

The Rising Concentration of Foreign Direct Investment

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Abstract

Using two decades of granular data on foreign direct investments, this study shows a consistent global rise in the concentration of cross-border investments within fewer multinational firms. This concentration is most prominent in developing economies, reaching record highs in recent

years. Structural shifts into services do not stand out as the primary driver of variation in investment concentration across countries and over time. Instead, concentration has grown significantly more in destinations facing high economic uncertainty.

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The Rising Concentration of Foreign Direct Investment*

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1 Introduction

Market concentration has garnered considerable attention in both media and academic discourse since the onset of the global financial crisis. Although the focus of the debate has centered on the United States, where fewer, larger, more productive firms account for increasing shares of economic activity over time (Philippon & Gutierrez 2018, OECD 2018, Grullon et al. 2019, Autor et al. 2020, De Loecker et al. 2020, Bessen 2022), there is evidence that concentration has been rising also in other advanced economies (OECD 2018, Affeldt et al. 2021) and, to a smaller extent, in selected emerging economies (Akcigit et al. 2021). Theory and a modest body of evidence suggest that market concentration tends to reduce capital investment (Gutiérrez & Philippon 2017); however, expectations and trends are unclear when it comes to foreign direct investment (FDI) - an activity typically undertaken by the few leading firms with a capacity to expand their operations across borders. Whether FDI is indeed becoming more concentrated across multinational enterprises (MNEs), in which countries and under what conditions, remains an open question, and a gap in our understanding of foreign investment dynamics.

This paper aims to bridge this gap by bringing new evidence to the question. Using granular data on FDI projects across the globe spanning two decades, we show that the share of the largest enterprises in total cross-border investment has steadily increased in the aftermath of the global financial crisis. This pattern is robust across various measures of concentration, modes of investment, source countries and targeted industries, regardless of the overall trajectory of aggregate FDI flows, which have grown in several regions during the same period. The surge in foreign investment concentration has been particularly pronounced in developing economies, reaching new highs in the last two years, with destination economies in Asia leading the way. This trend seems to be driven more by a declining number of investing firms in developing countries rather than rising project capital expenditures. The opposite is true for high-income economies where the rising FDI concentration appears to be more the result of a higher over time average capital expenditure per project. Importantly, structural shifts into services do not primarily drive variations in investment concentration across countries and over time; instead, concentration has significantly increased in destinations dealing with high economic uncertainty.

These stylized facts contribute to an emerging body of literature that explores the effects of uncertainty on trade and FDI (Juvenal & Monteiro 2021, Jardet et al. 2023), emphasizing forward-looking drivers of these activities over economic fundamentals. Ultimately, the fact that cross-border investment is increasingly dominated by fewer multinational firms underscores the granularity of FDI flows. Mirroring the concept of the granularity of growth (Gabaix 2011), our stylized facts highlight the often overlooked importance of idiosyncratic firm-level shocks as a driver of variation in aggregate investment flows, challenging the prevailing analytical frameworks used for their analysis, as well as the horizontal policy toolbox typically used for their attraction and retention.

The implications of these facts for development may be significant in the longer term.

Investment concentration could lead to an overdependence on a small number of global enterprises that can erode some of the developmental impact of foreign capital in developing countries. The trend can undermine competition, either through reduced market entry, or through excessive market power that stifles domestic producers. Furthermore, the concentration of foreign capital into fewer MNEs can also reduce the diffusion of critical technologies in developing economies, either through more effective and diverse appropriability strategies that these firms regularly employ (Mezzanotti & Simcoe 2023), or the decrease in labor market dynamism (De Loecker et al. 2020) or weaker incentives for innovation in the rest of the economy (Philippon & Gutierrez 2018).

The remainder of this paper is organized as follows. Section 2 describes the data on FDI projects we use to establish patterns of concentration. Section 3 discusses the measurement and empirical framework. Section 4 presents selected stylized facts about the evolution of investment concentration over time, its main features and associations. Section 5 provides conclusions and policy implications.

2 Data

Greenfield FDI. Cross-border “greenfield investment” refers to the construction of new production facilities or expansion of existing ones. It differs from mergers and acquisitions - the other major component of FDI flows - in that it involves the generation of new productive capacity and jobs. These two components account for the bulk of cross-border direct investment globally. Information on greenfield FDI projects is compiled by the *Financial Times* in real-time into the commercially available *fDi Markets* database. Observations are recorded at the project level, and include the sector and subsector of investment activity, estimates of capital expenditure invested, as well as expected job creation from this investment. The dataset, which includes an identifier of the parent company, the country of origin and destination, has global coverage: 175 source countries, 200 destination countries, and observations matched with 53 ISIC Rev. 4 industries at the 2-digit level of aggregation. Historical extracts of the database span the years 2003 to 2022.

Mergers and Acquisitions (M&A). Mergers and acquisitions (M&A) refers to the consolidation of companies or assets through various types of financial transactions, without the generation of new productive capacity. Cross-border M&A observations - referring to the purchase by a foreign entity of assets that corresponds to more than 10 percent of the total assets of a target company - are sourced from the *Thomson Reuters* commercially available *Refinitiv* database. Observations are at the project level, and include, for each investment project, the same information as *fDi Markets* without the estimation of jobs created. The dataset has global coverage spanning the years 2003 to 2022.

A limitation of both data sets is that observations refer to announcements of future rather than current investment flows, which may take time to materialize. Therefore, they differ from official FDI data in Balance of Payments (IMF) and government records

compiled by the United Nations, which track actual movements of capital within given annual intervals. Moreover, in fDi Markets, missing figures for capital expenditure and employment are often estimated by the publisher, and are not attributed proportionally according to the equity participation of foreign investors. A recent evaluation of alignment with official sources has shown that aggregates produced from fDi Markets have high levels of correlation with actual flows (Shekhar Aiyar & Presbitero 2023). Regularly used in combination with official FDI statistics by international organizations (United Nations 2023, World Bank Group 2020) to analyze investment project dynamics, both sources may however have incomplete coverage of smaller countries at the low end of the income spectrum (Casella et al. 2023). We address this issue by using a minimum threshold of investors per year received by a host country to be included in our analysis.

3 Measurement and empirical framework

FDI Concentration. Two measures are used to evaluate FDI concentration levels at a given time: i. Concentration Ratio corresponding to the share of the N largest investing firms in total FDI flows and ii. The Herfindahl-Hirschman Index (HHI), based on the sum of the squares of each investing firm’s share in total FDI flows. While both have been widely used in the empirical literature, the former is less affected by measurement error or truncation at the bottom of the distribution, and generally preferred for its simplicity and ease of interpretation. Regional and income group aggregates correspond to cross-country averages weighted by the value of FDI flows in each country belonging to the group.

Country and regional trends. Trends over time are presented conditional on country and region-year fixed effects, in a panel data specification. Let Y_{it} denote a measure of FDI concentration (the concentration ratio of the top 5 investing firms or the Herfindahl-Hirschman concentration index) in host-country i in year t . Then, our trend equation is:

$$Y_{it} = Trend_t \times Developing_i + \delta_i + \theta_{rt} + \varepsilon_{it}$$

where $Trend_t$ indicates a linear time trend and $Developing_i$ indicates whether country i is a developing economy.¹ δ_i are country fixed effects and θ_{rt} are region-by-year fixed effects. We include this set of fixed effects to net out time invariant conditions, regional dynamics and year-specific global economic conditions, allowing us to more accurately ascertain the evolution of FDI concentration in developing as opposed to high income economies. A proper analysis of variance (ANOVA) is used to investigate the sources of variation in FDI concentration - at the country, sector, and year levels as well as interactions of the three - based on the methodology outlined in Gamst et al. (2008).

¹Developing countries are defined as all countries that are not “high income” according to the World Bank’s income classification for the year 2003.

Destination country characteristics. Potential destination-specific drivers of variation in FDI concentration across country groups are examined in a similar framework, adding interactions of variables with a developing country group indicator to distinguish characteristics particularly relevant for this group. Specifically, in order to investigate the role played by country characteristic x_{it} , we estimate the following equation:

$$Y_{it} = x_{it} + x_{it} \times Developing_i + Z_{it} + \delta_i + \theta_{rt} + \varepsilon_{it}$$

As in the previous equation, Y_{it} denotes our measure of FDI concentration. Our main variable x_{it} of interest is $Uncertainty_{it}$ as a country-specific measure of the overall risk experienced in economy i and year t , including geopolitical and economic events (see Ahir et al. (2022)).² In addition, Z_{it} denotes time-variant country-level control variables, including the logarithm of population, logarithm of GDP and the average exchange rate over the three years preceding the investment. The combination of country-year controls and the set of fixed effects is introduced to account for local economic conditions other than uncertainty (such as developments in GDP, population, exchange rates; as well as regional and global trends) affecting investment.³

4 Stylized Facts

This section outlines two key stylized facts about the increasing concentration of FDI in developing economies.

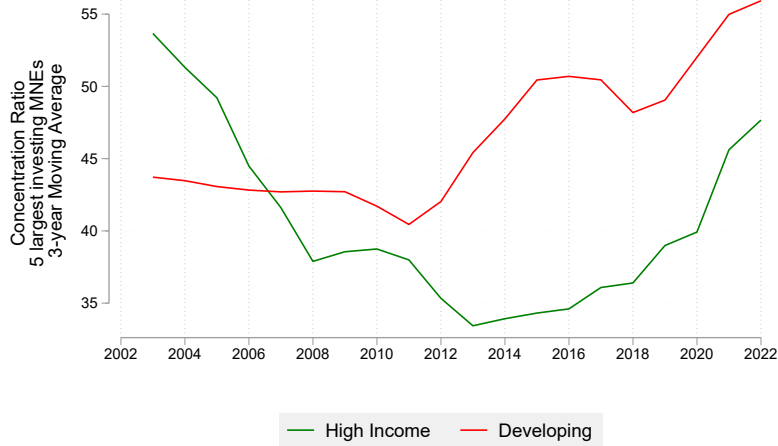
Fact 1. *FDI concentration is on the rise, especially in developing countries.* Based on observations of capital expenditure for greenfield FDI projects, Figure 1 reveals that FDI concentration has been increasing in developing economies, particularly since the global financial crisis.⁴ This upward trend has even accelerated in recent years. FDI concentration in high-income economies has followed a U-shaped pattern, declining until 2013 and rebounding since then at an accelerating pace. The more pronounced trajectory of the concentration of investment in developing countries becomes apparent after taking into account the time-invariant characteristics of the countries (Table 1).

²The measure is intended to capture both the risk and ambiguity components of uncertainty. While risk reflects the (known) probability of an outcome, "ambiguity" arises when the distribution of outcomes is itself unknown. The data are publicly available at World Uncertainty Database. Uncertainty is measured by the number of occurrences of the word "uncertainty" in Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher number indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports in the three years prior to the investment (standardized to have a mean of zero and a standard deviation of 1).

³In Appendix B, we provide several robustness checks that test our findings against other potential markers of FDI concentration, such as the growing importance of the services sector and increasing concentration in source countries.

⁴This evidence is robust to a battery of robustness analyses: using different thresholds for the number of top investors (Figure A1); using different thresholds for the minimum number of investors (Figure A2); or using the Herfindahl-Hirschman index (HHI) as a measure of concentration (Figure A3).

Figure 1: FDI Concentration has been rising across the income spectrum (2003-2022)



Notes: The analysis relies on reported capital expenditure of FDI greenfield projects. The concentration ratio of country groups is calculated as the three-year moving average of each country’s concentration ratio, weighted by the country’s total FDI investments. Countries with on average less than 10 investing MNEs per year are excluded from the sample. Countries are considered ‘developing’ if classified as low income, lower-middle income or upper-middle income in 2003 based on the World Bank’s income classification.

Table 1: FDI concentration dynamics

VARIABLES	(1) CR5	(2) HHI	(3) CR5	(4) HHI	(5) CR5	(6) HHI
Trend × Developing	0.368** (0.168)	0.018** (0.008)	0.341** (0.162)	0.018** (0.008)	0.347* (0.183)	0.016* (0.009)
Observations	2,349	2,349	2,691	2,691	2,047	2,047
R-squared	0.831	0.749	0.856	0.791	0.799	0.718
Minimum # of Foreign Investors	5		1		10	

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” refers to the concentration ratio of the top 5 investing firms. Analysis in Columns 1 and 2 excludes destination countries averaging less than 5 foreign investors; Columns 3 and 4 include all destinations without restrictions on the number of foreign investors; Columns 5 and 6 exclude destinations averaging less than 10 foreign investors. “HHI” denotes the Herfindahl-Hirschman concentration index, computed using the corresponding sample for “CR5”. For ease of interpretation, HHI values are expressed in natural logarithm form. The indicator variable, *Developing*, is assigned the value 1 for countries classified as Low, Lower-Middle, or Upper-Middle income, as per the 2003 World Bank classification. The analysis includes country fixed effects and (world) region by year fixed effects. Standard errors are clustered at the destination country level. Statistical significance denoted by; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

A formal regression analysis of FDI concentration on an interaction term between a linear time trend and a binary indicator for developing economies highlights how the trend of investment concentration is more pronounced in the latter. Table 1 shows a consistently positive and statistically significant coefficient estimate on the interaction across all specifications. This result confirms that the concentration ratio in developing countries has been growing 0.37 percentage point per year faster than in high-income economies, conditional on country and region-year trends. Overall, the average concentration ratio of FDI in developing countries has risen by 23 percentage points between 2011 and 2022. The same trend holds for M&A projects in developing countries in the aftermath of the global financial crisis, although concentration has been rising at a slower pace and with larger fluctuations from one year to the next, leading to a less precise trend (Figure A4). Contrary to greenfield FDI, the trend in M&A in developing countries has reversed during the years of the COVID-19 pandemic, likely due to the shock of the increase in company restructurings and so-called "fire-sale FDI" associated with the recession. Replicating the regression of FDI concentration on an interaction term between a linear time trend and a binary indicator for developing economies confirms the positive trend in the latter, albeit lower than for greenfield FDI, as expected (see Table B2). Excluding the years of the pandemic from the regression, moreover, improves considerably the precision of the medium-term upward drift on concentration.

A smaller number of MNEs invest in larger investment projects. FDI concentration has strengthened through the last decade in both developing and high-income economies, while FDI flows in both groups have neither consistently declined nor grown (World Bank Group 2023). One possible explanation is that a smaller number of MNEs have been able to sustain cross-border investment in gradually larger investment projects. This pattern is consistent with heightened uncertainty afflicting the global economy in the aftermath of the 2008-2009 global financial crisis, the US-China trade war, or more recently the COVID-19 pandemic and the Russian Federation's war on Ukraine, making it harder for firms to sustain operations abroad under greater risk.

To examine this hypothesis, we look into trends in the number of investing MNEs, as well as the distribution of capital expenditure across greenfield FDI projects over time in developing and high-income economies. We find that, after a peak preceding the global financial crisis, the number of MNEs investing in developing countries has gradually decreased (Figure 2). More recently, during the COVID-19 pandemic, the number of investors dropped dramatically both in high-income and developing economies. The distribution of capital expenditures, on the other hand, illustrates a consistent drop over time in median project expenditure; yet at a stable and even increasing average mean after 2011 while concentration has been on the rise. The latter suggests the presence over time of offsetting larger investment projects in developing countries at the top end of the distribution, keeping the mean roughly at the same level.

Overall, the rising FDI concentration in developing countries appears to be more the result of a declining number of investing firms rather than the average capital expenditure per project. The opposite is true for high-income economies where the rising

FDI concentration appears to be more the result of a higher over time average capital expenditure per project. While the number of investors into advanced economies has grown considerably over the last decade, the average project capital expenditure has also risen, outweighing the dumping effect of the former on FDI concentration.

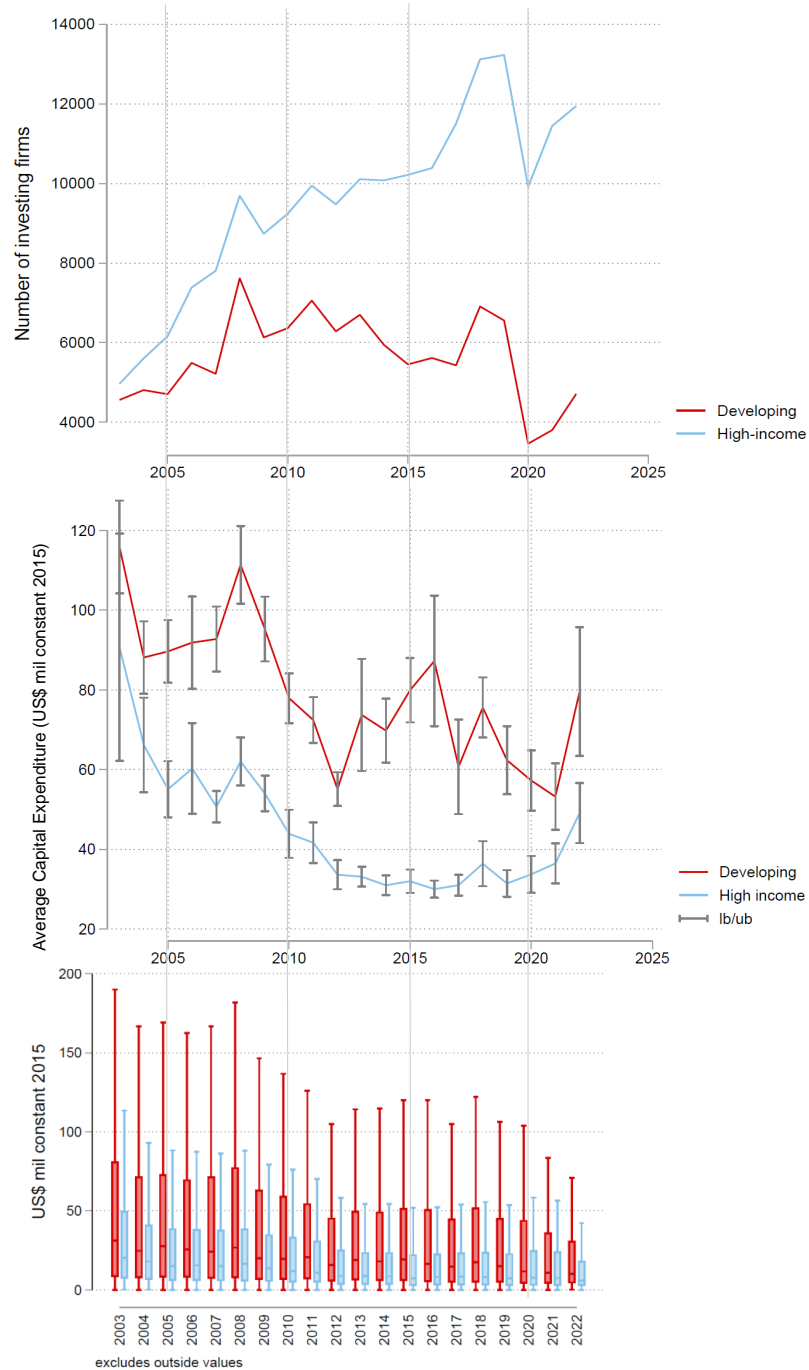
The distribution of capital expenditure in cross-border M&A projects shows similar dynamics, with gradual increases in median and, to some extent, mean investment over time, but with larger shifts around the center of the expenditure distribution rather than outliers. In other words, the median capital expenditure per project has grown significantly but, contrary to greenfield investment, less has changed at the extremes of the distribution. The number of firms, moreover, engaging in cross-border M&A has remained rather stable in advanced economies and gradually fallen in developing countries to levels experienced prior to the global financial crisis. During the years of the COVID-19 pandemic, the data confirm an irregular spike likely due to an increase in company restructurings and fire-sale FDI associated with the recession (Figure A5).

Structural change of FDI is not the primary driver of the rising concentration. Capital-intensive services tend to have more concentrated markets and have been growing in developing country FDI (World Bank Group 2023). More importantly, the share of services in the top 5 foreign investing firms has grown from 30 to over 50 percent in developing countries over the last 20 years; a trend that has been aligned with the rise of the weight of the top 5 investing firms in total FDI (Appendix Figure A12). The shift towards services appears to be global rather than specific to developing countries.

However, three additional pieces of evidence suggest that, while structural change of FDI is taking place, it may not be the primary driver of the rising FDI concentration. Firstly, investment concentration in manufacturing has outpaced concentration in services in the course of the last decade, reversing a pattern observed in the early 2000s. Services industries that feature prominently in developing country FDI - notably telecommunications and financial services - have the same or lower levels of investment concentration than key manufacturing sectors, such as electronics or the automotive industry (Figure A13).

Secondly, a more formal evaluation of variance explained by country and sector dynamics using an ANOVA decomposition shows that, while sector-year determinants seem to explain a significant share of variation in country-industry-year level FDI concentration, greater shares are attributed to country- or country-year-specific factors, as shown in Table B1 in Appendix B. Rising concentration is thus driven to a larger extent by dynamics experienced in destination markets - such as the destination-specific structure of investment, the associated returns and risk - rather than global dynamics in certain industries that feature prominently in the investment portfolio. A formal control for the share of services in GDP and the share of services capital expenditure in top 5 investing firms in the linear trend regression, moreover, does not produce a significant coefficient, nor reduces the significance or magnitude of the trend (Table B3 in Appendix).

Figure 2: Number of investing firms and their project capital expenditures



Source: Authors' Calculations on fDi Markets.

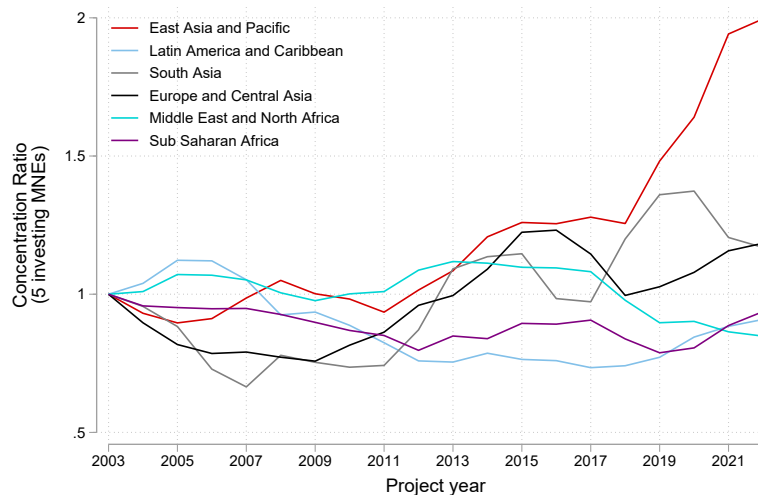
Note: The analysis relies on greenfield FDI investment project counts and capital expenditure. All project observations in the country groupings are included in the sample for the descriptives. In the third panel, the box-plot for each year consists of a five-number summary of capital expenditure observed in different country groupings, from bottom to top: the lower adjacent value, the first quartile, the sample median, the third quartile and the upper adjacent value. Adjacent values are defined as per (Tukey 1977). Countries are considered as low-income if low, lower middle income or upper middle income in 2003 based on the World Bank's income classification.

Thirdly, netting out the effect of structural change by demeaning the distribution of capital expenditures by 2-digit industrial sectors, in addition, suggests still greater stability over time of the right tail of the distribution, consistent with the resilience of larger undertakings (Figures A10 and A11).

Asia leads the way among developing countries in FDI concentration.

East Asian countries have accounted for a significant part of the global increase in FDI concentration, as shown in Figure 3. In particular, China has been a key driver of this trend until 2017 (see Figure A8). More recently, however, FDI concentration has accelerated within the broader East Asian region beyond China, in countries such as Malaysia, Indonesia and Viet Nam. The pattern is consistent with a “reallocation effect,”⁵ whereby investment flows from developed (“North”) to developing (“South”) countries are shifting away from China and toward neighboring low-wage economies that are more geopolitically aligned with the United States (IMF 2023).

Figure 3: East Asia leads the way in global FDI concentration



Note: The analysis relies on greenfield FDI capital expenditure values. Each line denotes the destination region’s concentration ratio calculated as the regional average share of each country’s 5 largest investing MNEs in total capital expenditure, weighted by the latter for each year. Countries with on average less than 10 investing MNEs per year are excluded from this analysis.

Fact 2. *Uncertainty in destination markets is associated with greater FDI concentration.* Among destination-specific characteristics that may reduce MNEs’ expected returns, economic and political uncertainty features prominently in recent studies (Juvenal & Monteiro 2021, Jardet et al. 2023). Resilience, or in other words the ability of firms to cope with risk and recover from shocks, is positively associated with firm

⁵A phenomenon also noted in trade literature – see Fajgelbaum et al. (2021)

size, age, productivity and has been a relatively novel area of study with several contributions during the COVID-19 pandemic (Cirera et al. 2021). New measures of global uncertainty have allowed this line of enquiry to expand (Ahir et al. 2022). The link with investment concentration seems rather intuitive: the set of global firms able to sustain positive returns under greater variation in the business environment, greater fluctuations in demand and cost structure shocks is naturally narrower. As such, destination-country uncertainty is expected to strongly shape investment concentration patterns.

Our analysis confirms that destination country idiosyncratic uncertainty correlates, not only with higher levels of investment concentration, but also with a lower number of investors; a trend that is particularly pronounced in developing countries. Table 2 illustrates formally the relationship between FDI concentration and uncertainty, netting out country and year time-invariant effects. Uncertainty is quantified using the *World Uncertainty Index* as described in Ahir et al. (2022). The findings are robust to alternative measures of uncertainty (see table B4, which uses exchange rate volatility) as well as different thresholds for the concentration ratio (see table B5 and table B6), and a formal control for the share of services in GDP (Table B7 in Appendix). Besides greenfield investment, the pattern holds as well for M&As (as shown in table B13) with stronger significance in the years until the COVID-19 pandemic. Overall, the association between uncertainty and investment concentration mirrors similar findings in the trade literature, whereby greater risk in destination markets is associated with the narrowing of the extensive margin of trade (Juvenal & Monteiro 2021).

Market concentration in source economies is also expected to have an effect on investment concentration at destination, by reducing the number of large firms able to sustain investment in host economies. Measured at the level of source economies, the concentration of outward FDI into fewer MNEs is a regular trend, particularly pronounced in the United States as would be expected (see Figure A6). However, this concentration of FDI into a smaller number of investing firms appears only weakly associated with domestic market concentration, as proxied by sales of the largest public companies in total industry output. A formal comparison of concentration ratio of sales of three largest public enterprises in total output (using *Worldscope* and *EU KLEMS* databases for United States, Germany, the UK and France), and the three largest investors in total outward FDI, yields positive correlations only in two services industries - telecommunications and financial services - that do not constitute the bulk of FDI into developing countries (see Figure A7).

More generally, separating source and destination effects in investment projects proves challenging given the small numbers of bilateral observations of investment projects over time (compared e.g. to trade transactions), and thus the limited variation that can be explored for neat identification. This constraint adds to poor comparability of measures of source market concentration across countries, that would be suitable for the purpose.⁶

⁶It is noteworthy that, while the numbers of MNEs headquartered in the European Union and the United States investing in developing countries have decreased (Figure A9), the number of US investors in other high-income countries has not.

Table 2: Mechanism at play

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) HHI	(6) log(# MNEs)	(7) log(K)
Uncertainty (standardized)	0.927** (0.440)	-0.298 (0.600)	1.460*** (0.520)	1.560*** (0.501)	0.059** (0.025)	-0.067** (0.027)	0.019 (0.031)
Uncertainty × Developing		1.862*** (0.687)					
Observations	2,349	2,349	1,489	1,472	1,472	1,472	1,472
R-squared	0.830	0.831	0.819	0.824	0.738	0.894	0.385
Controls	No	No	No	Yes	Yes	Yes	Yes
Data Coverage	All countries				Developing		

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” denotes the concentration ratio of the top 5 investing firms. Countries averaging fewer than 5 foreign investors are excluded from these calculations. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “log(# MNEs)” represents the natural logarithm of the number of foreign investors, and “log(K)” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

However, eliminating source countries one by one from the descriptive regression associating uncertainty with investment concentration at the destination does not yield major variation in the coefficient (see Tables B8 and B9). This result points to destination-specific variation as the main driver of the pattern. Controlling for home-country concentration (see Tables B10 and B11) and disaggregating industry-level concentration (see Table B12) confirms the robustness of our findings.

5 Conclusions

Using comprehensive data on cross-border investment projects from a wide range of countries, this study provides evidence that FDI has become more concentrated in the past decade. This trend is especially marked in developing countries and East Asian economies in particular (including China and India); it is also sharper when it comes to greenfield investment relative to M&A and has accelerated during the COVID-19 pandemic. Our analysis provides suggestive evidence that concentration is associated with both an increase in idiosyncratic macroeconomic uncertainty and, relatedly, a dramatic reduction in the number of foreign investors. Although the structural shift of FDI into services as well as rising market concentration in some major source economies

seem to underlie part of the variation in investment concentration, destination-country characteristics have overall greater explanatory power, which points to actionable recommendations for developing countries.

Specifically, the rise in FDI concentration in developing economies raises significant concerns for policy makers. Firstly, a high degree of FDI concentration can lead to overdependency on a few dominant MNEs for some of the established development benefits of foreign investment: knowledge and technology transfers, job creation, international standards' diffusion, and competition-related productivity improvements, all of which stand to weaken. Secondly, there is a risk that concentrated FDI may lead to regulatory capture, where powerful MNEs influence government policies in their favor. Third, the effectiveness of established policy instruments based on horizontal interventions for investment attraction and retention is put into question. The concentration of cross-border investment into fewer MNEs highlights the granularity of FDI flows, and specifically the growing importance of origin firm-level idiosyncratic shocks as a driving force behind aggregate investment flows. Besides challenging the prevailing analytical frameworks used to analyze their trends, this acknowledgement calls for flexible policy frameworks better adapted to the needs and challenges posed by greater macroeconomic uncertainty and the specific constraints of leading firms driving large investment projects in developing economies. Instruments such as innovative dispute resolution mechanisms, political and market risk guarantees, stronger intellectual property protection, or market intelligence infrastructure to address information gaps stand out as particularly potent in that context.

In conclusion, while FDI can still play a crucial role in the development of emerging economies, policy makers need to adapt to the reality of concentrated investment flows, pursue investment retention systematically, and ultimately strike a balance between addressing constraints of global firms and creating an attractive investment climate for new investors by reducing vulnerabilities they may have in a context of high uncertainty.

Moving forward beyond stylized facts, the impact of the ongoing economic fragmentation, evolving trade patterns, and firm-level idiosyncratic shocks on investment concentration hold significant promise for future research. By combining backward-looking and forward-looking insights, policy makers can craft more flexible strategies in line with emerging trends and ultimately a more conducive environment for sustainable economic growth.

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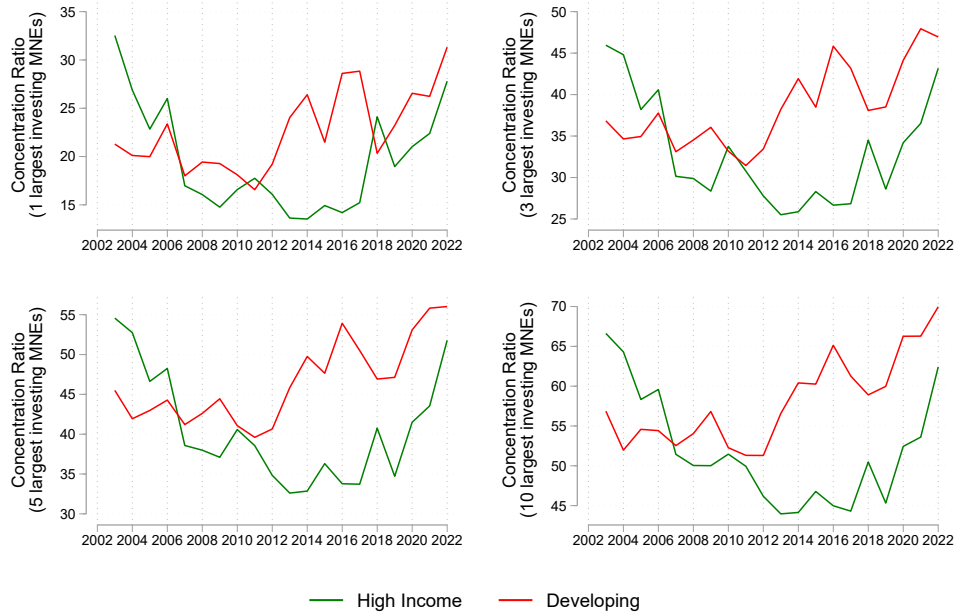
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APPENDIX

A Additional figures

Figure A1: FDI Concentration Ratio (Alternative definitions)



Source: Authors' analysis on fDi Markets.

Note: The analysis relies on greenfield FDI investment project capital expenditure. The concentration ratio of country groups is calculated as the weighted average of each country's concentration ratio, weighted by the country's total investment. Countries are considered developing if classified as low income, lower-middle income or upper-middle income in 2003 based on the World Bank's income classification.

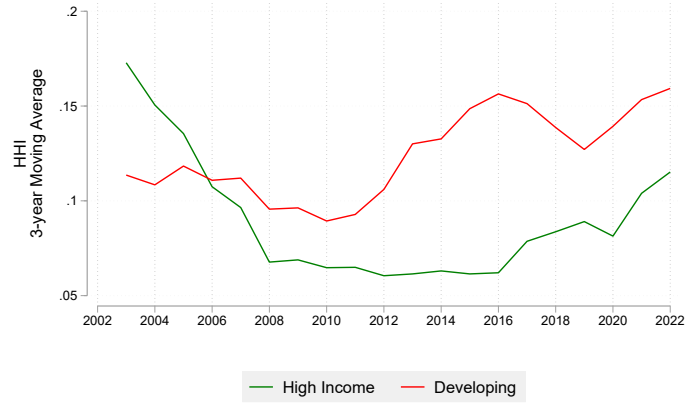
Figure A2: FDI Concentration Ratio (Threshold Robustness)



Source: Authors' analysis on fDi Markets.

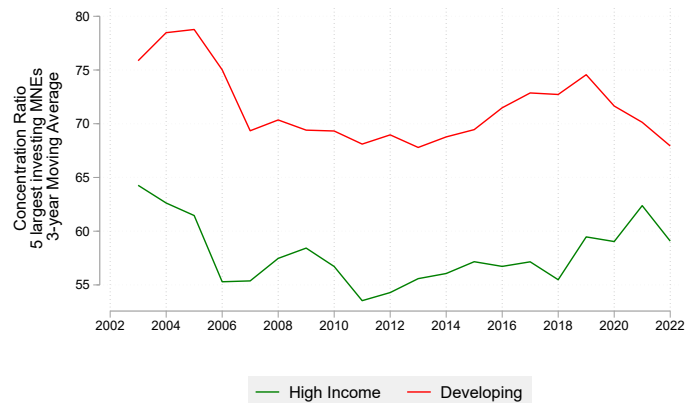
Note: The analysis relies on greenfield FDI investment project capital expenditure. The concentration ratio of country groups is calculated as the weighted average of each country's concentration ratio, weighted by the country's total investment. Countries are considered developing if classified as low income, lower-middle income or upper-middle income in 2003 based on the World Bank's income classification.

Figure A3: Herfindahl-Hirschman index



Note: The analysis relies on greenfield FDI investment values. The green line denotes the Herfindahl-Hirschman index (HHI) of high-income countries calculated as the weighted average of each country's HHI for each year. The red line denotes the HHI of low-income countries calculated as the weighted average of each country's HHI for each year. Countries' shares in total greenfield FDI investment values are used as weights. Countries with on average less than 10 investing MNEs per year are excluded from this analysis. Countries are considered as low-income if low, lower middle income or upper middle income in 2003 based on the World Bank's income classification.

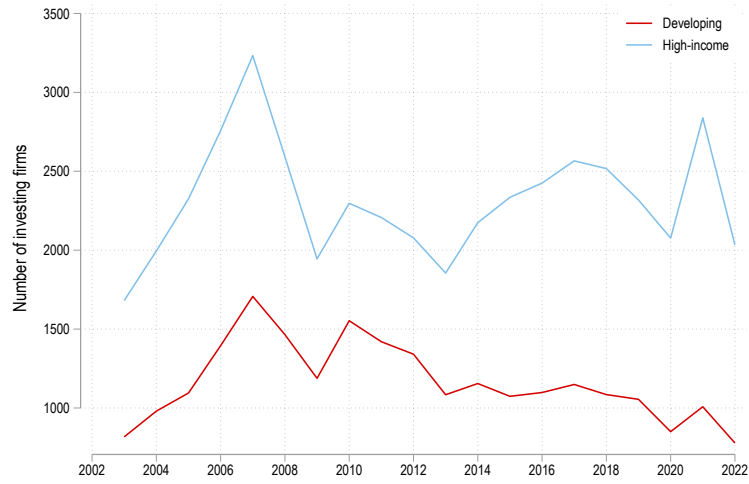
Figure A4: FDI Concentration Ratio, M&A



Source: Authors' analysis on Refinitiv M&A.

Note: The analysis relies on M&A investment project capital expenditure. The concentration ratio of country groups is calculated as the weighted average of each country's concentration ratio. Countries are considered developing if classified as low income, lower-middle income or upper-middle income in 2003 based on the World Bank's income classification.

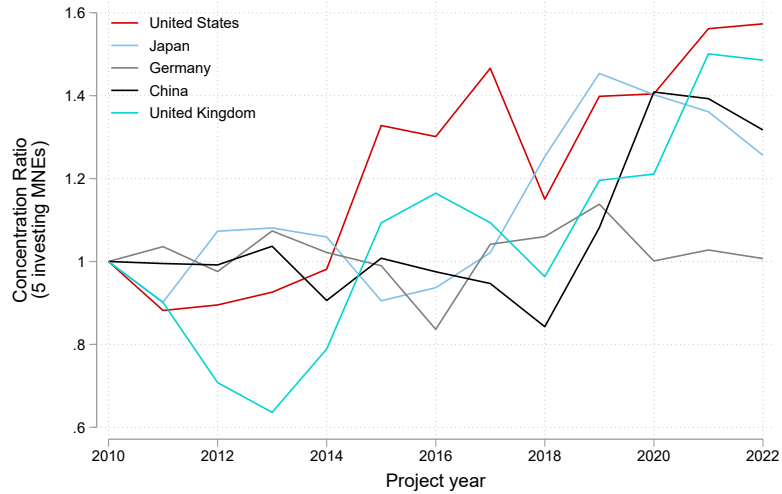
Figure A5: M&A Number of Investing Firms 2003-2022



Source: Authors' analysis on Refinitiv M&A.

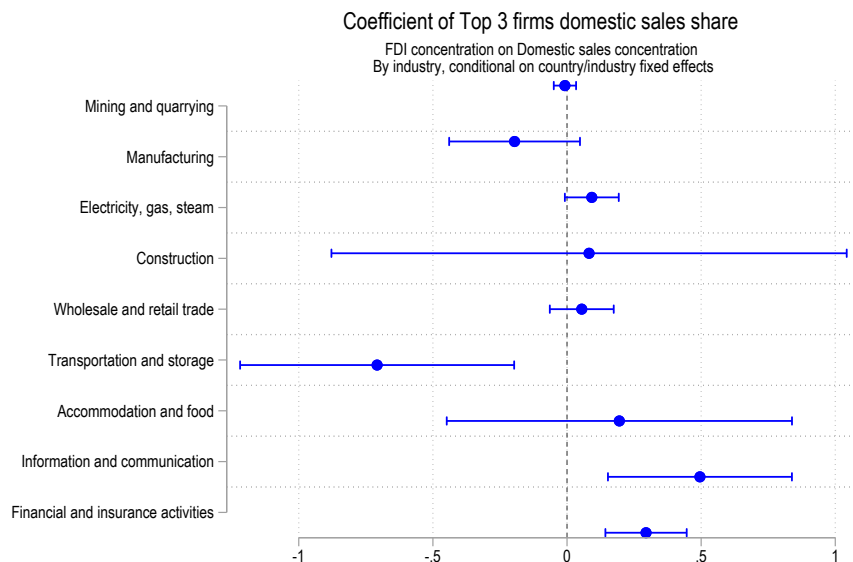
Note: The analysis relies on M&A investment project unique firm identifiers, without any exclusion from the full sample. Countries are considered developing if classified as low income, lower-middle income or upper-middle income in 2003 based on the World Bank's income classification.

Figure A6: Outward FDI Concentration Ratio, Top Investing Countries



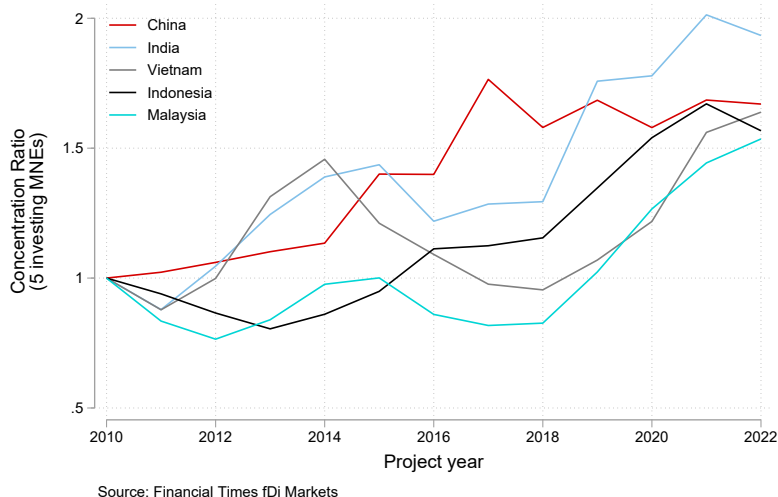
Note: The analysis relies on greenfield FDI capital expenditure values. Each line denotes the destination country's outward FDI concentration ratio calculated as the share of the 5 largest outward investors for each year.

Figure A7: Correlation of Domestic sales concentration with outward FDI concentration in major investing economies



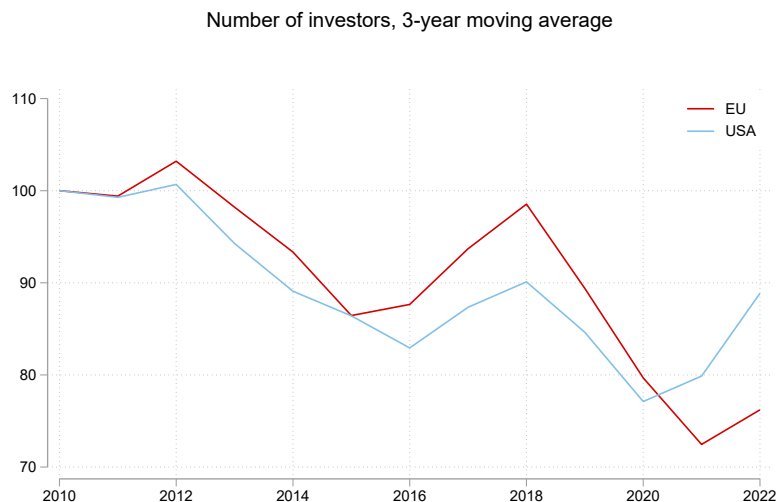
Note: The share of top 3 companies by industry, country and year is the ratio between the top 3 listed companies in *Worldscope* and total output from *EU KLEMS*. Countries in the sample include the United States, France, the United Kingdom and Germany. The share of top 3 outward investing firms is calculated using greenfield FDI capital expenditure values. Each coefficient along with their standard errors refers to a regression of FDI concentration on market sales concentration including fixed country-industry effects, in order to highlight co-variation over time.

Figure A8: FDI Concentration Ratio, Top Receiving Developing Countries



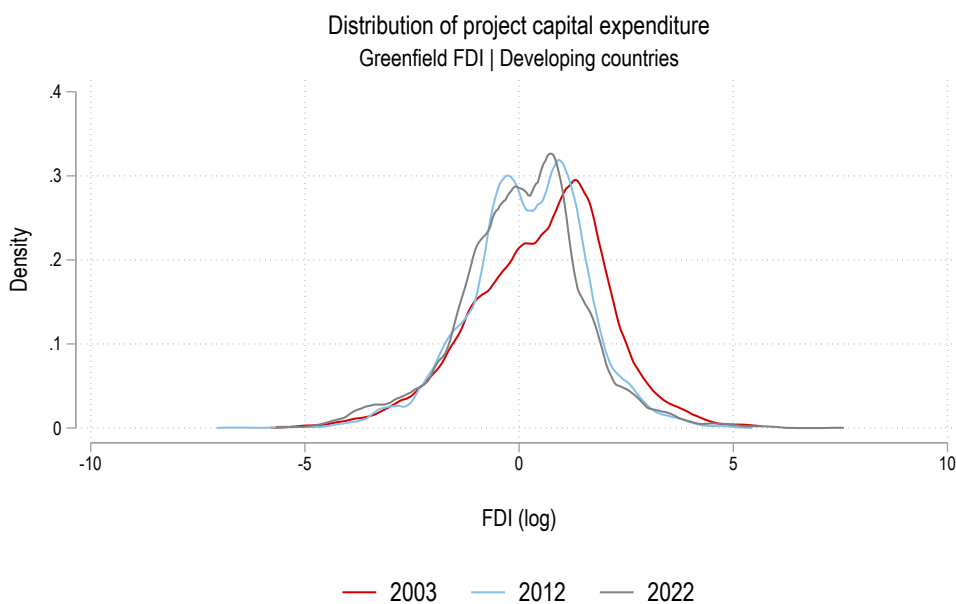
Note: The analysis relies on greenfield FDI investment capital expenditure values. Each line denotes the destination country's inward FDI concentration ratio calculated as the share of the 5 largest inward investors for each year.

Figure A9: Number of Investing Firms into developing countries by source (United States and European Union), 2010-2022



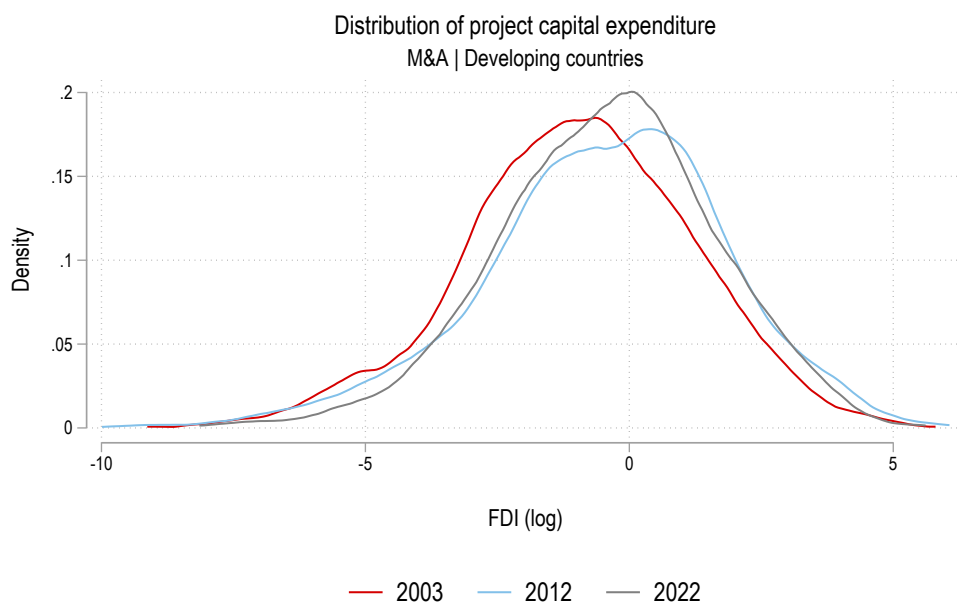
Note: The analysis relies on greenfield FDI project unique firm identifiers, without any exclusion from the full sample. The European Union group includes the European Union's 27 members states and the United Kingdom.

Figure A10



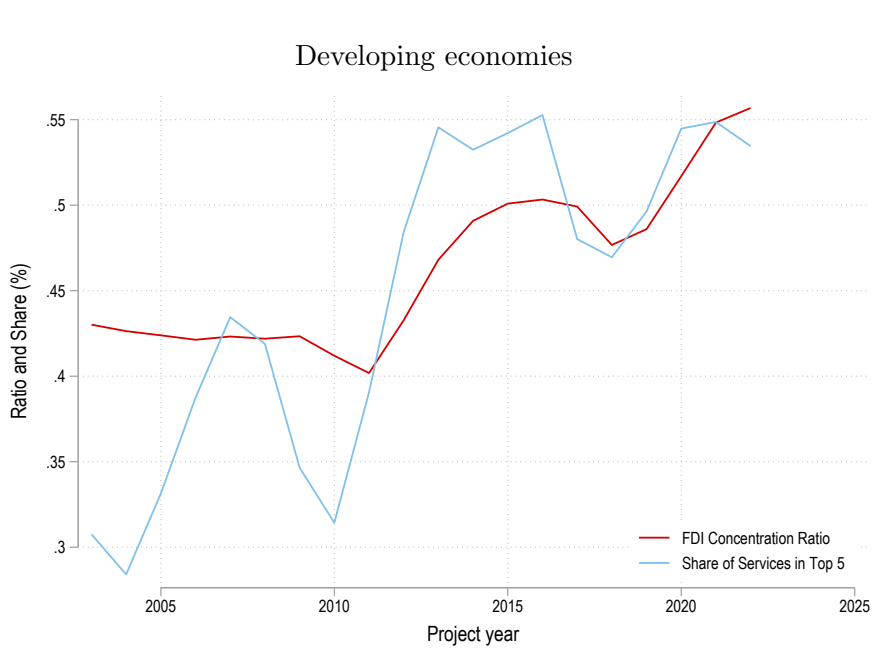
Note: The analysis relies on greenfield FDI capital expenditure, without any exclusion from the full sample. Countries are considered developing if classified as low income, lower-middle income or upper-middle income in 2003 based on the World Bank's income classification.

Figure A11



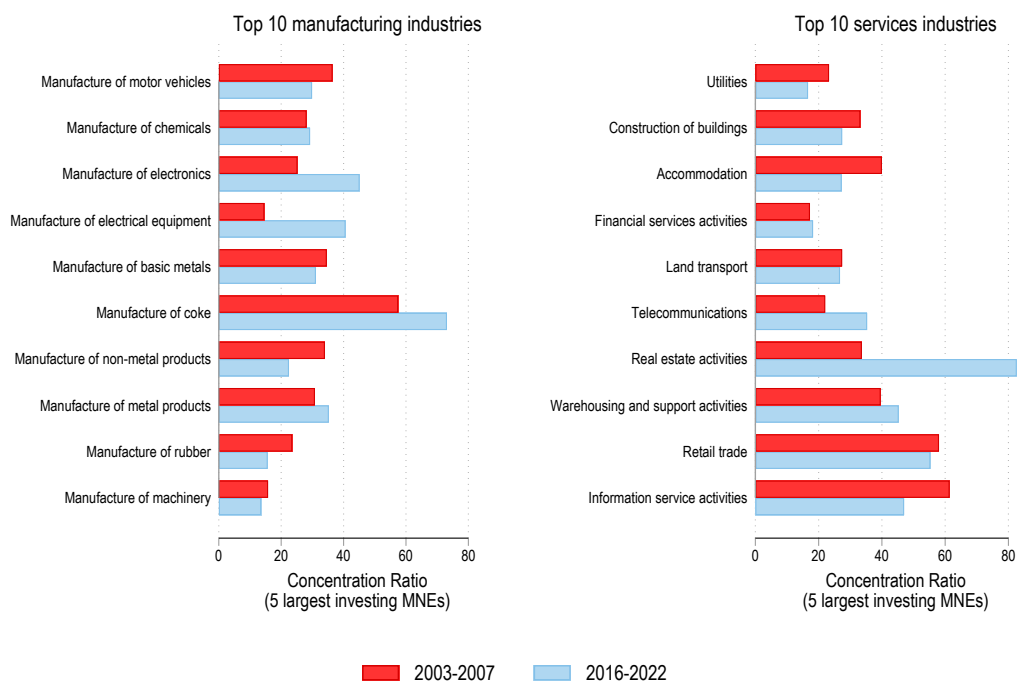
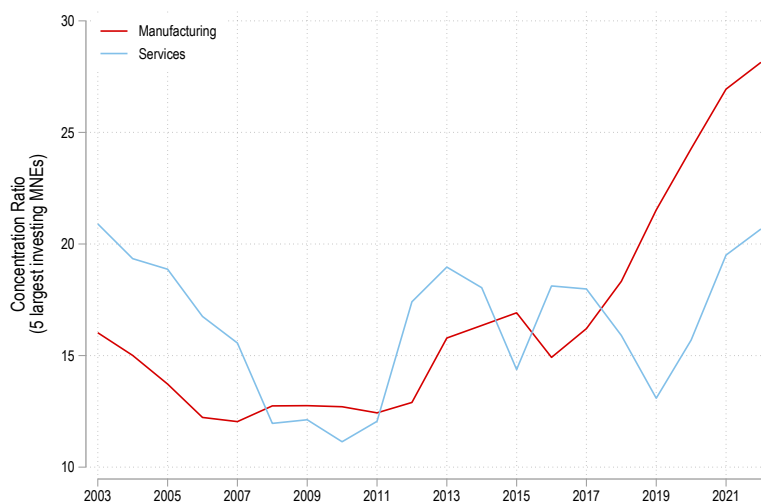
Note: The analysis relies on M&A capital expenditure, without any exclusion from the full sample. Countries are considered developing if classified as low income, lower-middle income or upper-middle income in 2003 based on the World Bank's income classification.

Figure A12: Share of Services in Top 5 Investing Firms (Developing and High-income economies)



Note: The analysis relies on greenfield FDI capital expenditure, excluding from the sample destination economies with, on average, less than 10 investment projects per year.

Figure A13: FDI Concentration by sector (Developing countries)



Note: The analysis relies on greenfield FDI capital expenditure, without any exclusion from the full sample. The concentration ratio is calculated for two different groups of industries (manufacturing and services) in each year, without applying country weights (upper panel); and separately for industries at the 2-digit ISIC rev. 4, in sub-periods of several years, without applying country weights (lower panels).

B Additional tables

In this section, we present a series of robustness checks and extensions that provide further support for the empirical evidence discussed in the main text.

We begin with an analysis of variance (ANOVA) approach to investigate the sources of variation in FDI concentration, which is detailed in Table B1 and based on the methodology outlined in Gamst et al. (2008).⁷ This analysis confirms that most of the variation in FDI concentration can be attributed to factors specific to countries or to specific combinations of countries and years, while elements of the sector and year play only a marginal role.

Table B4 uses an alternative measure of uncertainty based on exchange rate volatility to further confirm our results. The examination of different definitions of concentration ratios in Tables B5 and B6 contributes to the robustness of our results. Excluding major partner and source countries, as shown in Tables B8 and B9, is consistent with and supports the main effects. Furthermore, Table B10 and B11, which control for the source country concentration, and table B12, which measures industry concentration, verify the robustness of our analysis. Finally, the time dynamics of mergers and acquisitions (M&A) are examined in Table B13, finding patterns that are consistent with and support our main conclusions.

⁷ANOVA is a statistical method used for hypothesis testing in which the observed variance in a variable is decomposed into components attributed to different sources. The percentage of total variance explained by each component is calculated as $\left(\frac{\text{Sum of squares explained by component}}{\text{Total sum of squares}}\right) \times 100$.

Table B1: ANOVA Decomposition of FDI Concentration at the Country-Industry-Year Level

	Concentration Measure, % Variance			
	CR5 (1)	HHI (3)	CR5 (3)	HHI (4)
<hr/> Destination-Year: <hr/>				
Year	1.77	1.98	2.33	2.44
Country	79.56	70.12	75.24	66.02
Region-Year	10.93	11.70	13.79	14.21
Country	66.91	56.99	60.37	51.13
Observations	2,349	2,349	2,047	2,047
<hr/> Destination-Industry-Year: <hr/>				
Sector-Year	32.94	20.07	31.45	15.49
Country-Year	36.55	35.40	42.66	43.57
Sector-Year	8.93	3.01	7.78	2.72
Country-Year	29.80	33.14	37.45	43.27
Country-Sector	29.32	12.05	23.67	8.39
Observations	9,464	9,464	5,422	5,422
Minimum # of Foreign Investors		5		10

Note: The unit of observation is at the destination-industry-year level. Industries are grouped into 17 ISIC codes (1-digit). “CR5” stands for the concentration ratio of the top 5 investing firms; “HHI” stands for the Herfindahl-Hirschman concentration index (computed using the “CR” sample).

Table B2: FDI concentration dynamics on Mergers and Acquisitions

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) CR5
Trend \times Developing	0.007*** (0.002)	0.119** (0.054)	0.168 (0.104)	0.190 (0.122)	0.266** (0.119)
Observations	1,542	1,542	1,542	1,542	1,311
R-squared	0.148	0.772	0.786	0.800	0.810
FEs	No	Country	Country, Year	Country, Region-Year	Country, Region-Year
Period			2003-2022		2003-2019

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” refers to the concentration ratio of the top 5 investing firms. The indicator variable, *Developing*, is assigned the value 1 for countries classified as Low, Lower-Middle, or Upper-Middle income, as per the 2003 World Bank classification. Standard errors are clustered at the destination country level. Statistical significance denoted by; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B3: FDI concentration dynamics controlling for Share of services in GDP

VARIABLES	(1) CR5	(2) HHI	(3) CR5	(4) HHI	(5) CR5	(6) HHI
Trend \times Developing	0.410** (0.162)	0.019** (0.008)	0.375** (0.158)	0.019** (0.007)	0.382** (0.179)	0.017** (0.008)
Share of services in GDP (standardized)			0.830 (1.074)	0.089 (0.058)	1.630 (1.589)	0.162** (0.080)
Observations	2,283	2,283	2,612	2,612	1,981	1,981
R-squared	0.835	0.755	0.859	0.795	0.802	0.724
Minimum # of Foreign Investors		5		1		10

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” refers to the concentration ratio of the top 5 investing firms. Analysis in Columns 1 and 2 excludes destination countries averaging less than 5 foreign investors; Columns 3 and 4 include all destinations without restrictions on the number of foreign investors; Columns 5 and 6 exclude destinations averaging less than 10 foreign investors. “HHI” denotes the Herfindahl-Hirschman concentration index, computed using the corresponding sample for “CR5”. For ease of interpretation, HHI values are expressed in natural logarithm form. The indicator variable, *Developing*, is assigned the value 1 for countries classified as Low, Lower-Middle, or Upper-Middle income, as per the 2003 World Bank classification. The analysis includes country fixed effects and (world) region by year fixed effects. Standard errors are clustered at the destination country level. Statistical significance denoted by; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B4: Mechanism at play, exchange rate volatility as proxy for uncertainty

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) CR5	(6) CR5
ExchangeRateVolatility (standardized)	0.614 (1.461)	-0.857 (1.910)	3.827*** (0.856)	3.669*** (0.818)	3.067*** (0.824)	4.255*** (0.936)
ExchangeRateVolatility \times Developing		4.075** (1.979)				
Observations	2,349	2,349	1,489	1,472	1,777	1,170
R-squared	0.830	0.830	0.819	0.824	0.843	0.801
Controls	No	No	Yes	Yes	Yes	Yes
Data Coverage	All countries			Developing		
Minimum # of Foreign Investors			3		1	10

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” stands for the concentration ratio of the top 5 investing firms; the minimum number of foreign investors to be included in the sample is indicated in the last row of the table. The *ExchangeRateVolatility* is calculated from the monthly exchange rate of the local currency against the US dollar, normalized by the whole-period mean and standard deviation. For a given destination-year, *it*, *ExchangeRateVolatility* is proxied as the average score in the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B5: Mechanism at play, no restriction on the minimum number of foreign investors

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) HHI	(6) log(# MNEs)	(7) log(K)
Uncertainty (standardized)	0.863** (0.389)	-0.227 (0.579)	1.329*** (0.445)	1.404*** (0.439)	0.047** (0.022)	-0.061** (0.025)	0.010 (0.032)
Uncertainty × Developing		1.590** (0.648)					
Observations	2,691	2,691	1,831	1,777	1,777	1,777	1,777
R-squared	0.856	0.856	0.840	0.844	0.775	0.905	0.332
Controls	No	No	No	Yes	Yes	Yes	Yes
Data Coverage	All countries				Developing		

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” stands for the concentration ratio of the top 5 investing firms, with no restriction on the minimum number of foreign investors. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “log(# MNEs)” represents the natural logarithm of the number of foreign investors, and “log(K)” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B6: Mechanism at play, destinations averaging fewer than 10 foreign investors are excluded

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) HHI	(6) log(# MNEs)	(7) log(K)
Uncertainty (standardized)	1.023* (0.518)	-0.237 (0.624)	1.789*** (0.630)	1.903*** (0.608)	0.075** (0.029)	-0.092*** (0.031)	-0.015 (0.033)
Uncertainty \times Developing		2.109*** (0.735)					
Observations	2,047	2,047	1,187	1,170	1,170	1,170	1,170
R-squared	0.799	0.800	0.796	0.802	0.722	0.894	0.453
Controls	No	No	No	Yes	Yes	Yes	Yes
Data Coverage	All countries				Developing		

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” denotes the concentration ratio of the top 5 investing firms. Countries averaging fewer than 10 foreign investors are excluded from these calculations. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “log(# MNEs)” represents the natural logarithm of the number of foreign investors, and “log(K)” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B7: Mechanism at play, controlling for Share of services in GDP

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5
Uncertainty (standardized)	-0.404 (0.605)	1.430*** (0.501)	1.274*** (0.432)	1.750*** (0.608)
Uncertainty \times Developing	1.805*** (0.688)			
Share of services in GDP (standardized)	0.749 (1.215)	0.507 (1.181)	0.397 (1.019)	1.385 (1.543)
Observations	2,283	1,460	1,789	1,158
R-squared	0.835	0.826	0.847	0.803
Data Coverage	All countries		Developing	
Minimum # of Foreign Investors	3		1	10

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” denotes the concentration ratio of the top 5 investing firms. Countries averaging fewer than 5 foreign investors are excluded from these calculations. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “log(# MNEs)” represents the natural logarithm of the number of foreign investors, and “log(K)” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include logarithms of population, GDP and the average exchange rate. Standard errors are clustered at the destination country. Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B8: Mechanism at play, excluding major source countries of foreign investment

VARIABLES	(1) CR5 (no GBR)	(2) CR5 (no USA)	(3) CR5 (no JPN)	(4) CR5 (no DEU)	(5) CR5 (no FRA)	(6) CR5 (no CHN)
Uncertainty (standardized)	-0.189 (0.603)	-0.683 (0.616)	-0.231 (0.607)	-0.121 (0.553)	-0.191 (0.603)	-0.162 (0.597)
Uncertainty \times Developing	1.626** (0.705)	2.220*** (0.721)	1.740** (0.708)	1.641** (0.656)	1.687** (0.709)	1.712** (0.712)
Observations	2,329	2,273	2,312	2,313	2,295	2,294
R-squared	0.831	0.818	0.828	0.827	0.828	0.832

Notes: The unit of observation is the destination-year level, *it*. “CR5” stands for the concentration ratio of the top 5 investing firms; countries with fewer than 5 foreign investors on average are excluded. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year *t* is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B9: Mechanism at play, excluding China and India as destination countries

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) HHI	(6) log(# MNEs)	(7) log(K)
Uncertainty (standardized)	0.891* (0.451)	-0.316 (0.603)	1.437*** (0.536)	1.507*** (0.514)	0.051** (0.025)	-0.056** (0.027)	0.019 (0.032)
Uncertainty \times Developing		1.861*** (0.694)					
Observations	2,309	2,309	1,449	1,432	1,432	1,432	1,432
R-squared	0.823	0.824	0.791	0.797	0.691	0.875	0.389
Controls	No	No	No	Yes	Yes	Yes	Yes
Data Coverage	All countries			Developing			

Note: Each observation corresponds to a destination-year, represented as *it*. “CR5” denotes the concentration ratio of the top 5 investing firms. Countries averaging fewer than 5 foreign investors are excluded from these calculations. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “log(# MNEs)” represents the natural logarithm of the number of foreign investors, and “log(K)” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B10: Mechanism at play, controlling for investor concentration in source countries

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5
Uncertainty (standardized)	-0.014 (0.589)	1.521*** (0.527)	1.411*** (0.482)	1.752*** (0.627)
Uncertainty \times Developing	1.420* (0.721)			
FDI Concentration Source countries (standardized)	-0.666 (0.434)	-0.660 (0.469)	-0.500 (0.362)	-0.862 (0.652)
Observations	2,199	1,341	1,498	1,110
R-squared	0.823	0.819	0.835	0.797
Data Coverage	All countries		Developing	
Minimum # of Foreign Investors	3		1	10

Note: Each observation corresponds to a destination-year, represented as it . “CR5” denotes the concentration ratio of the top 5 investing firms. Countries averaging fewer than 5 foreign investors are excluded from these calculations. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “ $\log(\# \text{ MNEs})$ ” represents the natural logarithm of the number of foreign investors, and “ $\log(K)$ ” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include logarithms of population, GDP, the average exchange rate and a measure of concentration in the top 4 FDI sources (i.e., United States, Germany, United Kingdom, and France, weighted by their respective 2003 destination shares). Standard errors are clustered at the destination country. Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B11: Mechanism at play, controlling for domestic sales concentration in source countries

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5
Uncertainty (standardized)	-0.444 (0.650)	1.670*** (0.554)	1.561*** (0.510)	1.946*** (0.672)
Uncertainty \times Developing	1.932** (0.832)			
Sales Concentration Source countries (standardized)	-0.412 (0.274)	-0.423 (0.300)	-0.326 (0.257)	-0.309 (0.347)
Observations	1,964	1,191	1,335	989
R-squared	0.833	0.827	0.843	0.806
Data Coverage	All countries		Developing	
Minimum # of Foreign Investors	3		1	10

Note: Each observation corresponds to a destination-year, represented as it . “CR5” denotes the concentration ratio of the top 5 investing firms. Countries averaging fewer than 5 foreign investors are excluded from these calculations. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “ $\log(\# \text{ MNEs})$ ” represents the natural logarithm of the number of foreign investors, and “ $\log(K)$ ” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include logarithms of population, GDP, the average exchange rate, and a measure of concentration in domestic sales of 4 FDI sources (i.e., the United States, Germany, the United Kingdom, and France, weighted by their respective destination shares in 2003). Investor country concentration is measured as the share of the top 3 companies in each country’s domestic sales, firm-level sales from Worldscope, aggregate sales from EU-KLEMS. Standard errors are clustered at the destination country. Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B12: Mechanism at play, destination-by-sector, controlling for industry specific trend

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) HHI	(6) log(# MNEs)	(7) log(K)
Uncertainty (standardized)	0.005 (0.003)	-0.007 (0.004)	0.018*** (0.005)	0.018*** (0.005)	0.103*** (0.021)	-0.134*** (0.024)	-0.049* (0.029)
Uncertainty \times Developing		0.025*** (0.006)					
Observations	9,132	9,132	3,935	3,922	3,922	3,922	3,922
R-squared	0.745	0.746	0.713	0.713	0.657	0.803	0.689
Controls	No	No	No	Yes	Yes	Yes	Yes
Data Coverage	All countries				Developing		

Note: Each observation corresponds to a destination-industry-year, represented as *ist*. “CR5” denotes the concentration ratio of the top 5 investing firms. Country-industries averaging fewer than 5 foreign investors are excluded from these calculations. “HHI” refers to the Herfindahl-Hirschman concentration index, calculated using the “CR5” sample. “log(# MNEs)” represents the natural logarithm of the number of foreign investors, and “log(K)” denotes the natural logarithm of the average capital expenditure. “Uncertainty” is based on the “T3” variable from the World Uncertainty database (Ahir et al. 2022), which counts the occurrence of the word “uncertainty” from Economist Intelligence Unit (EIU) reports for 143 countries since the 1950s. A higher value indicates greater uncertainty. Uncertainty in year t is approximated as the logarithm of the average number of uncertainty-related words in EIU reports over the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). The analysis includes country fixed effects and (world) region by year fixed effects. Countries are classified into 7 regions based on World Bank classifications. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B13: Mechanism at play, the role of uncertainty on Mergers and Acquisitions

VARIABLES	(1) CR5	(2) CR5	(3) CR5	(4) CR5	(5) HHI
Uncertainty (standardized)	-0.379 (0.508)	-1.381 (0.965)	-1.442 (0.960)	-1.327 (0.888)	-0.048 (0.040)
Uncertainty \times Developing		1.715 (1.051)	1.784* (1.048)	1.997* (1.029)	0.103** (0.049)
Observations	1,370	1,370	1,352	1,149	1,149
R-squared	0.794	0.795	0.793	0.802	0.695
Controls	No	No	Yes	Yes	Yes
Period	2003-2022	2003-2022	2003-2022	2003-2019	2003-2019

Notes: The unit of observation is the destination-year level, *it*. ‘CR5’ stands for the concentration ratio of the top 5 investing firms; countries with fewer than 5 foreign investors on average are excluded. ‘HHI’ refers to the Herfindahl-Hirschman concentration index, calculated using the ‘CR5’ sample. ‘Uncertainty’ is based on the ‘T3’ variable from the World Uncertainty database (Ahir et al. 2022), which counts words from EIU reports for 143 countries since the 1950s. A higher ‘T3’ value indicates greater uncertainty. Uncertainty in year is approximated as the logarithm of the average word count in EIU reports over the three years preceding the investment. The *ExchangeRateVolatility* is calculated from the monthly exchange rate of the local currency against the US dollar, normalized by the whole-period mean and standard deviation. For a given destination-year, *it*, *ExchangeRateVolatility* is proxied as the average score in the three years preceding the investment (standardized to have a mean of zero and a standard deviation of 1). All specifications include world-region by time fixed effects, and countries are grouped into 7 regions based on World Bank classifications; country fixed effects. Destination-specific control variables include the logarithms of population and GDP (source: Conte et al. (2022)) and the average exchange rate over the three years preceding the investment (national currency/USD, Penn World Tables, mark 10.1, Feenstra et al. (2015)). Standard errors are clustered at the destination country level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.