)         | 0.107**<br>(0.043)         | 0.106**<br>(0.044)         |
| gov_cons                  | 0.033<br>(0.053)     | 0.029<br>(0.048)     | 0.033<br>(0.052)     | -0.059<br>(0.228)         | -0.041<br>(0.229)         | -0.045<br>(0.230)         | 0.017<br>(0.083)          | 0.017<br>(0.083)          | 0.017<br>(0.083)          | -0.006<br>(0.071)          | -0.014<br>(0.062)          | -0.007<br>(0.071)          |
| trade                     | 0.028**<br>(0.012)   | 0.028**<br>(0.012)   | 0.028**<br>(0.012)   | -0.054**<br>(0.023)       | -0.052**<br>(0.022)       | -0.052**<br>(0.022)       | 0.012<br>(0.012)          | 0.012<br>(0.012)          | 0.012<br>(0.012)          | 0.060***<br>(0.016)        | 0.060***<br>(0.016)        | 0.060***<br>(0.016)        |
| terms_trade               | 0.000<br>(0.005)     | 0.001<br>(0.005)     | 0.001<br>(0.005)     | -0.008<br>(0.021)         | -0.006<br>(0.020)         | -0.007<br>(0.020)         | -0.002<br>(0.003)         | -0.002<br>(0.003)         | -0.002<br>(0.003)         | -0.001<br>(0.012)          | -0.001<br>(0.011)          | -0.001<br>(0.012)          |
| real S&P                  | -0.001***<br>(0.000) | -0.001***<br>(0.000) | -0.001***<br>(0.000) | 0.001***<br>(0.000)       | 0.001***<br>(0.000)       | 0.001***<br>(0.000)       | -0.001***<br>(0.000)      | -0.001***<br>(0.000)      | -0.001***<br>(0.000)      | -0.001***<br>(0.000)       | -0.001***<br>(0.000)       | -0.001***<br>(0.000)       |
| WUI                       | 0.594<br>(2.648)     | -0.588<br>(2.385)    | 0.945<br>(2.657)     | -0.917<br>(4.943)         | 4.987<br>(4.280)          | 1.091<br>(5.141)          | -0.111<br>(3.799)         | -2.768<br>(2.002)         | -0.104<br>(3.802)         | 0.730<br>(3.924)           | 0.103<br>(4.652)           | 1.246<br>(3.942)           |
| WUI_global                | -3.994***<br>(1.526) | -6.411***<br>(2.270) | -6.676***<br>(2.161) | -7.025**<br>(2.760)       | -13.196***<br>(4.453)     | -12.474***<br>(3.795)     | -5.408***<br>(1.407)      | -5.715**<br>(2.390)       | -5.808**<br>(2.404)       | -1.711<br>(2.952)          | -4.304<br>(5.082)          | -4.827<br>(4.728)          |
| Persistence of WUI        | -0.199<br>(0.450)    |                      | -0.234<br>(0.438)    | 0.965<br>(1.195)          |                           | 0.659<br>(1.227)          | -0.413<br>(0.501)         |                           | -0.414<br>(0.501)         | -0.130<br>(0.848)          |                            | -0.171<br>(0.810)          |
| Persistence of Global WUI |                      | 0.312<br>(0.246)     | 0.326<br>(0.240)     |                           | 0.703**<br>(0.331)        | 0.637*<br>(0.327)         |                           | 0.047<br>(0.233)          | 0.048<br>(0.234)          |                            | 0.348<br>(0.626)           | 0.383<br>(0.613)           |
| Observations              | 2,751                | 2,762                | 2,751                | 446                       | 446                       | 446                       | 1,252                     | 1,252                     | 1,252                     | 1,053                      | 1,064                      | 1,053                      |
| R-squared                 | 0.186                | 0.194                | 0.186                | 0.197                     | 0.201                     | 0.202                     | 0.207                     | 0.207                     | 0.207                     | 0.236                      | 0.247                      | 0.237                      |
| Number of countries       | 129                  | 129                  | 129                  | 22                        | 22                        | 22                        | 57                        | 57                        | 57                        | 50                         | 50                         | 50                         |
| Country FE                | YES                  | YES                  | YES                  | YES                       | YES                       | YES                       | YES                       | YES                       | YES                       | YES                        | YES                        | YES                        |

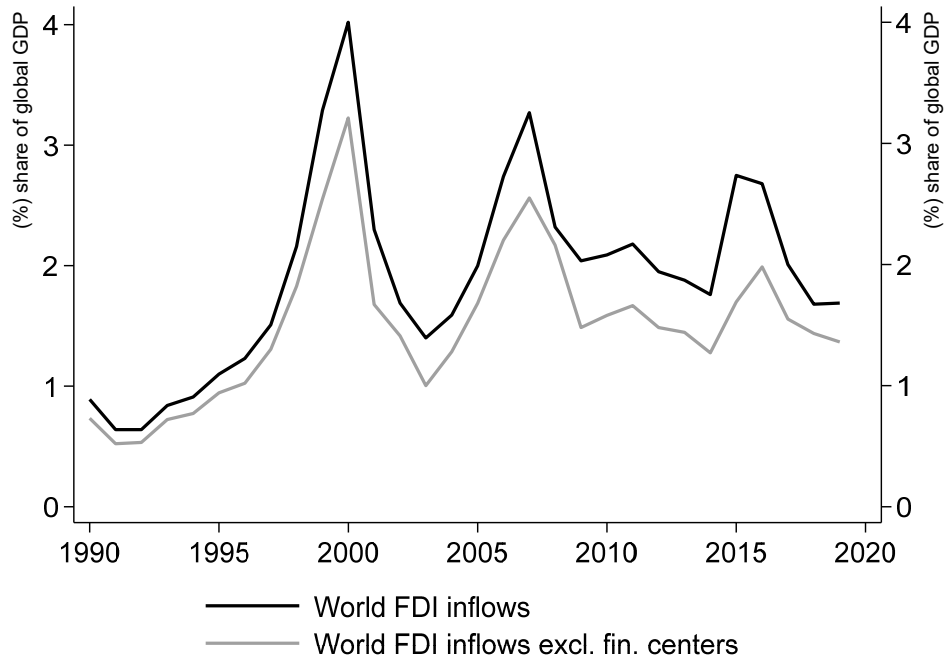


Figure 1. World FDI inflows with and without countries traditionally hosting SPE (financial centers)

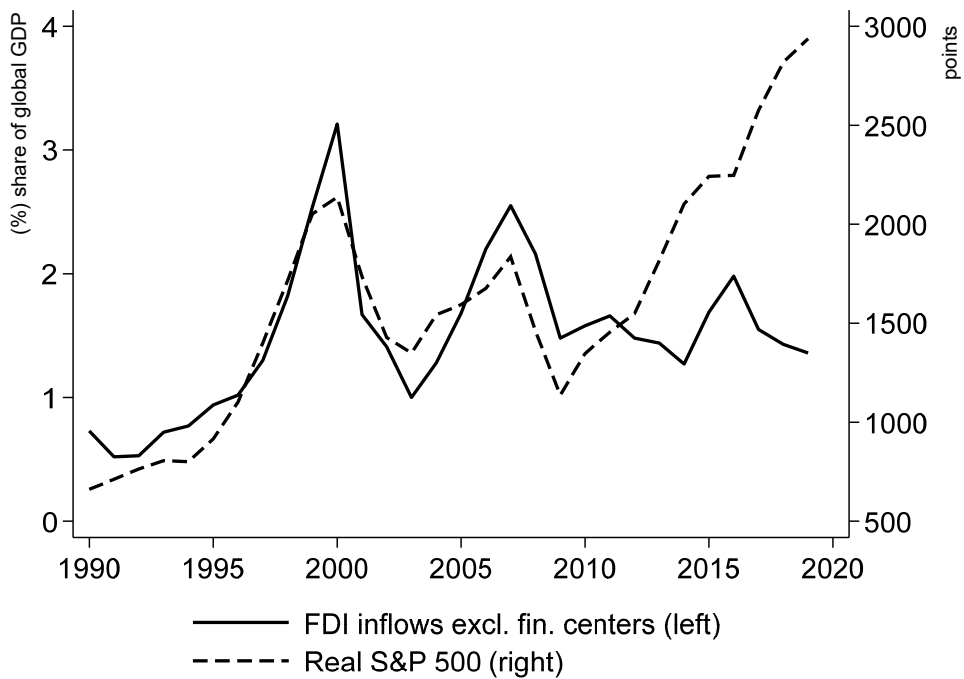


Figure 2. World FDI inflows and the real S&P 500 index

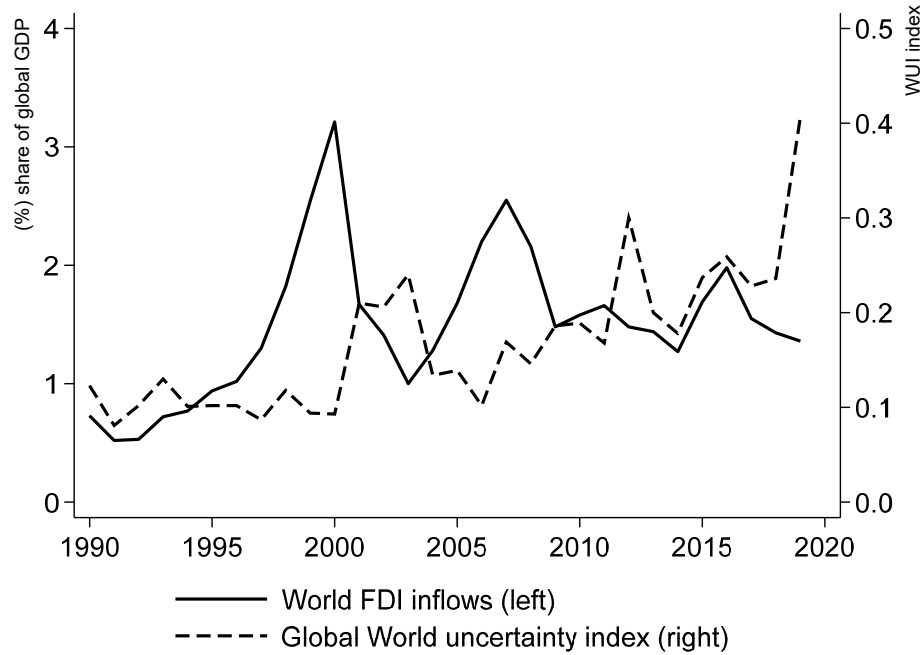


Figure 3. World FDI inflows and the Global World Uncertainty Index

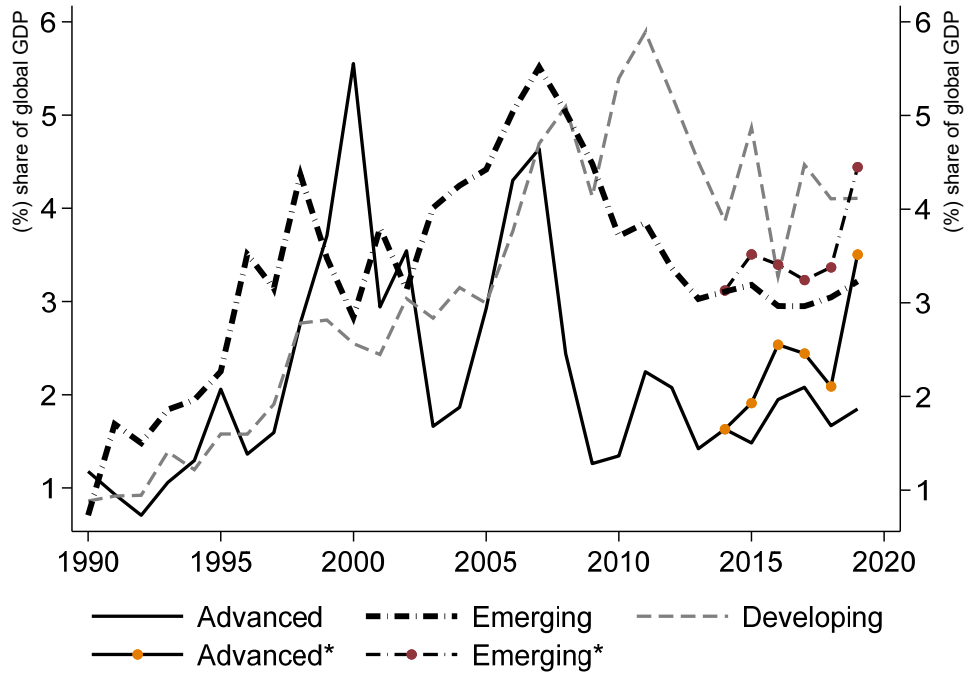


Figure 4. FDI inflows significantly dampened by uncertainty.

Note: The lines show FDI inflows as percentage of GDP as a simple average across country groups. Marker lines show the expected FDI inflows from 2015 to 2019 in advanced and emerging economies, had the global uncertainty index been comparable with the level observed in 2014.