



# **Bilateral International Investments: The Big Sur?**

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## Abstract

Using country-to-country data, this paper documents a set of novel stylized facts about the rise of the South in global finance. The paper assembles comprehensive bilateral data on cross-border bank loans and deposits, portfolio investment in debt and equity, foreign direct investment, and international reserves. The main finding is that global financial integration with and especially within the South (countries outside the G7 and Western Europe) has grown faster than within the North. By 2018, the South accounted for 24 to 40 percent of international loans and deposits, portfolio investment, and foreign direct investment, an increase of roughly 10 percentage points since 2001. The growing importance of the South is reflected in the intensive and extensive margins, with fast growth in the number of bilateral links. Although China weighs heavily in these trends, international investment in the rest of the South has increased to a similar extent.

**JEL classification codes:** F21, F36, G15

**Keywords:** international capital flows; emerging economies; international financial integration; foreign direct investment; portfolio investment.

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## 1. Introduction

Since the early 1990s, the economic weight of the “South” or “Sur” (countries outside the G7 and Western Europe) has risen sharply. Several studies document that the South accounts for a growing share of global economic activity (IMF 2017; UNCTAD 2018; World Bank 2018) and international trade in goods (Hanson 2012). But the literature has focused less on the rise of the South in global finance.

In this paper, we provide a systematic and comprehensive analysis of international financial investments from and to the South and contrast them with those from and to the North. To do so, we combine information from various databases on bilateral international investments, including bank loans and deposits, portfolio investment in debt and equity, foreign direct investment (FDI), and international reserves. The bilateral nature of these data allows us to shed new light on international financial integration. First, we examine who integrates with whom by splitting cross-border investment into four blocks: South-to-South, South-to-North, North-to-South, and North-to-North. Second, we analyze the process of financial integration along the intensive margin (the value of investment) and the extensive margin (the number of bilateral links) for each investment type across the four blocks.

We assemble global bilateral data covering most of the countries in the world from 2001 to 2018. The data sources jointly make up the bulk of countries’ international investment positions (IIPs): (i) international bank loans and deposits from the Locational Banking Statistics of the Bank for International Settlements (BIS); (ii) portfolio investment in debt and equity from the Coordinated Portfolio Investment Survey (CPIS) of the International Monetary Fund (IMF); (iii) FDI data from the Bilateral FDI Statistics provided by the United Nations Conference on Trade and Development (UNCTAD) and the Coordinated Direct Investment Survey (CDIS) of the IMF; and (iv) international reserves data constructed by combining the International Financial Statistics (IFS) with the Currency

Composition of Official Foreign Exchange Reserves (COFER) database, both compiled by the IMF.<sup>1</sup> Our data sets on bilateral investment positions capture most of the aggregate IIP at the country level as commonly used in the literature (e.g., Lane and Milesi-Ferretti 2018). In particular, aggregating our bilateral positions across all country pairs yields values close to those obtained by aggregating country-level data across all countries.

The main findings of the paper document the rise of the South in global finance. First, the South has increased its participation in global finance across all investment types, as a share of world gross domestic product (GDP) and as a share of global investment. The sum of North-to-South, South-to-North, and South-to-South investments as a share of the global total increased by roughly 10 percentage points (p.p.) between 2001 and 2018 for international loans and deposits, portfolio investment, and FDI. The pace of financial integration within the South was particularly fast. Although South-to-South investment remained the smallest block in terms of value throughout, it increased the fastest over this period. For FDI and loans and deposits, the share of South-to-South investment in the global total doubled between 2001 and 2018, from about 6 to 13 percent. For portfolio investment and international reserves, growth within the South was even more marked, albeit from lower levels: each type of investment increased from roughly 0.9 to 3.7 percent of the global total. The expansion of the South in global aggregates is also observed at the country-to-country level, indicating that these trends are not driven by a few large countries in the South.

Second, the rise of the South has proceeded along the intensive and extensive margins. South countries invested increasing amounts in countries with whom they were already connected at the beginning of the sample. The value of investment in the North-to-South, South-to-North, and South-to-South blocks combined represented about 4 percent of world GDP for portfolio investment and

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<sup>1</sup> The data on international reserves are not bilateral, but we estimate the destination of international reserve holdings at the country-to-region level. This limitation is not a serious problem because virtually all reserves are held in assets issued by a few countries in the North.

9 percent for FDI in 2001. By 2018, the value of the links that existed in 2001 had grown to about 11 and 16 percent of world GDP, respectively. Moreover, South countries have increased their connectedness, establishing new links with countries in the North and South. In contrast, North countries were already almost fully connected among themselves in 2001. Since 2001, North-to-South and South-to-North linkages intensified, although the increase in connectedness within the South was even larger. The share of South-to-South active links in total reported links in portfolio investment increased from 19 percent in 2001 to 33 percent in 2018. The share for FDI was even smaller in 2001, at 5 percent, yet by 2018 it had surged to 41 percent. Despite the growth of new links, these links account for a small fraction of the value of investments in the South.

Third, the South has become more integrated into global finance across all investment types, resulting in marked changes in the composition of international investment. In 2001, the South's integration with the rest of the world occurred mainly through FDI and bank loans and deposits, and through holdings of international reserve assets issued by the North. A sizable share of FDI (about half) corresponded to North-to-South investment. By 2018, FDI was still the largest investment type for the South. However, about two-thirds of the South's FDI corresponded to investments by the South as a source. Bank loans and deposits (as a share of world GDP) were only 2 p.p. larger in 2018 than in 2001 overall, but they saw a marked geographic shift. Whereas the North has scaled back loans and deposits to the South since 2008, South-to-South lending has doubled, exceeding North-to-South lending. Portfolio investment and international reserves gained ground in relative terms, as they both started from lower levels and grew rapidly. The growth of portfolio investment can be explained not only by an increase in North-to-South investments, but also in South-to-North and South-to-South investments. Whereas the South has boosted its holdings of reserves in the North to 10 percent of world GDP, it has also become a destination for reserve holdings.

We present several extensions to our analysis. We show that our results are robust to separating China from the rest of the South. Although China accounts for a large share of investment from and to the South, the aggregate patterns described in the paper also hold for the South excluding China. The results are also robust to excluding the 20 richest countries in the South in terms of GDP per capita. Additionally, we incorporate offshore financial centers (OFCs) into the analysis. The literature on international capital flows makes clear that OFCs are major intermediaries of international investment (Lane and Milesi-Ferretti 2018; Coppola et al. 2020). Whereas OFCs are of interest in their own right, their inclusion does not alter our findings on the rise of the South. We show that the South is more prominent in global finance than OFCs and links involving the South have grown faster than those involving OFCs. The value of bilateral links involving OFCs as source and/or destination (vis-à-vis all regions) ranged between 12 and 17 percent of the global total across all investment types in 2018. For the South, these shares were between 23 and 41 percent in that same year.

Our paper relates to various strands of the literature on international financial integration. First, several studies analyze net and gross capital flows. Many papers document the existence of large net flows from the South to the North, which are known as “global imbalances” (Bernanke 2005; Obstfeld and Rogoff 2005; Caballero, Farhi, and Gourinchas 2008). The role of China’s accumulation of U.S.-issued international reserves is prominent in this trend (Jeanne 2007; Aizenman 2008; Obstfeld, Shambaugh, and Taylor 2010). Subsequent work analyzes gross capital flows. Gross flows have increased faster than net flows, as inflows and outflows have expanded in lockstep (Borio and Disyatat 2011; Shin 2012; Avdjiev, Kalemli-Ozcan, and Servén 2018). This pattern is especially evident over the business cycle, as gross inflows and outflows tend to be procyclical (Forbes and Warnock 2012; Bluedorn et al. 2013; Broner et al. 2013).

A second strand of the literature studies gross stocks of international investment, which are more informative for financial integration than capital flows. An important contribution to this

literature is the construction of asset and liability positions for each country vis-à-vis the rest of the world, using cumulative gross capital flows from balance of payments data (Lane and Milesi-Ferretti 2001, 2007). This strand of the literature shows that external assets and liabilities grew rapidly over time until the 2007–08 global financial crisis (GFC) (Gourinchas, Rey, and Govillot 2010; Obstfeld 2012; Lane and Milesi-Ferretti 2018). Since then, the growth in gross external positions overall has stagnated, reflecting a retrenchment of cross-border banking activity and the growing weight of the less integrated South in world GDP.

Third, several studies analyze bilateral international investments, as we do in this paper. Most of these papers focus on a single investment type and use gravity models to estimate the role of various determinants of capital flows and international investments (Portes and Rey 2005; Aviat and Coeurdacier 2007; Stein and Daude 2007; Lane and Milesi-Ferretti 2008; Coeurdacier and Gibaud 2011; Aggarwal, Kearney, and Lucey 2012; Hale and Obstfeld 2016; Hellmanzik and Schmitz 2017; Brei and von Peter 2018). A few papers combine data for different investment types to study the role of information frictions and institutions, investments between different regions before the GFC, and their network structure (Daude and Fratzscher 2008; Milesi-Ferretti, Tamirisa, and Strobbe 2010; Kubelec and Sa 2012).

In this paper, we use rich bilateral data sets with ample coverage across investment types, countries, and years, to analyze the rise of the South in global finance. Relative to studies that rely on the aggregate investment positions of countries vis-à-vis the rest of the world, our bilateral data shed light on the source *and* destination of international investment. For example, our more granular data allow us to show that South-to-South investments have grown the fastest. We ensure that data on investment types are comprehensive and mutually exclusive. For example, our bilateral data on bank loans and deposits improve over previous studies by stripping out banks' portfolio holdings, because these are already included in countries' aggregate data on portfolio investment (CPIS). Relative to

other studies that exploit bilateral data, our paper analyzes a greater number of countries, particularly in the South. In addition, the longer sample period allows us to examine developments before and after the GFC.

The rest of the paper is organized as follows. Section 2 describes the data. Section 3 documents the rise of the South in the value of total investments. Section 4 focuses on the growth of new links and the relative importance of old and new links. Section 5 examines three extensions to assess the robustness of our findings. Section 6 concludes. The appendix describes in detail the global data sets we use and the treatments we apply to align the sources with each other for the analysis.

## **2. Constructing Bilateral Investment Positions**

In their work on the “External Wealth of Nations,” Lane and Milesi-Ferretti (2001, 2007, 2018) use external assets and liabilities to measure international financial integration for a large cross-section of countries vis-à-vis the rest of the world. They provide the most comprehensive database on each country’s IIP, covering 212 countries for 1970–2015 in the latest public version. In our paper, we focus instead on bilateral investment positions to study the sources and destinations of international investment, allowing us to analyze the network structure of international financial integration.

This section describes the four data sets we use and addresses common concerns related to data on bilateral investment. Throughout the paper, “international” means cross-border investment between any pair of countries or jurisdictions.<sup>2</sup> International investments are reported on a residency basis, in line with statistics on national accounts and the balance of payments. The resulting notion of financial integration thus focuses on the geography of investment, not on the nationality of lenders (McGuire and von Peter 2012) or ultimate borrowers (Coppola et al. 2020).

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<sup>2</sup> In this paper, we mostly use the term “countries” to denote sovereign countries as well as territories (or jurisdictions) that are usually reported as separate economies. These are not necessarily independent sovereign states recognized by the United Nations.



## 2.1. Data Description

We study four complementary types of investment: bank loans and deposits, portfolio investment in debt and equity, FDI, and international reserves. These investment types make up the bulk of the IIP for most countries in the world and are known as functional categories in the balance of payments (IMF 2009). They represent (together with financial derivatives, not covered here) countries' external assets in the External Wealth of Nations database (Lane and Milesi-Ferretti 2001, 2007). Instead of using aggregate international investment at the country level, we work with the underlying bilateral data. That is, for each country in the sample, we analyze the value of investments held by that country vis-à-vis each individual counterparty country.

Our data sets comprise bilateral year-end stocks of cross-border loans and deposits, portfolio investment, and FDI. The appendix provides detailed explanations of how we construct the data for each investment type. Because no bilateral data are available for international reserves, we construct a bilateral data set at the country-to-region level, that is, the international reserves each country holds in assets from different regions. We combine data on the level of international reserves from the IMF's IFS with data on the currency denomination of reserves from the IMF's COFER. Reserve assets denominated in a given currency typically consist of government debt owed by the sovereign issuing that currency. We thus assign as destination of reserve investments the region of the country in whose currency reserves are denominated. For example, we assume that euro denominated reserves are issued by the North.

For loans and deposits and FDI, we take advantage of “mirror data” to maximize sample coverage. For many country pairs, we have assets reported by the source country as well as liabilities reported by the destination country. Thus, whenever a source country A does not report its asset holdings in a country B, we use the liabilities reported by country B as the investment for the country pair  $A \rightarrow B$ . Using this method, the only case when coverage remains incomplete is for bilateral

positions where neither the source nor destination report data. If both sides report, we use the two observations for validation purposes, as explained in the appendix.

The final data sets for the four investment types cover up to 239 countries and jurisdictions for the period 2001–18. Appendix table 1 lists every country by region and indicates for each one whether it appears as source and/or destination for the different investment types.<sup>3</sup> The data on loans and deposits cover 210 source countries and 210 destination countries. The data on portfolio equity and debt cover 92 source countries and 238 destination countries. The data on FDI cover 123 source countries and 239 destination countries. The country-to-region data on international reserves cover 182 source countries.

To show that our bilateral data provide good coverage of cross-border investment overall, we compare Lane and Milesi-Ferretti’s (2001, 2007) global IIP aggregates (summing across all countries) with our aggregated bilateral data (summing across all country pairs) on a yearly basis (figure 1). For portfolio investment, FDI, and international reserves, our data closely match Lane and Milesi-Ferretti’s aggregates. For loans and deposits, our data also match Lane and Milesi-Ferretti’s aggregates until 2007, and display the same trend thereafter, although our values are smaller. Part of the gap could be due to the fact that “other investment” in the IIP, which we use as a proxy for bank loans and deposits, covers more than just the loans and deposits included in our bilateral data.<sup>4</sup> Moreover, a greater number of South countries started to report aggregate IIP data than bilateral loans and deposits to the BIS over time. Thus, the larger aggregates in Lane and Milesi-Ferretti’s data might point to even greater financial integration of the South.

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<sup>3</sup> In appendix table 1, we consider a country to be a source (destination) of international investment if there are non-missing data for at least one year in our sample period for that country as a source (destination) of that investment type.

<sup>4</sup> For instance, the series “other investment” in the IIP data also includes some insurance and pension-related assets, such as technical reserves and entitlements (IMF 2009, table 6.1).

To document the broad patterns of international investment across different regions, we classify countries in our sample into three groups: North (Canada, Japan, the United States, and Western Europe), OFCs, and South (the rest).<sup>5</sup> The North represents the group of countries historically considered developed, before other countries reached a similar stage of development. The core analysis focuses on the comparison between the South and the North. Section 5 also incorporates OFCs into the analysis.

## 2.2. Country Coverage

We aim for maximum country coverage and a consistent treatment of missing observations across our four data sets. Differences in country coverage and misreported data are important issues when constructing bilateral data on international investment, especially for South countries, which are the main focus of our analysis.<sup>6</sup> In this subsection, we examine how these two data issues affect our specific data sets and explain how we address them throughout our analyses.

One concern relates to changes in country coverage over time. For instance, if the number of reporting countries increases over time, we could overestimate the increase in the number of active links and the value of international investment. To evaluate whether changes in country coverage generate a problem in our data sets, we first assess how many countries appear in the data as source and destination countries, by year and investment type (appendix figure 1). Overall, the numbers of source and destination countries remain stable over time. Portfolio investment is the only investment type with a notable increase in the number of source countries, from 55 countries in 2001 to 74 in 2018. Nevertheless, as discussed in sections 3 and 4, this increase in coverage does not drive our results

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<sup>5</sup> The same definition of North is used in the World Bank's Global Financial Development Report 2018. The list of OFCs is based on the list of countries included in the IMF's [Staff Assessments on Offshore Financial Centers](#).

<sup>6</sup> For a discussion of these data issues, see Lane and Milesi-Ferretti (2001) and Alfaro, Kalemli-Ozcan, and Volosovych (2007).

on portfolio investment. The reported trends on portfolio investment hold even when we analyze the evolution of individual country pairs and when we restrict the sample to country pairs that have data throughout the entire sample period.

Changes in country coverage might still be a concern if some of the countries entering the sample are very large. We analyze when the 10 largest countries in each region (in terms of the aggregate value of positions for a given investment type in 2018) start reporting data on the sources of international investments (appendix table 2). For bank loans and deposits, FDI, and international reserves, the data for these countries are available for the entire sample period, partly thanks to mirror data.<sup>7</sup> For portfolio investment, however, China (fifth largest) started reporting in 2015 and Saudi Arabia (sixth largest) in 2013. In section 5, we show that our results are robust to the exclusion of China and the top-20 richest countries (which include Saudi Arabia) from the South.

Even if the total number of source and destination countries remains stable over time, some countries might still change the number of counterparties they report against. To assess whether this affects the results, we calculate the average share of counterparty countries in each regional block reported by source countries each year (appendix figure 2). The coverage within the South tends to be more limited than that in other regional blocks, because for many country pairs neither the source nor the destination is a reporting country. For loans and deposits and portfolio investment, the number of counterparties is typically stable over the sample period, especially for links involving North countries. South-to-South links tend to increase over time, partly reflecting newly reported links when a country from the South becomes a reporter. For FDI, there was a marked jump in reported counterparties in 2009, particularly with a larger number of South countries reporting other South countries as counterparties. The observed jump is explained by changes in data coverage across our

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<sup>7</sup> For example, for bank loans and deposits, China started to report in 2015. However, by using data that banks in other countries reported vis-à-vis China, we can capture at least part of the loans and deposits that China held abroad, and received from abroad, before 2015.

data sources: the IMF's CDIS data, available from 2009 onward, has a broader coverage of South countries than the UNCTAD data used before 2009. A mitigating factor is that countries with large FDI positions report data for the entire sample period. Moreover, whereas the tables and figures report the raw data, we account for these changes in country reporting coverage in the regression analyses in sections 3 and 4.

A second concern is that bilateral international investment data contain missing observations and it is difficult to distinguish between missing data points and zeros. This distinction is not trivial. Zero values are meaningful for the analysis of international connectedness along the intensive and extensive margins (Helpman, Melitz, and Rubinstein 2008). Incorrectly assuming that a missing observation is zero could lead to an overestimation of the growth in the value of investment between individual country pairs and the number of active links. In the appendix, we explain the methodology we use for each investment type to determine whether missing values are treated as unreported or zero observations.<sup>8</sup>

In practice, the treatment of missing values is less consequential for the analysis of the value of investment (section 3) than for that of the number of active links (section 4). Any aggregation of values implicitly treats missing values as zero. Moreover, our regressions at the country-to-country level show that new links explain little of the strong growth in the value of South investment and, thus, the treatment of new links is not of first-order importance (section 3.3). In the analysis of the number of links, the distinction between zeros and missing values can be more consequential. In section 4, we describe how we partially control for changes in bilateral reporting coverage.

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<sup>8</sup> For robustness, we conducted the analyses in the paper by simply assuming that all missing values were actually zero-valued observations. The results were qualitatively similar to the ones reported in the paper.

### 3. Value of International Investment over Time

#### 3.1. Aggregate Value: Percentage of World GDP

The South has increased the value of international investment with the rest of the world, as sender of investments to the North and as a receiver of investments from the North. South-to-South investment has grown even faster than North-to-South and South-to-North investments, across all investment types (table 1).<sup>9</sup> Between 2001 and 2018, South-to-South investment as a share of world GDP grew 11-fold for international reserves (the fastest growing investment type), albeit from very low values in 2001, and doubled for bank loans and deposits (the slowest growing investment type). The growth of the South contrasts with that of North-to-North investment, which expanded at the slowest pace, growing less than 60 percent across all investment types and with an actual decline of 1 percent in loans and deposits over the sample period.

Despite the overall expansion of international investment across North and South countries between 2001 and 2018, for most investment types there was a temporary reversal in these trends during the GFC. Particularly marked was the retrenchment in international loans and deposits, which not only saw a decline between 2007 and 2008, but also continued to fall afterward across most blocks. At the global level, the ratio of loans and deposits to world GDP dropped from 47.4 percent in 2007 to 30 percent in 2018. The ratio of North-to-North investment to world GDP, which declined by 46 percent between its peak in 2007 and 2018, was largely responsible for this decline. South-to-South was the only block where international loans and deposits expanded in the aftermath of the GFC. The fact that the boom-bust cycle around the GFC was so concentrated in the North-to-North block

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<sup>9</sup> Using world GDP as a scaling factor allows us to benchmark the growth in international investments across blocks. However, it is well known that the South grew at a faster pace than the North during our sample period. In unreported results, we computed similar estimates scaling each block of investments by its specific GDP (that is, regional GDP) instead of world GDP. The estimates relative to each block's GDP show trends similar to those reported here. Thus, we omit reporting them to save space and avoid repetition.

illustrates the contribution that bilateral data can make to the analysis of international financial integration.

The South has become more integrated into global finance across all investment types, resulting in significant changes in the composition of international investment. In 2001, the South's participation in international markets occurred mainly through FDI and loans and deposits, in roughly equal parts, and to a lesser extent through international reserve holdings in the North (table 1). By 2018, the composition of South investment had changed along several dimensions. First, FDI remained the largest investment type for the South, more than doubling in value as a share of world GDP (from 9 to 20 percent). Whereas the bulk of FDI remained North-to-North, growth was strongest for the South as a source of FDI. South-to-North FDI came to rival North-to-South FDI.

Second, portfolio investment expanded rapidly over the sample period. By 2018, portfolio investment was larger than loans and deposits and international reserves. The South's loans and deposits were only slightly higher (as a share of world GDP) in 2018 than in 2001, whereas portfolio investment grew rapidly, from a much lower level in 2001. In particular, holdings of debt and equity more than tripled for North-to-South, South-to-North, and South-to-South investments as ratios to world GDP (table 1).

Third, international reserves of South countries also gained relative importance during the sample period. Reserve holdings in the North became the largest of all investment types involving the South, amounting to 10 percent of world GDP in 2018. This fact is not surprising as many South countries have run large current account surpluses and accumulated reserve assets issued by the North since the early 2000s. But the South has also become a destination for reserve holdings, in particular, with increases in reserves denominated in Australian dollars and Chinese renminbi, among others (appendix, section A.4). Between 2001 and 2018, the combined value of South-to-South and North-to-South international reserves, as a share of world GDP, expanded at an even faster pace than South-

to-North international reserves (650 and 163 percent growth, respectively), albeit starting from a very low base (0.08 and 3.8 percent, respectively).

The fact that FDI plays a larger role than other types of South-to-South investments might reflect the existence of a “pecking order.” To the extent that ownership alleviates information frictions between borrowers and lenders, investment types that confer some degree of ownership (such as FDI or equity) would tend to account for a larger share of cross-border investment among less developed countries (Daude and Fratzscher 2008). This pecking order hypothesis could also explain, at least in part, the relatively slow expansion in loans and deposits within the South. In addition, it could explain why the bulk of the growth in portfolio investment during the sample period occurred through portfolio equity rather than portfolio debt (appendix table 3).

### **3.2. Distribution: Percentage of Total International Investment**

The rise of the South in global finance has been a defining feature of financial globalization. For each investment type, the South accounted for an increasing share of the global total during 2001–18 (table 2). Overall, the share of South investments (the sum of South-to-South, North-to-South, and South-to-North relative to the global total) increased by roughly 10 p.p. between 2001 and 2018 for international banks loans and deposits, portfolio investment, and FDI. The South accounted for between 24 and 40 percent of global investment in 2018 among loans and deposits, portfolio investment, and FDI, up from between 12 and 32 percent in 2001. For portfolio investment and FDI, the South grew especially as a source, with South-to-South and South-to-North investment expanding faster than North-to-South over the sample period. For loans and deposits, the South grew mostly as a destination of international investment, perhaps signaling a decline in South country residents’ capital flight and growing confidence of international investors in banks in the South.



Despite the growth of the South, North-to-North international investments still account for the bulk of financial activity across borders. In 2018, this block represented between 60 and 76 percent of the global total for loans and deposits, FDI, and portfolio investment. In contrast, even after increasing at the fastest pace over the sample period, the shares of South-to-South investments remained relatively small as of 2018. An exception is loans and deposits, for which South-to-South investments came to exceed North-to-South and South-to-North investments.<sup>10</sup>

The extent of financial integration is greater *within* regions than *across* regions. Financial integration within the South is higher than might be expected based on a simple benchmark that tallies what the South invests and receives overall. For example, in 2018, the South invested 24.7 percent and received 24.9 percent of the global total for loans and deposits. If the global total were evenly distributed across the North and South, it would be expected that only 6.15 percent of the global total would be exchanged within the South (South-to-South).<sup>11</sup> Yet, the South-to-South block accounts for more than twice as much (13 percent) of global loans and deposits. The same regularity holds for FDI and portfolio investment, for which South-to-South investments are roughly twice as large as predicted by this simple benchmark. Since North-to-North investments also exceed the benchmark, it follows that North-to-South and South-to-North investments are smaller than predicted (loans and deposits, portfolio investment, and FDI). North and South blocks are more integrated within themselves than between each other.

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<sup>10</sup> We perform two robustness exercises to show that these findings are not sensitive to the composition of financial instruments and sample coverage. First, we split international portfolio investment into portfolio equity and debt positions and show that they display similar trends to that of total portfolio investment (appendix table 3). Second, to ensure that the results are not driven by improving data coverage for the South in recent years, we calculated the statistics in tables 1 and 2 including only those country pairs for which we have data for all years in our sample. The unreported results showed patterns qualitatively similar to those reported here.

<sup>11</sup> This follows from multiplying the shares the South accounts for as a sender and as a receiver ( $0.247 \times 0.249$ ).

### 3.3. Value Trend Regressions at Three Levels of Granularity

We estimate panel regressions of the evolution of international investment over time to test more formally whether the value of investment involving South countries grew faster than that involving North countries. We run these regressions at three levels of data aggregation. This helps to determine whether a few large countries are driving the aggregate regional patterns. First, we estimate region-to-region (R-R) regressions to test whether the trends discussed so far are statistically significant (using 72 observations for our four blocks over 18 years). Then, the more granular country-to-region (C-R) regressions, with 6,000 to 14,000 observations for each investment type, examine whether these trends are widely shared at the country level. Lastly, the most granular country-to-country (C-C) regressions (more than 70,000 observations) determine whether the aggregate patterns hold for the average country pair in the global financial network. We estimate the following regression:

$$Value_{ij,t} = \beta_1 Trend_{ij,t}^{NN} + \beta_2 Trend_{ij,t}^{NS} + \beta_3 Trend_{ij,t}^{SN} + \beta_4 Trend_{ij,t}^{SS} + \theta_{ij} + \varepsilon_{ij,t}, \quad (1)$$

where  $i$  and  $j$  indicate the source and destination region or country, respectively, and  $t$  denotes time (year). The independent variables consist of time trends for each block. For example,  $Trend_{ij,t}^{NN}$  is the time trend for investment from countries in the North to other countries in the North. The other trends are analogously defined. The regressions also include fixed effects,  $\theta_{ij}$ , which vary with the level of data aggregation, as explained below. The main coefficients of interest are the  $\beta$ 's for each trend by block, which estimate the average annual percentage change in the value of investment for countries within each block. We also report the results of two-tailed p-value tests for the differences between these coefficients across blocks. These tests allow us to assess whether South countries have integrated significantly faster than North countries, as source and destination of international investment.

We estimate this regression using two alternative methodologies. First, we use ordinary least squares (OLS) with the log of the value of investment (unscaled) as the dependent variable. Second, we estimate Poisson pseudo maximum likelihood (PPML) regressions with the value of investment as

the dependent variable. The estimated coefficients also show the percentage change as the model uses a log transformation of the dependent variable. The use of PPML regressions as an alternative to OLS regressions is common practice in the trade and finance literature using bilateral country data. Countries typically do not trade with, or invest in, every other country in the world, thus yielding a data set with many zero-valued observations (Helpman, Melitz, and Rubinstein 2008). The use of standard OLS log-linear estimations might raise some concerns in this context as this approach excludes all these zero-valued observations. In contrast, the PPML estimator provides a natural way to deal with zero values in the dependent variable, while also being consistent in the presence of heteroscedasticity.<sup>12</sup>

We report both OLS and PPML estimations because they provide different insights on the intensive and extensive margins.<sup>13</sup> By keeping observations with zero values, the PPML estimations capture the dynamics in international investments along the intensive margin (the growth in the value of investments) and the extensive margin (the growth in the number of bilateral links). In contrast, the OLS regressions better capture trends in the intensive margin as they estimate growth dynamics conditional on positive international investment. The C-C OLS regressions are especially informative in this regard. At higher levels of aggregation, there is less of a distinction between the intensive and extensive margins. That is, the entry and exit of bilateral links between individual country pairs affect the extensive margin at the C-C level, but at a higher aggregation (R-R and C-R) they only affect the value of the dependent variable, not whether the aggregate link is active or not.

The R-R regressions include R-R fixed effects (North-to-North, North-to-South, South-to-North, and South-to-South). Analogously, the C-R regressions include C-R fixed effects. For each country in the sample, we include a set of four dummy variables capturing their investments in the

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<sup>12</sup> The PPML estimator presents some advantages over other estimators when multiple zero-valued observations are present (Santos Silva and Tenreyro 2006, 2010; Brei and von Peter 2018).

<sup>13</sup> Because there are no observations with zero values at the R-R level, we estimate only OLS regressions in this case.

North (country-to-North) and in the South (country-to-South), and the investments received from the North (North-to-country) and from the South (South-to-country). For the C-C estimations, the OLS regressions include C-C fixed effects, whereas the PPML regressions include, alternatively, R-R or C-C fixed effects. Fixed effects at the R-R level allow us to keep all the country pairs in the estimation sample, even if the value of international investment between them does not change over time (including when it is zero throughout the sample period). However, these regressions do not control for invariant attributes of country pairs. In turn, the PPML estimations with C-C fixed effects control for such invariant attributes, but they exclude all country pairs with no variation in the dependent variable over the sample period.<sup>14</sup> Thus, these estimations only reflect changes in country pairs between periods with non-zero investment. As a robustness exercise, for the C-C regressions we also ran the PPML regressions with R-R fixed effects and the standard bilateral gravity controls identified in the literature (such as the distance between countries, time differences, dummies for common language, and legal origin). The results were similar to those including C-C fixed effects and thus are omitted.<sup>15</sup>

Consistent with the aggregate trends, the regression results show that the South grew faster than the North in global finance during 2001–18 (table 3). Moreover, these patterns are observed not only at the R-R level, but also at the C-R and C-C levels. Across all four investment types, South-to-South investments consistently grew faster than North-to-North investments. Whereas there is some variation in the magnitudes, the estimates are surprisingly similar across data aggregation levels and investment types (loans and deposits, portfolio investment, and FDI). South-to-South investments

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<sup>14</sup> These issues are also present in the PPML estimations at the C-R level. However, the number of C-R pairs with no variation over time is relatively small. Therefore, the results with R-R fixed effects are similar to the reported ones with C-R fixed effects. We decided to report only the results with C-R fixed effects as this specification is more robust to omitted variable bias.

<sup>15</sup> As another robustness exercise, we estimated PPML C-C regressions with C-R fixed effects, obtaining quantitatively similar results to those using R-R fixed effects.

typically expanded between about 7 and 9 p.p. faster than North-to-North investments. For example, the estimations at the R-R level (C-R and C-C levels using PPML) show that South-to-South loans and deposits expanded at an average rate of about 9 percent (8.8 and 7.9 percent) per year over the sample period, whereas North-to-North flows expanded at about 1.4 percent (1 and 1 percent) per year, indicating a statistically significant growth rate differential of about 7.6 p.p. (7.9 and 6.9 p.p.) per year. This growth differential is estimated at 9.1 p.p. per year for portfolio investment and 6.8 p.p. per year for FDI at the R-R level of aggregation. For international reserves, the estimations indicate that the growth differentials are even larger, between 8.7 and 14.8 p.p. per year, depending on the specification.

The results also provide robust evidence that the South expanded faster than the North, as source and destination of international investment. For example, the regression at the R-R level estimates that portfolio investment to South countries (from the North and South) expanded on average 4.4 p.p. per year faster than investment to North countries. The same regression shows that portfolio investment from South countries (to the North and South) increased 4.7 p.p. faster than that from North countries. Although there is variation in the magnitude of the estimates across data aggregation levels and investment types, the patterns are robust. The two-tailed p-value tests indicate that the growth differentials are statistically significant at the 99 percent confidence level. A notable exception is loans and deposits, for which the growth rates of the South and North are more similar, reflecting the overall stagnation in loans and deposits to North countries in the aftermath of the GFC.

The results at the C-C level with C-C fixed effects highlight the important role of the intensive margin in the growth of the South. To the extent that countries typically expand (rather than reduce) their links with other countries over time, zero-valued links would be more prevalent at the beginning rather than toward the end of the sample period. Thus, it would be expected that the inclusion of these zero-valued links in the PPML estimations would increase the estimated trend coefficients. Yet,

our estimation results are similar whether zero-valued links are considered (PPML) or not (OLS), if not larger in the latter specification. For example, the OLS regressions show that South-to-South portfolio investment grew on average at 8.8 p.p. per year faster than North-to-North investment, whereas the PPML regressions estimate an implied growth differential of 5.5 p.p. For FDI, this growth differential is estimated at 7.3 p.p. in the OLS regressions and 4.4 p.p. in the PPML regressions. Similar patterns emerge for the South relative to the North as source and destination of international investment. In section 4, we analyze in depth the dynamics of international investment along the extensive margin.

As discussed in section 2, when merging UNCTAD and CDIS data, there was a large increase in the number of reported counterparties in 2009, especially for South countries (appendix, section A.3). Hence, the regression estimates in table 3 might overestimate FDI growth over our sample period because of improvements in coverage. Table 4 reports a robustness test eliminating the possible effect of the change in coverage in 2009. In particular, we add to all the specifications a dummy that equals 1 from 2009 onward interacted with region-to-region dummies, thereby assigning all the growth in FDI positions from 2008 to 2009 to the change in coverage. These new estimations still show that South-to-South investment grew faster than North-to-North investment and the South expanded faster than the North as source and destination of international investment.

## **4. Evolution of International Financial Connectedness**

### **4.1. Bilateral Links and the Extensive Margin**

In this section, we examine the growth of the South through the pattern of links between countries. We analyze the share of active links in reported links, within and between the North and South.<sup>16</sup> We

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<sup>16</sup> In network analysis, this simple measure of connectedness is known as density. Active links are defined as those with a positive value of international investment. Inactive links are those with a zero value. The total number of reported links is

also measure the extent to which the growth in the value of international investment can be attributed to the establishment of new links, or to growth in the value of preexisting links. We restrict the analysis to loans and deposits, portfolio investment, and FDI because, as discussed in section 2, international reserves are not available at the country-to-country level.

The main result is that South countries became much more connected, with countries in the North and with other countries in the South, as source and destination of international investment. Whereas North-to-South and South-to-North connectedness increased substantially between 2001 and 2018, connectedness among South countries increased even faster (map 1). In portfolio investment among South countries, the share of active links in reported links (positive and zero-valued links) increased from 19.3 percent in 2001 to 32.9 percent in 2018 (table 5). For FDI, the rise in this share within the South was even more pronounced, increasing from 4.8 to 41.3 percent. This rise could be affected by improved data coverage from 2009 onward.<sup>17</sup> But even after this break, the South-South share almost doubled, from 20.7 percent in 2009 to 41.3 percent in 2018.

Despite the rise in connectedness of the South, the share of active in reported links for North-to-South, South-to-North, and South-to-South investments remained significantly below that among North countries. North-to-North connectedness stood at 90 percent or more across all investment types throughout our sample period (table 5). It is thus not surprising that there was little growth in North-to-North connectedness between 2001 and 2018.

As a result of the increasing connectedness of the South coupled with little room for further expansion in North-to-North links, the South increased its share of the world's international links between 2001 and 2018 (table 6). In 2001, North-to-North active links accounted for 8.7, 16.6, and

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defined as the sum of active and inactive links. We exclude missing observations, because we cannot ascertain whether a link is active or inactive when it is not reported (section 2.2).

<sup>17</sup> It is not clear ex ante whether an improvement in data coverage biases the share of active in total reported links. Better data coverage tends to expand the number of reported active links, thus increasing the share. But if the less connected countries begin to report bilateral positions later in the sample, their inclusion can reduce the share.

18.3 percent of total active links in loans and deposits, portfolio investment, and FDI, respectively. By 2018, these shares had dropped to 6.2, 7.9, and 5.0 percent.

## 4.2. Connectedness Regressions at Three Levels of Granularity

In this section, we estimate panel regressions of the evolution of international links over time to explore more formally whether the growth in connectedness in the South was indeed faster than that in the North. We follow an approach similar to the analysis in subsection 3.3, considering different levels of data aggregation. Specifically, we run the following regression at the R-R and C-R levels:

$$Number\ of\ Links_{i,j,t} = \beta_1 Trend_{i,j,t}^{NN} + \beta_2 Trend_{i,j,t}^{NS} + \beta_3 Trend_{i,j,t}^{SN} + \beta_4 Trend_{i,j,t}^{SS} + \theta_{ij} + \varepsilon_{i,j,t}, \quad (2)$$

where  $i$  and  $j$  indicate the source and destination region or country, respectively, and  $t$  denotes time (year).  $Number\ of\ Links_{i,j,t}$  is the sum of active links (that is, those with a positive value) between region/country  $i$  and region  $j$  in year  $t$ . Once again, the independent variables represent time trends for each regional block. The regressions also include fixed effects,  $\theta_{ij}$ , which vary with the level of data aggregation. The R-R regressions include R-R fixed effects, whereas the C-R regressions include C-R fixed effects. We estimate this specification using Poisson regressions, as is customary with count dependent variables.<sup>18</sup> The main coefficients of interest are the  $\beta$ 's for each trend by block, which estimate the average annual percentage change in the number of active links for each block. We also report the results of two-tailed p-value tests for the differences between the coefficients on these trends across blocks. These tests allow us to assess whether South countries have integrated significantly faster than North countries along the extensive margin.

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<sup>18</sup> For robustness, we also estimated OLS regressions with the log of the number of active links as the dependent variable. These results were similar to the Poisson estimations reported in the paper.



At the C-C level, we run the following regression:

$$\begin{aligned} \text{Active Link}_{ij,t} = & \beta_1 \text{Trend}_{ij,t}^{\text{NN}} + \beta_2 \text{Trend}_{ij,t}^{\text{NS}} + \beta_3 \text{Trend}_{ij,t}^{\text{SN}} + \beta_4 \text{Trend}_{ij,t}^{\text{SS}} + \\ & + \alpha_1 \text{NN}_{ij} + \alpha_2 \text{NS}_{ij} + \alpha_3 \text{SN}_{ij} + \alpha_4 \text{SS}_{ij} + \varepsilon_{ij,t}, \end{aligned} \quad (3)$$

where  $i$  and  $j$  indicate the source and destination country, respectively, and  $t$  denotes time (year). *Active Link* <sub>$ij,t$</sub>  is an indicator variable that equals one if the link between country  $i$  and country  $j$  is active (has a positive value) in year  $t$ , and zero if it is inactive (has a zero reported value); bilateral links with missing values are excluded from the analysis. We use logit regressions. We do not report the  $\beta$  coefficients since they have no direct interpretation in logit models. Instead, we report the average marginal effects (AME), the estimated probability for the first period of the sample (so-called “baseline probability”), and the implied average annual percentage change in the predicted probabilities over the sample period.<sup>19</sup> These regressions include R-R fixed effects, captured through the  $\alpha$  coefficients. We do not include C-C fixed effects because logit regressions with C-C fixed effects would drop all country pairs that remain active or inactive throughout the sample period.<sup>20</sup>

The results show that South connectedness increased faster than North connectedness (table 7). This is observed at all levels of granularity. Connectedness among North countries has been relatively stable across all investment types, with no statistically significant growth from 2001 to 2018, reflecting that North countries were already well-connected among themselves at the beginning of the sample period. In contrast, there was positive growth for North-to-South, South-to-North, and South-to-South links across all types of investment. Moreover, growth was fastest for the South-to-South block, albeit from a low base. For example, the C-C regressions show that the probability of a link between two South countries becoming active for loans and deposits grew on average 1.5 percent per

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<sup>19</sup> To obtain the AME, we calculate the individual marginal effect for each country-pair-year observation and then average these values for all observations within each corresponding block.

<sup>20</sup> For robustness, we also estimated these logit regressions with the standard gravity controls used in the literature, in addition to the R-R fixed effects. This approach yielded results similar to those using only R-R fixed effects.

year over the sample period, in contrast to 0.7 percent for North-to-South and South-to-North and 0 percent for North-to-North.

As in subsection 3.3, we run a robustness test to account for the increased coverage of FDI investments starting in 2009. In particular, we assigned all the growth in links in 2009 to the improvement in coverage by adding a dummy that equals 1 from 2009 onward interacted with R-R dummies to all specifications. The results are qualitatively similar, even if the growth rates are somewhat lower (table 8).

#### **4.3. Financial Integration: Intensive or Extensive Margin?**

We now analyze how much of the growth in international investments is accounted for by preexisting links (intensive margin) as opposed to new links (extensive margin). To do this, we classify as preexisting those links that were active in 2001, and as new links those that had a zero or missing value in 2001 and became active at any point during 2002–18.

The values of new and old links expanded significantly after 2001, especially for South countries (figure 2). But despite the proliferation of new links, their value still accounted for a small fraction of the global total in 2018 (table 9). For example, the total value of new North-to-South, South-to-North, and South-to-South links as a share of world GDP only accounted for 0.8 percent for loans and deposits, 1.3 percent for portfolio investments, and 4.6 percent for FDI in 2018. By contrast, the total value of old links for these three blocks represented 10.2 percent for loans and deposits, 10.8 percent for portfolio investments, and 15.5 percent for FDI. In other words, the growth of the South in international investments can be explained to a large extent by the deepening of their

links with existing partners, rather than the emergence of large and fast-growing investments with new countries.<sup>21</sup>

## 5. Extensions

In this section, we further examine whether the patterns documented so far are a general phenomenon across the South or driven by a subset of South countries. Specifically, we analyze the extent to which China or, alternatively, the richest South countries drive our results. In addition, we evaluate the relative size of OFCs, which have been excluded from the analysis so far, to obtain a more complete picture of the patterns of international investment around the world. Each extension considers a third group of countries, expanding the number of blocks in the analysis from 2x2 to 3x3.

First, the rise of the South is not merely driven by China, which has become a key player in global finance. Whereas China substantially expanded international investment across all types from 2001 to 2018, the overall patterns documented in sections 3 and 4 also hold for the other South countries (table 10, panel A). For example, China's FDI to the North and the rest of the South expanded from 0.1 and 0.6 percent of world GDP, respectively, in 2001 to 0.6 and 2.1 percent in 2018. At the same time, China has become a large recipient of international investment. FDI from the North doubled between 2001 and 2018, increasing from 0.3 to 0.6 percent of world GDP. Despite the growing weight of China in global finance, the rest of the South also grew as a source and destination of international investment, especially vis-à-vis other South countries. For example, FDI within the South (excluding China) increased by 420 percent from 2001 to 2018 (from 0.5 to 2.6 percent of world GDP), outpacing the growth of its FDI to China (up 160 percent) and the North (up 137 percent).

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<sup>21</sup> This result is consistent with earlier findings using a sample of 18 countries for 1980–2005, showing that the international financial network is characterized by a few country pairs with large links and many country pairs with small links (Kubelec and Sa 2012).

FDI from the North to the South (excluding China) grew by about 61 percent, from 4.1 percent of world GDP in 2001 to 6.6 percent in 2018.

Second, the rise of the South in global finance goes beyond the group of “rich South countries.” We define rich South countries as the top-20 South countries with the highest GDP per capita in 2018.<sup>22</sup> Splitting the South into the top-20 richest countries and the rest shows that the South (excluding the top-20 countries) increased its role in international investment during our sample period (table 10, panel B). For example, FDI between South countries (excluding the top-20 countries) increased from 0.1 percent of world GDP in 2001 to 1.4 percent in 2018. Portfolio investment within that block was virtually zero as a share of world GDP in 2001 but reached 0.2 percent by 2018. South countries (excluding the top-20) also started to hold portfolio investment in the top-20 South countries, which went from zero to 0.3 percent during that same period. In addition, the South excluding the top-20 countries became an important receiver of investments. In 2018, the size of international investments from the North was larger for these countries than for the top-20 countries. For example, portfolio investment and FDI from the North to the top-20 South countries stood at 2.9 and 2.6 percent of world GDP, respectively, whereas these investments by the North in other South countries amounted to 3.6 and 4.6 percent, respectively.

Third, we incorporate OFCs as a third group of countries in the analysis. The results show that OFCs account for a smaller share of total investment than the South (table 11). In 2018, the value of investments with OFCs as source and destination represented 15 percent of the global total (summing across bank loans and deposits, portfolio investment, and FDI). In contrast, the South accounted for 32 percent of the global total. Over time, the prominence of OFCs has increased in

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<sup>22</sup> This group of rich South countries and jurisdictions comprises Australia; Bahrain; Brunei Darussalam; the Czech Republic; Estonia; Hong Kong SAR, China; Israel; the Republic of Korea; Kuwait; Lithuania; Malta; New Zealand; Oman; Qatar; Saudi Arabia; Singapore; the Slovak Republic; Slovenia; Taiwan, China; and the United Arab Emirates.

portfolio investment and FDI but declined in international banking.<sup>23</sup> Between 2001 and 2018, the share of global portfolio investment and FDI involving OFCs expanded from 11 to 17 percent and from 6 to 12 percent, respectively. In contrast, the share of global loans and deposits involving OFCs fell from 26 to 15 percent during the same period.

OFCs mostly intermediate international capital flows headed to other countries (Hines, Jr. 2010; Lane and Milesi-Ferretti 2011; Damgaard, Elkjaer, and Johannesen 2019). In that capacity, OFCs have increased their investment positions with the South more than with the North. As a share of world GDP, international investments (loans and deposits, portfolio investment, and FDI) from the South to OFCs increased by 267 percent, whereas investments from the North to OFCs increased by 63 percent. Similarly, investments from OFCs to the South grew by 150 percent, whereas investments from OFCs to the North grew by 6 percent. The greatest contrast appears in loans and deposits between 2001 and 2018. During this period, OFCs expanded loans and deposits in South countries by 75 percent but reduced those in North countries by 57 percent. Similarly, the South increased its loans and deposits in OFCs by 50 percent, whereas North countries decreased theirs by 52 percent.

To the extent that OFCs are intermediaries rather than final destinations, the patterns above indicate that international investments channeled through OFCs and involving the South grew faster than those involving the North. Thus, by excluding OFCs, the main analysis probably underestimates the rise of the South in global finance.<sup>24</sup>

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<sup>23</sup> The large increase in FDI over time could represent transactions in which firms from the South raise capital through their subsidiaries in OFCs and then channel the funds to the home country in the form of intra-company FDI.

<sup>24</sup> The idea that the South has conducted part of its investments through OFC is consistent with some of the findings in the literature. For example, there is evidence that a large share of China's investments in the rest of the South since the early 2000s has been conducted through OFCs (Horn, Reinhart, and Trebesch 2019).

## 6. Conclusions

This paper analyzes the rise of the South in global finance. It combines rich bilateral data sets that jointly offer the broadest coverage in terms of countries, years, and financial instruments. The paper shows that the South's weight in international investments has steadily increased over the past two decades. This trend is shared for South-to-North and North-to-South investments and is even more prominent for South-to-South investments. The rise of the South is evident in the intensive margin (the value of existing links) and the extensive margin (the number of links). Whereas North countries have been connected with other North countries for many years, the South has become much more interconnected during this period.

To confirm that the particular set of countries included in the South is not driving our conclusions, we show that the patterns we identify for the South are robust to excluding China and the 20 richest South countries. In addition, although our baseline results exclude investments to and from OFCs, we document that investments between OFCs and the South grew more than those between OFCs and the North. Including OFCs would therefore strengthen our results on the rise of the South in global finance.

The extensive margin plays a limited role in these developments, as new links – albeit numerous – account for a small share of the value of investments. However, if new links were to expand as much going forward as old links expanded over the past two decades, the South would continue to grow in importance and might eventually rival the North. Although they still accounted for around two-thirds of international investments in 2018, North-to-North investments as a share of the global total already declined by around 10 p.p. across all investment types between 2001 and 2018. Hence, there is room for the South to capture an even larger share of international investments in the years to come.

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## **Appendix: Data Sources and Methodology**

This appendix describes in detail how we constructed the data set for each type of investment. We explain the data sources and assumptions made, including the treatment of missing and zero-valued observations. We aimed for consistent treatment across sources. We also discuss the challenges each data set presents, the rationale behind our decisions, and alternative approaches we tried.

### **A.1. Bank Loans and Deposits**

Cross-border loans and deposits are constructed from the Bank for International Settlements (BIS) locational banking statistics (LBS), the most comprehensive source of information on international banking, available since 1977. The LBS compile assets and liabilities of internationally active banks on a residency basis, in line with the balance of payments statistics (IMF 2009). In 2018, the LBS covered close to 8,000 banks (branches and subsidiaries) in 47 reporting countries comprising North and South countries as well major offshore financial centers, each reporting loans and deposits with more than 200 counterparty countries. The concentrated nature of global banking implies that our data coverage is high in terms of the value of positions, even if only 47 countries and jurisdictions report this information.

Banks report their gross assets and liabilities, along with breakdowns by currency, instrument, and the counterparty countries they lend to and borrow from. The instrument breakdown allows us to isolate the relevant investment type for our analysis: loans and deposits. That is, we strip out bank holdings of debt and equity to avoid double counting them with the portfolio investment already contained in the Coordinated Portfolio Investment Survey (CPIS) (which includes banks' holdings of securities). This ensures that our data sets on loans and deposits and portfolio investment are mutually exclusive, in principle.

We construct loans and deposits by converting all reported LBS data (including restricted and confidential parts) into a bilateral country-to-country format. The LBS data are collected in a format where banks in each reporting country record their loans to and deposits from every counterparty country (all sectors). We transform this bank-to-country format into a country-to-country format by using mirror data available from the reported liabilities (Brei and von Peter 2018). In the latter format, deposits and loans from country  $i$  to country  $j$  need to include all sectors. The claims held by banks on country  $i$  represent bank lending to all sectors (banks and non-banks) in every other country  $j$ . In addition, what non-banks in country  $i$  deposit with banks in country  $j$  also represent claims of country  $i$  on country  $j$  and they can be inferred from liabilities that banks in country  $j$  report owing to non-banks in country  $i$ . These mirror liabilities are reliable: banks know in which country the holders of bank deposits reside (unlike for holders of traded securities). Note that interbank positions appear twice whenever source and destination are both reporting countries. In those instances, we select the larger of two reported values.<sup>25</sup>

The use of mirror data has the benefit of maximizing coverage. Loans and deposits are available whenever the source or destination country reports information (recall the China example in subsection 2.2 in the main text). Despite the enhanced coverage thanks to mirror data, coverage remains incomplete when neither the source nor destination reports to the BIS. Incomplete coverage mainly afflicts the South-to-South block, although it has improved over time as more South countries have begun to report.

The treatment of unreported values in the loans and deposits data set is handled as follows. Bilateral positions between any two non-reporting countries are unobserved and thus treated as

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<sup>25</sup> Taking the maximum value addresses the general issue that incentives and reporting systems make underreporting more prevalent than overreporting. For instance, the set of reporting banks (“internationally active banks”) is generally smaller than that on the counterparty side (“all banks”) and taking the larger value gets closer to the ideal of including all banks on both sides.

missing. By contrast, all bilateral positions of a reporting country (source or destination) are, in principle, observed. Since BIS reporting countries generally itemize every counterparty country on which its banks hold or owe an active (positive) position, any missing observation is most likely a true zero and we code it as such. This procedure could underestimate the number and value of active links for those reporting countries that do not require banks to report the complete breakdown of all counterparty countries when positions are small enough.

Another point concerns the handling of a change in reporting in 2012. Countries historically reported positions expressed in U.S. dollars rounded to the closest million. Thus, positions below US\$0.5 million (a low threshold in the context of country-to-country investment) were reported as zero. When decimal reporting was introduced in the second quarter of 2012, hundreds of links below US\$0.5 million started to be reported as positive, leading to an artificial jump in the number of active links in 2012. Although this jump does not affect our analysis of the intensive margin (because the value of these links is so small), it could bias the analysis of the extensive margin. We offset this break in the series by setting all links below US\$0.5 million to zero. This ensures that all reported loans and deposits are subject to a constant reporting threshold throughout the sample period.

## **A.2. Portfolio Investment**

For portfolio investment, we rely on the CPIS database from the International Monetary Fund (IMF). The CPIS is a voluntary data collection exercise that assembles data on countries' international holdings of equities and long-term and short-term debt securities. Countries report data on: (i) their holdings of portfolio investment assets issued by residents in other countries, and (ii) their portfolio investment liabilities issued by domestic residents and held by residents in other countries. No aggregation is needed because the data are already reported at the country level (all sectors). We determine the value of investment to be equal to the value of assets reported by the source country.

We disregard the value of liabilities reported by the destination country because it is often missing, as issuers of tradable instruments typically do not know the location of the holders of these instruments.

In the CPIS database, countries report missing values and zeros. According to the CPIS guidelines, missing values correspond to data that are not available or were suppressed by the reporting country to preserve confidentiality. Because we do not have enough information to assess if the distinction between zeros and missing values is used consistently across reporting countries, we make no assumptions and treat these observations as missing values. One exception is a jump in the number of reported zeros in 2004 and 2005 compared with 2003 and 2006.<sup>26</sup> Most of the zero values in 2004 and 2005 correspond to country pairs for which there are missing observations before and after. We assume that if a country reports missing values for 2003 and 2006, the values for 2004 and 2005 are also missing. Hence, we replace the zero-valued observations in 2004 and 2005 with missing values for the country pairs for which the values for 2003 and 2006 are both missing.

### **A.3. Foreign Direct Investment**

The foreign direct investment (FDI) data come from the IMF's Coordinated Direct Investment Survey (CDIS) and the United Nations Conference on Trade and Development's (UNCTAD's) Bilateral FDI Statistics. Similar to the IMF's CPIS, the CDIS is a voluntary data collection exercise that assembles data on countries' direct investment positions. UNCTAD's Bilateral FDI Statistics provides FDI data collected primarily from national sources and supplemented with data from other international organizations and mirror data (from partner countries). We combine data from both databases because they cover different periods: the UNCTAD data span 2001–12, whereas the CDIS data cover 2009–18. By combining data from both sources, we obtain FDI data covering the entire 2001–18 period.

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<sup>26</sup> The jump takes the following form. There are 4,511 reported zeros (54 percent of non-missing reported observations) in 2003, 6,364 (60 percent) in 2004, 11,590 (72 percent) in 2005, and 4,808 (49 percent) in 2006.

We use mirror data for FDI in the same way as for bank loans and deposits. CDIS and UNCTAD report two values for FDI for a given country pair: (i) the value of FDI assets country  $i$  holds in country  $j$ , and (ii) the value of FDI liabilities country  $j$  owes to country  $i$ . Hence, FDI positions appear twice in each database whenever source and destination are both reporting countries (as FDI assets of country  $i$  in country  $j$  and as liabilities of country  $j$  with respect to country  $i$ ). To maximize data coverage, we use the mirror data for each database separately. Whenever the value of FDI assets (liabilities) of country  $i$  vis-à-vis country  $j$  is available but its mirror value obtained from liabilities (assets) data is not, we use the value of assets (liabilities). Whenever both assets and liabilities are available and the corresponding values do not coincide, we use the maximum of the two. This methodology yields aggregate FDI assets, for the CDIS and the UNCTAD data, that are closer to the values reported in Lane and Milesi-Ferretti (2018).<sup>27</sup>

Combining the two databases is not straightforward because each source can report different FDI values for the same bilateral connection, starting from different baseline values. We deal with these differences by adjusting the UNCTAD data so that they match the CDIS data when both are available. Specifically, we calculate the ratio of the CDIS's FDI value to the UNCTAD's FDI value for each country pair for 2009–12 (for the earliest year with data on both data sets).<sup>28</sup> We then use this ratio to multiply the UNCTAD data backward for 2001–08, bringing it to the same level as the CDIS data. For 2009–12, when the CDIS and UNCTAD data are available, we use the CDIS data when the value for a given bilateral link for a given year is positive or when the CDIS value is zero and the

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<sup>27</sup> As a robustness check, we analyzed alternative methodologies: using only the data on assets, using primarily the data on assets and filling in the missing values with the data on liabilities if available, and using primarily data on assets and filling in the missing values by assuming that those assets in missing years grew at the same rate as liabilities (when this growth rate was available). The regression estimates using these alternative criteria were quantitatively similar to the ones we report using the maximum between assets and liabilities.

<sup>28</sup> To calculate the ratio, we need the IMF and UNCTAD data for at least one year during 2009–12 for each country pair in the databases. If this is unavailable, the UNCTAD data are not leveled up and the FDI values not covered by the CDIS data are coded as missing observations.

UNCTAD value is missing; otherwise, we use the UNCTAD data.<sup>29</sup> This approach of rescaling the UNCTAD data to the CDIS data results in aggregate values that are consistent over time and similar to the country-level aggregates reported in Lane and Milesi-Ferretti (2018).

The treatment of zeros and missing values in the combined CDIS-UNCTAD data set deserves some attention because countries are more likely to report zeros in the CDIS data than in the UNCTAD data.<sup>30</sup> Hence, it is likely that many missing observations in the UNCTAD data are actually true zero-valued observations, rather than missing values. In addition, the procedure of combining the two data sets yields some missing observations, even when data are actually available. Specifically, if for any country pair the CDIS and UNCTAD data do not overlap, we cannot calculate the ratio of the two series and thus cannot rescale the UNCTAD series to CDIS levels. Hence, in these instances, even if the UNCTAD data are available for 2001–08, our data set will have missing values for those years. These two features of the data result in a combined data set containing relatively more zeros from 2012 onward, as some true zeros appear as missing observations during 2001–08. To minimize this underreporting of zero-valued observations, we assume that if the first non-missing observation for a country pair is a zero, then all previous observations are also zero.<sup>31</sup>

#### **A.4. International Reserves**

Unlike for the other investment types, holdings of international reserves are unavailable at the country-to-country level. Instead, we construct a country-to-region data set on international reserves by

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<sup>29</sup> We also considered an alternative methodology: start with the CDIS data and fill in backward the values for 2001–08 using the growth rates implied by the UNCTAD data. This approach yielded quantitatively similar results to the ones reported in the paper.

<sup>30</sup> In the CDIS data, observations with zero value represent 12 percent of all observations, whereas they represent only 4 percent in the UNCTAD data.

<sup>31</sup> For robustness, we considered two other approaches for country pairs that only have zero values in the sample. We alternatively replaced the missing values in 2001–08 (2001–18) with zeros. We obtained quantitatively similar results when using these alternative approaches.

combining the IMF's International Financial Statistics (IFS) data with information from the IMF's Currency Composition of Official Foreign Exchange Reserves (COFER) database.

The IFS data on total holdings of international reserves (excluding gold) are available annually at the country level, without a breakdown across counterparty countries. The COFER database contains the currency breakdown of international reserves held in aggregate by advanced and emerging regions for 2001–14.<sup>32</sup> We use the COFER database to calculate the share of international reserves that North and South countries allocate in North and South currencies each year, assuming that this allocation in global currencies holds uniformly across countries within each region. That is, we assume that each country in the North (South) holds international reserves in North and South currencies in the same proportion as the region as a whole.

Using this methodology, we can construct country-to-region but not country-to-country data. For example, the data reveal the amount of international reserves that countries hold in euros, but not the amount of reserves held in assets of each euro area country. Similarly, COFER includes the share of international reserves in other currencies. We understand that this share corresponds to South currencies, but we cannot assign it to specific countries in this region.

The yearly value of international reserves that each country holds in the North and South results from multiplying the country-level IFS data by the corresponding share of international reserves in North and South currencies for each source country.<sup>33</sup> Implicit in these calculations is the assumption that holding reserves in a North (South) currency is equivalent to holding reserves in a North (South) country. For example, for a North country the value of international reserves held in

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<sup>32</sup> The IMF's advanced and emerging regions are not identical to our definitions of North and South, but we explain below how we harmonize the two.

<sup>33</sup> Because the IMF does not publish the currency breakdown for 2015–18 for confidentiality reasons, we carry forward the 2014 shares instead.

the South in a given year is calculated by multiplying the total value of its international reserve assets in that year by the share that advanced countries allocate to South currencies in that same year.

One consideration in constructing this country-to-region data set for international reserves relates to the classification of countries, as the IMF uses advanced and emerging regions in the COFER database that do not exactly match our definitions of North and South. Advanced economies include several high-income economies that we consider in our analysis to be part of the South (such as Australia; the Czech Republic; Hong Kong SAR, China; and Singapore). This would tend to underestimate investments in the South because countries investing in advanced economies could, in fact, be investing in currencies associated with the South in our classification.

Another consideration relates to the currency classification in COFER. In addition to the well-known currencies, the data include “unallocated reserves” and “other currencies.”<sup>34</sup> We assume that “unallocated reserves” are allocated across currencies in the same proportion as the “allocated reserves.” We also assume that international reserves held in “other currencies” are held entirely in South currencies. This last assumption is based on the results of the “Survey on the Holdings of Currencies in Official Foreign Currency Assets” conducted by the IMF in 2015. This survey collected year-end data for 2013 and 2014 for 130 countries and provided a more detailed breakdown of the currency allocation of international reserves than COFER. The shares of the world’s international reserves that were unambiguously allocated to South currencies were 3.3 and 3.6 percent in 2013 and 2014, respectively. These estimates provide a lower bound on the allocation of international reserves in South currencies, since the currency breakdown in the survey did not include all South currencies. We match these survey allocations more precisely when allocating “other currencies” entirely to the South (yielding allocations to South currencies of 4.7 and 4.4 percent in 2013 and 2014, respectively)

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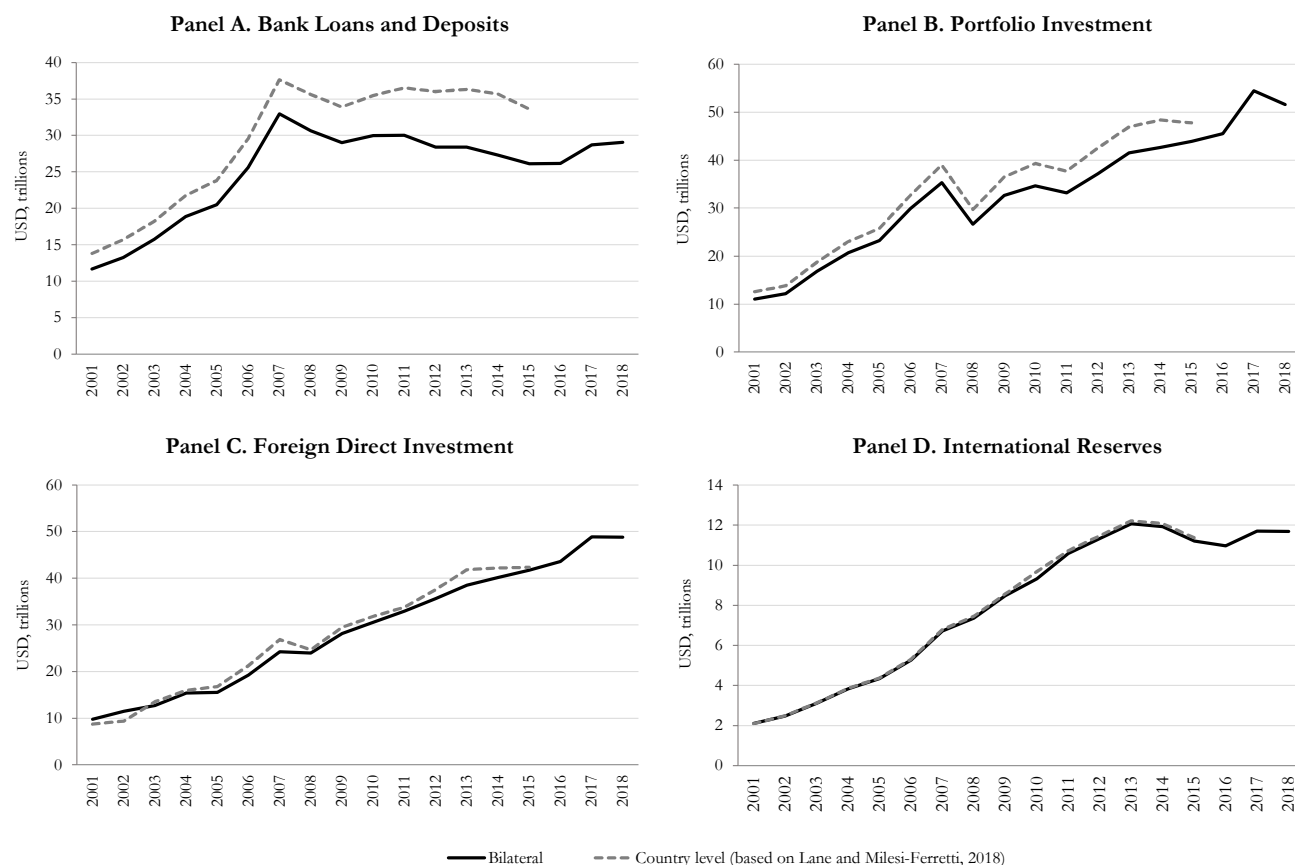
<sup>34</sup> The COFER data identify the following currencies from North countries: Canadian dollar (from 2012), euro, Japanese yen, pound sterling, Swiss franc, and U.S. dollar. From South countries, the data only distinguish Australian dollars (from 2012 onward) and Chinese renminbi (from 2016 onward).



than when allocating them entirely to the North (yielding 1 and 0.9 percent, respectively) or when using a proportional criterion based on the currency breakdown of allocated reserves (yielding 1.8 and 1.6 percent, respectively).

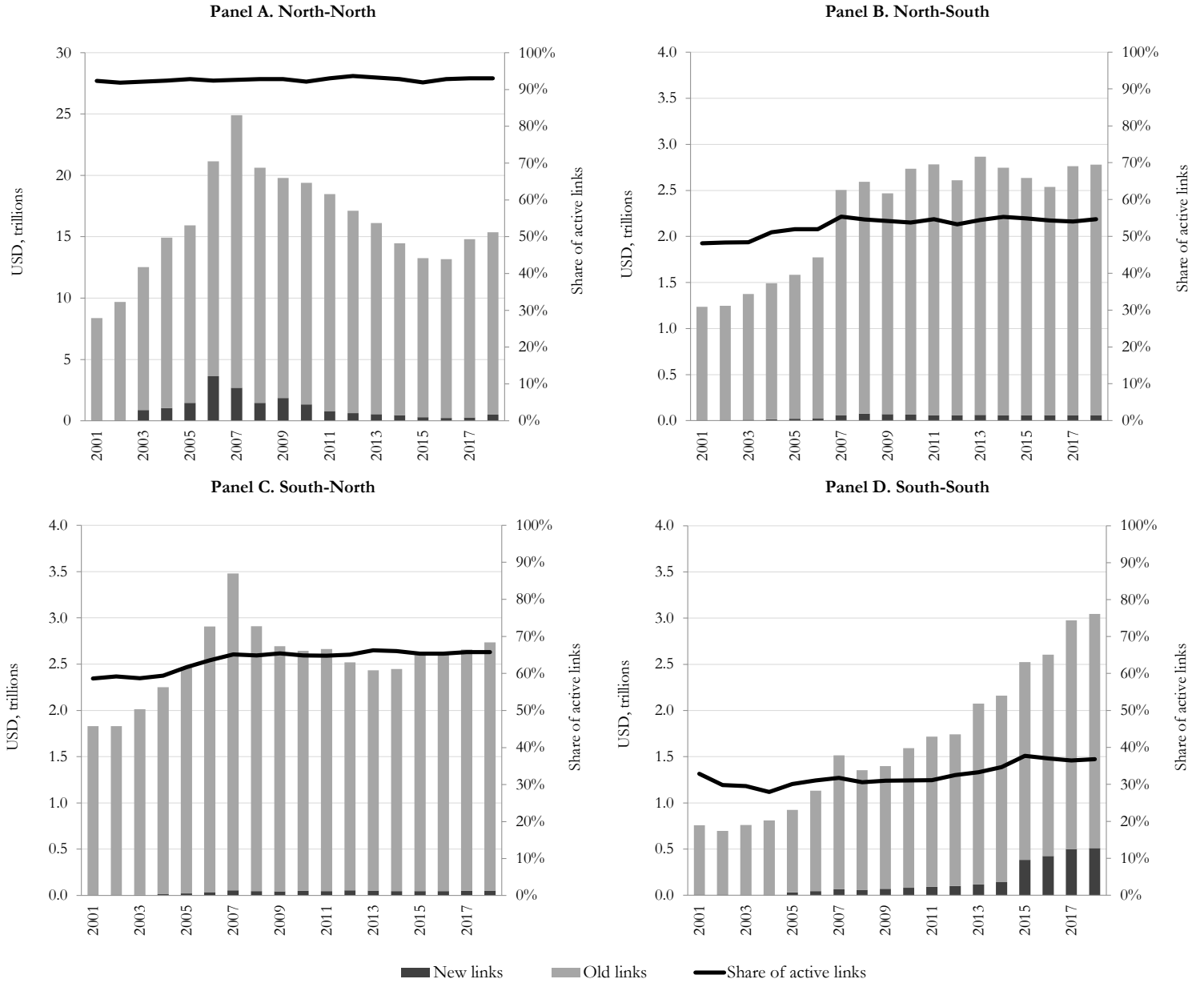
We do not make any assumptions regarding missing values or zero-valued observations. As in the case of portfolio investment, we have no evidence on whether missing values are indeed missing or true zeros. Hence, we use the raw information provided in the databases.

**Figure 1. World International Investment Positions: Bilateral vs. Country-Level Data**



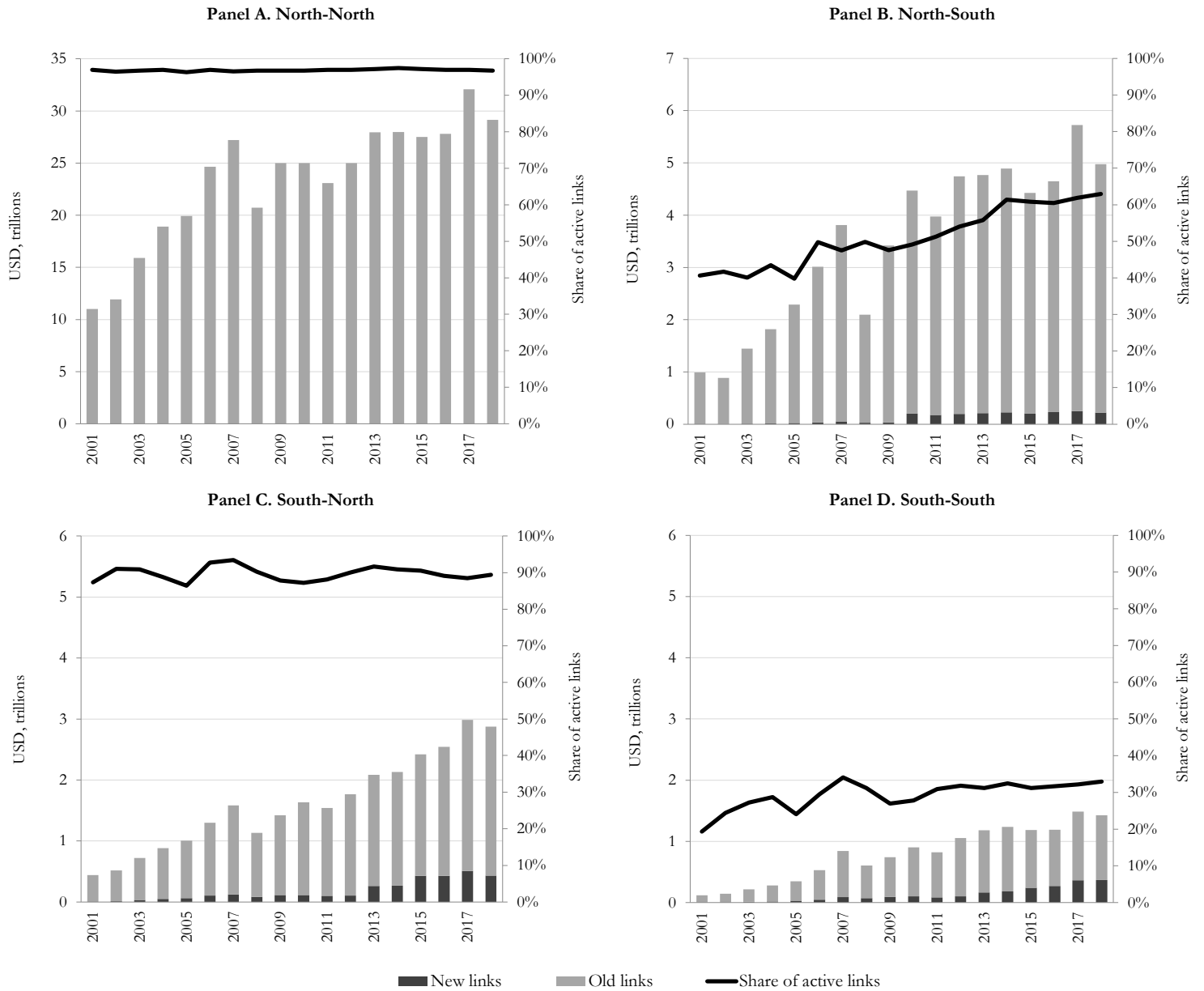
Note: This figure compares year-end values of world international investment positions for the bilateral data constructed in the paper and the country-level data constructed by Lane and Milesi-Ferretti (2018). Bilateral data are at the country-pair level and we obtain country-level data by aggregating values for each source country to all destination countries per year. For each year, we keep countries that appear in both samples and aggregate data across all countries. For comparison purposes, we include offshore financial centers (OFCs). For the rest of our analysis, we exclude these countries unless otherwise noted. Because Lane and Milesi-Ferretti's data are not available for 2016-18, for those years we only show the value for our data using the same sample of countries in 2015. Values are in trillions of 2011 U.S. dollars (USD).

**Figure 2.A. Evolution of International Investment Positions and Share of Active Links:  
Bank Loans and Deposits**



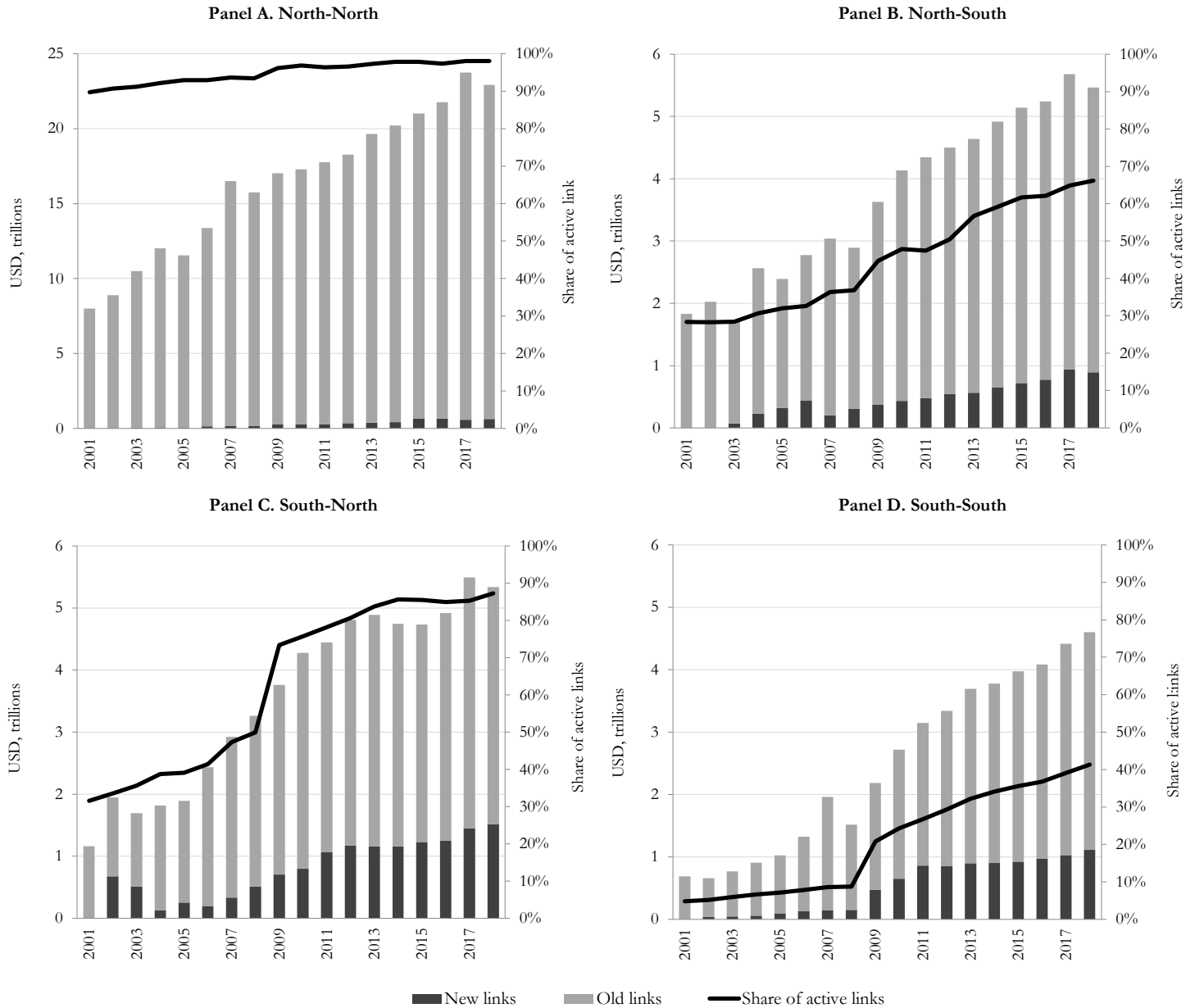
Note: This figure shows the trends in the value of international investment positions and share of active links by block for bank loans and deposits. The value of positions distinguishes old and new links. Old links are those that have a positive value in 2001. New links are those that have a zero or missing value in 2001. By definition, there are no new links in 2001. Values are expressed in trillions of 2011 U.S. dollars (USD). The share of active links is the number of country pairs that have a positive value in each year over the number of country pairs with a positive or zero value in the same year. Country pairs with a missing value are not considered. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.

**Figure 2.B. Evolution of International Investment Positions and Share of Active Links:  
Portfolio Investment**



Note: This figure shows the trends in the value of international investment positions and share of active links by block for portfolio investment. The value of positions distinguishes old and new links. Old links are those that have a positive value in 2001. New links are those that have a zero or missing value in 2001. By definition, there are no new links in 2001. Values are expressed in trillions of 2011 U.S. dollars (USD). The share of active links is the number of country pairs that have a positive value in each year over the number of country pairs with a positive or zero value in the same year. Country pairs with a missing value are not considered. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.

**Figure 2.C. Evolution of International Investment Positions and Share of Active Links:  
Foreign Direct Investment**

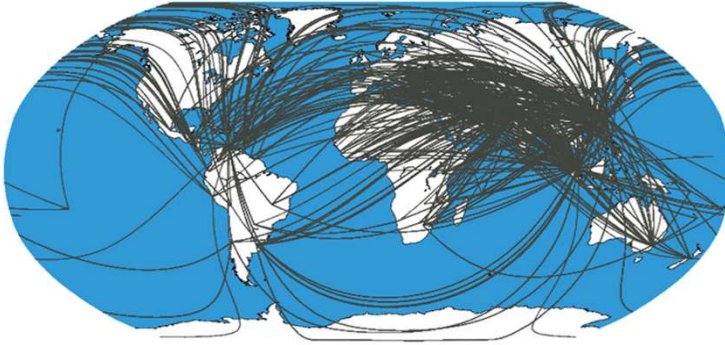


Note: This figure shows the trends in the value of international investment positions and share of active links by block for foreign direct investment (FDI). The value of positions distinguishes old and new links. Old links are those that have a positive value in 2001. New links are those that have a zero or missing value in 2001. By definition, there are no new links in 2001. Values are expressed in trillions of 2011 U.S. dollars (USD). The share of active links is the number of country pairs that have a positive value in each year over the number of country pairs with a positive or zero value in the same year. Country pairs with a missing value are not considered. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.

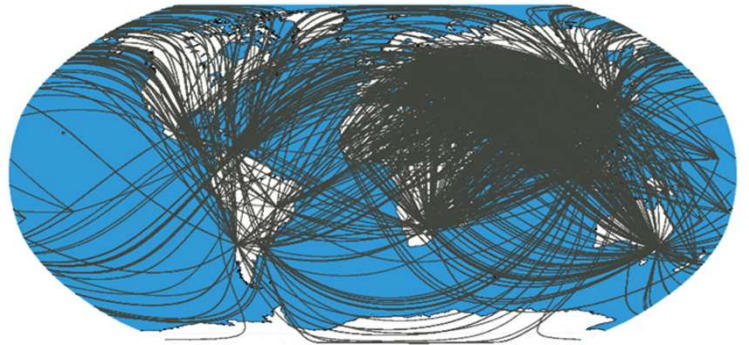
## Map 1. South-South Links

Panel A. Bank Loans and Deposits

2001

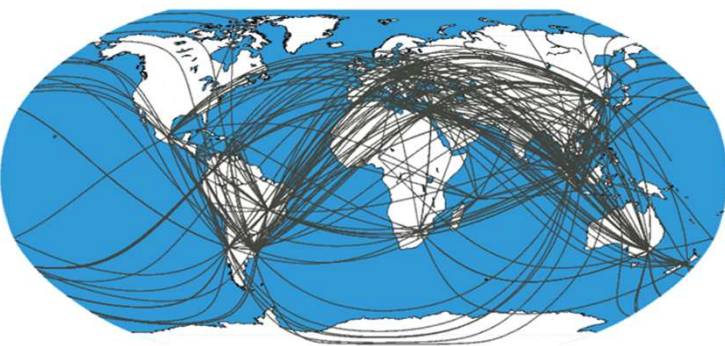


2018

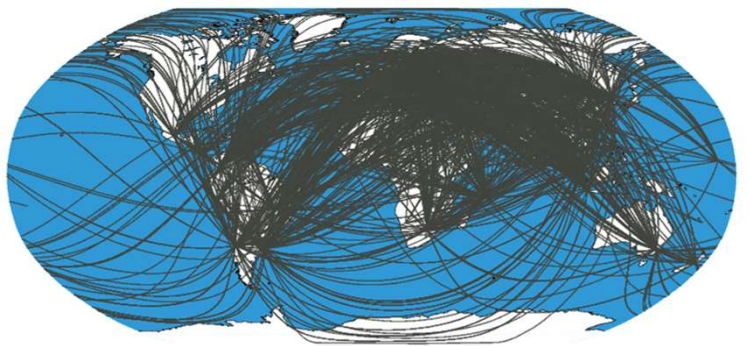


Panel B. Portfolio Investment

2001

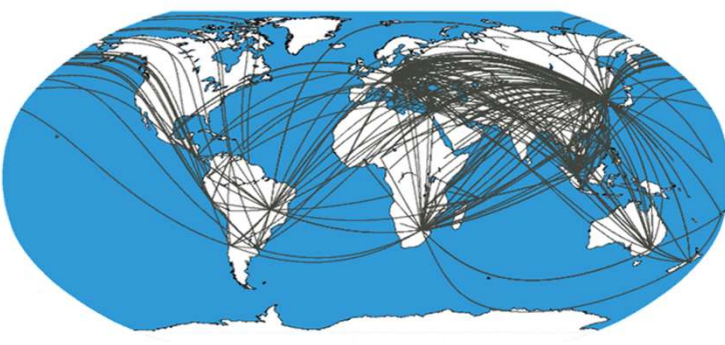


2018

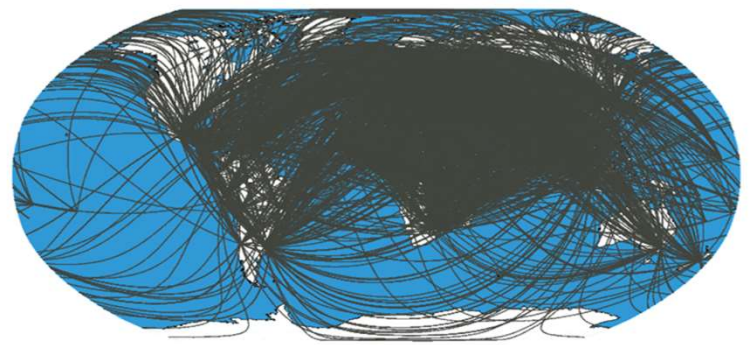


Panel C. Foreign Direct Investment

2001



2018



Note: The maps show the year-end active links between South countries. Every line in each map represents an active link, that is, a country pair that has a positive value.

**Table 1. International Investment Position/World GDP**

<b>Panel A: Bank Loans and Deposits</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	19.8%	35.5%	29.0%	19.0%
North	South	2.9%	4.0%	3.9%	3.6%
South	North	4.3%	5.6%	4.4%	3.5%
South	South	1.8%	2.4%	2.0%	3.9%
Total		28.9%	47.4%	39.3%	30.0%
<b>Panel B: Portfolio Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	26.0%	43.4%	31.2%	38.0%
North	South	2.3%	6.1%	3.2%	6.5%
South	North	1.0%	2.5%	1.7%	3.7%
South	South	0.3%	1.3%	0.9%	1.9%
Total		29.7%	53.3%	37.0%	50.1%
<b>Panel C: Foreign Direct Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	18.9%	26.3%	23.7%	29.9%
North	South	4.3%	4.8%	4.4%	7.1%
South	North	2.7%	4.7%	4.9%	7.0%
South	South	1.6%	3.1%	2.3%	6.0%
Total		27.6%	38.9%	35.3%	50.0%
<b>Panel D: International Reserves</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	2.4%	2.5%	2.3%	3.2%
North	South	0.03%	0.06%	0.06%	0.1%
South	North	3.8%	9.0%	9.1%	10.0%
South	South	0.04%	0.1%	0.1%	0.5%
Total		6.4%	11.7%	11.7%	13.8%

Note: This table shows, for each block, the year-end value of international investment positions scaled by world gross domestic product (GDP). Bilateral data are aggregated for all countries within a source region to all countries within a destination region. For each investment type and year, world GDP includes the GDP of destination countries for which we have data for that year (all source countries with data for a given year also have data as destination countries). Within each panel and year, world GDP is the same across blocks. Values in the "Total" rows are the sum across blocks per year.

**Table 2. Regional Share of International Investment Positions**

<b>Panel A: Bank Loans and Deposits</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	68.6%	74.8%	73.7%	63.5%
North	South	10.1%	8.4%	10.0%	11.9%
South	North	15.0%	11.7%	11.2%	11.7%
South	South	6.2%	5.1%	5.2%	13.0%

<b>Panel B: Portfolio Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	87.7%	81.4%	84.4%	75.9%
North	South	7.9%	11.4%	8.5%	13.0%
South	North	3.5%	4.7%	4.6%	7.5%
South	South	0.9%	2.5%	2.5%	3.7%

<b>Panel C: Foreign Direct Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	68.5%	67.6%	67.2%	59.8%
North	South	15.7%	12.5%	12.3%	14.3%
South	North	9.9%	12.0%	13.9%	13.9%
South	South	5.9%	8.0%	6.5%	12.0%

<b>Panel D: International Reserves</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	38.4%	21.3%	20.0%	23.3%
North	South	0.5%	0.5%	0.6%	1.0%
South	North	60.4%	77.1%	78.2%	72.2%
South	South	0.7%	1.0%	1.3%	3.4%

Note: This table shows, for each block, the year-end share of international investment positions. For each investment type, the sum of North-to-North, North-to-South, South-to-North, and South-to-South shares in a given year is 100 percent. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.



**Table 3. Growth in the Value of International Investment Positions**

Panel A: Bank Loans and Deposits						
Level of Data Aggregation	Region-Region	Country-Region		Country-Country		
Estimation Method	OLS	OLS	PPML	OLS	PPML	
Dependent Variable	Log(Value)	Log(Value)	Value	Log(Value)	Value	Value
North-to-North Trend	0.014 (0.012)	0.014 ** (0.006)	0.010 ** (0.004)	-0.006 (0.004)	0.009 ** (0.005)	0.010 ** (0.005)
North-to-South Trend	0.050 *** (0.007)	0.043 *** (0.006)	0.044 *** (0.004)	0.028 *** (0.003)	0.043 *** (0.004)	0.044 *** (0.004)
South-to-North Trend	0.015 ** (0.006)	0.020 *** (0.005)	0.012 ** (0.006)	0.001 (0.002)	0.011 ** (0.005)	0.012 ** (0.005)
South-to-South Trend	0.090 *** (0.003)	0.141 *** (0.007)	0.088 *** (0.012)	0.061 *** (0.004)	0.053 *** (0.012)	0.079 *** (0.013)
<b>Wald Tests on Trend Coefficients:</b>						
1. South-to-South = North-to-North	0.076 ***	0.127 ***	0.079 ***	0.067 ***	0.044 ***	0.069 ***
2. South Destination = North Destination	0.056 ***	0.075 ***	0.055 ***	0.047 ***	0.038 ***	0.051 ***
3. South Source = North Source	0.020 **	0.052 ***	0.023 ***	0.020 ***	0.006	0.019 **
<b>Fixed Effects</b>	R-R	C-R	C-R	C-C	R-R	C-C
<b>Number of Observations</b>	72	13,215	13,878	107,405	200,576	148,117

Panel B: Portfolio Investment						
Level of Data Aggregation	Region-Region	Country-Region		Country-Country		
Estimation Method	OLS	OLS	PPML	OLS	PPML	
Dependent Variable	Log(Value)	Log(Value)	Value	Log(Value)	Value	Value
North-to-North Trend	0.048 *** (0.009)	0.044 *** (0.006)	0.042 *** (0.004)	0.031 *** (0.004)	0.043 *** (0.003)	0.042 *** (0.003)
North-to-South Trend	0.097 *** (0.013)	0.163 *** (0.012)	0.078 *** (0.003)	0.126 *** (0.004)	0.079 *** (0.003)	0.076 *** (0.003)
South-to-North Trend	0.100 *** (0.008)	0.100 *** (0.010)	0.086 *** (0.008)	0.104 *** (0.007)	0.061 *** (0.008)	0.085 *** (0.007)
South-to-South Trend	0.139 *** (0.015)	0.164 *** (0.011)	0.103 *** (0.008)	0.119 *** (0.006)	0.046 *** (0.013)	0.097 *** (0.012)
<b>Wald Tests on Trend Coefficients:</b>						
1. South-to-South = North-to-North	0.091 ***	0.120 ***	0.061 ***	0.088 ***	0.004	0.055 ***
2. South Destination = North Destination	0.044 ***	0.092 ***	0.027 ***	0.055 ***	0.011	0.023 ***
3. South Source = North Source	0.047 ***	0.029 ***	0.034 ***	0.033 ***	-0.007	0.032 ***
<b>Fixed Effects</b>	R-R	C-R	C-R	C-C	R-R	C-C
<b>Number of Observations</b>	72	8,466	9,815	71,614	153,930	95,591

(cont.)

**Table 3. Growth in the Value of Cross-border Investment Positions (cont.)**

<b>Panel C: Foreign Direct Investment</b>						
<b>Level of Data Aggregation</b>	<b>Region-Region</b>	<b>Country-Region</b>		<b>Country-Country</b>		
<b>Estimation Method</b>	<b>OLS</b>	<b>OLS</b>	<b>PPML</b>	<b>OLS</b>	<b>PPML</b>	
<b>Dependent Variable</b>	<b>Log(Value)</b>	<b>Log(Value)</b>	<b>Value</b>	<b>Log(Value)</b>	<b>Value</b>	<b>Value</b>
North-to-North Trend	0.059 *** (0.005)	0.053 *** (0.006)	0.055 *** (0.006)	0.066 *** (0.005)	0.054 *** (0.006)	0.055 *** (0.006)
North-to-South Trend	0.072 *** (0.005)	0.113 *** (0.008)	0.068 *** (0.006)	0.094 *** (0.005)	0.068 *** (0.010)	0.064 *** (0.009)
South-to-North Trend	0.083 *** (0.008)	0.143 *** (0.013)	0.074 *** (0.006)	0.103 *** (0.006)	0.036 *** (0.009)	0.065 *** (0.009)
South-to-South Trend	0.126 *** (0.008)	0.251 *** (0.012)	0.112 *** (0.005)	0.138 *** (0.004)	0.120 *** (0.008)	0.099 *** (0.006)
<b>Wald Tests on Trend Coefficients:</b>						
1. South-to-South = North-to-North	0.068 ***	0.198 ***	0.058 ***	0.073 ***	0.065 ***	0.044 ***
2. South Destination = North Destination	0.028 ***	0.084 ***	0.025 ***	0.031 ***	0.049 ***	0.022 ***
3. South Source = North Source	0.039 ***	0.114 ***	0.032 ***	0.041 ***	0.017 **	0.023 ***
<b>Fixed Effects</b>	R-R	C-R	C-R	C-C	R-R	C-C
<b>Number of Observations</b>	72	9,934	11,637	86,410	288,579	125,180

<b>Panel D: International Reserves</b>			
<b>Level of Data Aggregation</b>	<b>Region-Region</b>	<b>Country-Region</b>	
<b>Estimation Method</b>	<b>OLS</b>	<b>OLS</b>	<b>PPML</b>
<b>Dependent Variable</b>	<b>Log(Value)</b>	<b>Log(Value)</b>	<b>Value</b>
North-to-North Trend	0.050 *** (0.004)	0.036 *** (0.012)	0.047 ** (0.020)
North-to-South Trend	0.121 *** (0.011)	0.108 *** (0.012)	0.104 *** (0.019)
South-to-North Trend	0.092 *** (0.014)	0.073 *** (0.006)	0.073 *** (0.008)
South-to-South Trend	0.198 *** (0.021)	0.179 *** (0.006)	0.135 *** (0.004)
<b>Wald Tests on Trend Coefficients:</b>			
1. South-to-South = North-to-North	0.148 ***	0.143 ***	0.087 ***
2. South Destination = North Destination	0.089 ***	0.089 ***	0.059 ***
3. South Source = North Source	0.059 ***	0.054 ***	0.028 *
<b>Fixed Effects</b>	R-R	C-R	C-R
<b>Number of Observations</b>	72	5,952	5,952

Note: This table shows the trends in the value of international investment positions for 2001-18. The estimation methods are ordinary least squares (OLS) and Poisson pseudo maximum likelihood (PPML). There are three levels of data aggregation: region-to-region (R-R), country-to-region (C-R), and country-to-country (C-C). Regressions include R-R, C-R, or C-C fixed effects. For the C-R and C-C regressions, standard errors are clustered by C-R and C-C pairs, respectively. \*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1% level, respectively.

**Table 4. Foreign Direct Investment - Growth in the Value of International Investment Positions: Robustness**

Level of Data Aggregation	Region-Region	Country-Region		Country-Country		
Estimation Method	OLS	OLS	PPML	OLS	PPML	
Dependent Variable	Log(Value)	Log(Value)	Value	Log(Value)	Value	Value
North-to-North Trend	0.060 *** (0.011)	0.054 *** (0.005)	0.053 *** (0.004)	0.062 *** (0.005)	0.054 *** (0.005)	0.053 *** (0.005)
North-to-South Trend	0.056 *** (0.007)	0.090 *** (0.012)	0.050 *** (0.006)	0.067 *** (0.005)	0.053 *** (0.009)	0.049 *** (0.008)
South-to-North Trend	0.061 *** (0.017)	0.078 *** (0.012)	0.048 *** (0.007)	0.079 *** (0.006)	0.044 *** (0.008)	0.047 *** (0.008)
South-to-South Trend	0.099 *** (0.014)	0.141 *** (0.009)	0.081 *** (0.003)	0.125 *** (0.005)	0.100 *** (0.004)	0.079 *** (0.004)
<b>Wald Tests on Trend Coefficients:</b>						
1. South-to-South = North-to-North	0.039 **	0.087 ***	0.027 ***	0.062 ***	0.047 ***	0.027 ***
2. South Destination = North Destination	0.017	0.050 ***	0.015 ***	0.025 ***	0.028 ***	0.014 **
3. South Source = North Source	0.022 *	0.037 ***	0.013 **	0.037 ***	0.019 ***	0.012 **
<b>Fixed Effects</b>	R-R	C-R	C-R	C-C	R-R	C-C
<b>R-R Fixed Effects x Post-2008 Dummy</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Number of Observations</b>	72	9,934	11,637	86,410	288,579	125,180

Note: This table shows the trends in the value of foreign direct investment (FDI) positions for 2001-18. The estimation methods are ordinary least squares (OLS) and Poisson pseudo maximum likelihood (PPML). There are three levels of data aggregation: region-to-region (R-R), country-to-region (C-R), and country-to-country (C-C). The regressions include R-R, C-R, or C-C fixed effects. Regressions also include the interaction between R-R dummies and a dummy that equals 1 after 2008. For the C-R and the C-C regressions, standard errors are clustered by C-R and C-C pairs, respectively. \*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1% level, respectively.

**Table 5. Share of Active Links**

<b>Panel A: Bank Loans and Deposits</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	92.3%	92.6%	92.8%	93.0%
North	South	48.1%	55.4%	54.6%	54.6%
South	North	58.7%	65.2%	64.9%	65.8%
South	South	32.9%	31.8%	30.5%	36.8%

<b>Panel B: Portfolio Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	97.0%	96.6%	96.8%	96.8%
North	South	40.7%	47.5%	49.8%	62.9%
South	North	87.3%	93.4%	90.3%	89.4%
South	South	19.3%	34.1%	31.2%	32.9%

<b>Panel C: Foreign Direct Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	89.7%	93.6%	93.4%	98.1%
North	South	28.4%	36.3%	36.8%	66.2%
South	North	31.5%	47.3%	49.9%	87.3%
South	South	4.8%	8.6%	8.8%	41.3%

Note: This table shows, for each block, the year-end share of active links in all reported links. Active links refer to country pairs that have a positive value. All reported links refer to country pairs that have a positive or zero value. Country pairs with a missing value are not considered. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.

**Table 6. Regional Share of Active Links**

<b>Panel A: Bank Loans and Deposits</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	8.7%	7.1%	7.3%	6.2%
North	South	32.9%	32.2%	32.2%	27.6%
South	North	40.1%	37.9%	38.3%	33.2%
South	South	18.3%	22.8%	22.3%	32.9%

<b>Panel B: Portfolio Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	16.6%	11.3%	11.6%	7.9%
North	South	44.5%	42.0%	41.5%	36.3%
South	North	19.6%	18.4%	18.8%	16.8%
South	South	19.3%	28.2%	28.1%	39.0%

<b>Panel C: Foreign Direct Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	18.3%	13.5%	13.2%	5.0%
North	South	38.3%	34.7%	34.5%	23.0%
South	North	15.7%	16.8%	17.4%	17.5%
South	South	27.7%	35.0%	35.0%	54.5%

Note: This table shows, for each block, the year-end share of active links in total active links per investment type. For each investment type, the sum of North-to-North, North-to-South, South-to-North, and South-to-South shares in a given year is 100 percent. Active links refer to country pairs that have a positive value. Country pairs with a missing value are not considered. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.

Table 7. Growth in Active Links

Panel A: Bank Loans and Deposits					
Level of Data Aggregation	Region-Region	Country-Region	Country-Country		
Estimation Method [Dep. Variable]	Poisson [No. Links]	Poisson [No. Links]	Logit [Dummy=1 if Non-zero Link]		
			Marginal Effect	Baseline Probability	Probability Growth
North-to-North Trend	0.001 (0.002)	0.001 * (0.000)	0.000 (0.000)	92%	0.0%
North-to-South Trend	0.009 *** (0.001)	0.009 *** (0.001)	0.004 *** (0.000)	50%	0.7%
South-to-North Trend	0.009 *** (0.001)	0.009 *** (0.002)	0.004 *** (0.000)	60%	0.7%
South-to-South Trend	0.054 *** (0.001)	0.054 *** (0.006)	0.005 *** (0.000)	28%	1.5%
<b>Wald Tests on Trend Coefficients:</b>					
1. South-to-South = North-to-North	0.053 ***	0.053 ***			
2. South Destination = North Destination	0.026 ***	0.026 ***			
3. South Source = North Source	0.026 ***	0.026 ***			
<b>Fixed Effects</b>	R-R	C-R	R-R		
<b>Number of Observations</b>	72	13,968	215,216		

Panel B: Portfolio Investment					
Level of Data Aggregation	Region-Region	Country-Region	Country-Country		
Estimation Method [Dep. Variable]	Poisson [No. Links]	Poisson [No. Links]	Logit [Dummy=1 if Non-zero Link]		
			Marginal Effect	Baseline Probability	Probability Growth
North-to-North Trend	0.000 (0.002)	0.000 (0.000)	0.000 (0.000)	97%	0.0%
North-to-South Trend	0.030 *** (0.001)	0.030 *** (0.003)	0.015 *** (0.001)	39%	3.0%
South-to-North Trend	0.032 *** (0.002)	0.020 *** (0.002)	0.000 (0.001)	90%	0.0%
South-to-South Trend	0.081 *** (0.001)	0.069 *** (0.003)	0.005 *** (0.001)	25%	1.7%
<b>Wald Tests on Trend Coefficients:</b>					
1. South-to-South = North-to-North	0.081 ***	0.069 ***			
2. South Destination = North Destination	0.040 ***	0.039 ***			
3. South Source = North Source	0.041 ***	0.030 ***			
<b>Fixed Effects</b>	R-R	C-R	R-R		
<b>Number of Observations</b>	72	9,979	154,014		

Panel C: Foreign Direct Investment					
Level of Data Aggregation	Region-Region	Country-Region	Country-Country		
Estimation Method [Dep. Variable]	Poisson [No. Links]	Poisson [No. Links]	Logit [Dummy=1 if Non-zero Link]		
			Marginal Effect	Baseline Probability	Probability Growth
North-to-North Trend	0.006 ** (0.002)	0.006 *** (0.001)	0.005 *** (0.001)	89%	0.6%
North-to-South Trend	0.059 *** (0.001)	0.059 *** (0.005)	0.025 *** (0.001)	25%	6.1%
South-to-North Trend	0.096 *** (0.002)	0.098 *** (0.005)	0.035 *** (0.001)	28%	7.3%
South-to-South Trend	0.124 *** (0.001)	0.125 *** (0.005)	0.025 *** (0.000)	5%	14.5%
<b>Wald Tests on Trend Coefficients:</b>					
1. South-to-South = North-to-North	0.118 ***	0.120 ***			
2. South Destination = North Destination	0.041 ***	0.041 ***			
3. South Source = North Source	0.078 ***	0.079 ***			
<b>Fixed Effects</b>	R-R	C-R	R-R		
<b>Number of Observations</b>	72	11,673	291,604		

Note: This table shows the trends in active links for 2001-18. The estimation methods are Poisson and logit. For the Poisson regressions, the dependent variable is the number of active links. Active links refer to country pairs that have a positive value. For these regressions, we report the estimated coefficients. For the logit regressions, the dependent variable is an indicator variable that takes value 1 whenever a country pair has a positive value and 0 if the value is zero. Country pairs with a missing value are not considered. For these regressions, we report the average marginal effect, the estimated probability for the first period of the sample (trend=0), and the average annual percentage change in the predicted probabilities. There are three levels of data aggregation: region-to-region (R-R), country-to-region (C-R), and country-to-country (C-C). Regressions include R-R or C-R fixed effects. For the C-R and the C-C regressions, standard errors are clustered by C-R and C-C pairs, respectively. \*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1% level, respectively.

**Table 8. Foreign Direct Investment - Growth in Active Links: Robustness**

Level of Data Aggregation	Region-Region	Country-Region	Country-Country		
Estimation Method [Dep. Variable]	Poisson [No. Links]	Poisson [No. Links]	Logit [Dummy=1 if Non-zero Link]		
			Marginal Effect	Baseline Probability	Probability Growth
North-to-North Trend	0.003 (0.005)	0.003 *** (0.001)	0.004 *** (0.001)	92%	0.4%
North-to-South Trend	0.044 *** (0.002)	0.044 *** (0.004)	0.021 *** (0.001)	27%	5.2%
South-to-North Trend	0.028 *** (0.003)	0.029 *** (0.002)	0.018 *** (0.001)	48%	3.3%
South-to-South Trend	0.051 *** (0.002)	0.053 *** (0.003)	0.015 *** (0.000)	9%	8.3%
<b>Wald Tests on Trend Coefficients:</b>					
1. South-to-South = North-to-North	0.048 ***	0.050 ***			
2. South Destination = North Destination	0.032 ***	0.032 ***			
3. South Source = North Source	0.016 ***	0.018 ***			
<b>Fixed Effects</b>	R-R	C-R	R-R		
<b>R-R Fixed Effects x Post-2008 Dummy</b>	Yes	Yes	Yes		
<b>Number of Observations</b>	72	11,673	291,604		

Note: This table shows the trends in foreign direct investment (FDI) active links for 2001-18. The estimation methods are Poisson and logit. For the Poisson regressions, the dependent variable is the number of active links. Active links refer to country pairs that have a positive value. For these regressions, we report the estimated coefficients. For the logit regressions, the dependent variable is an indicator variable that takes value 1 whenever a country pair has a positive value and 0 if the value is zero. Country pairs with a missing value are not considered. For these regressions, we report the average marginal effect, the estimated probability for the first period of the sample (trend=0), and the average annual percentage change in the predicted probabilities. There are three levels of data aggregation: region-to-region (R-R), country-to-region (C-R), and country-to-country (C-C). Regressions include R-R or C-R fixed effects. Regressions also include the interaction between R-R dummies and a dummy that equals 1 after 2008. For the C-R and C-C regressions, standard errors are clustered by C-R and C-C pairs, respectively. \*, \*\*, and \*\*\* represent statistical significance at 10%, 5%, and 1% level, respectively.

**Table 9. International Investment Positions/World GDP:  
Old and New Links**

<b>Panel A: Bank Loans and Deposits</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2018</b>		
			<b>Total</b>	<b>Old Links</b>	<b>New Links</b>
North	North	19.8%	19.0%	19.0%	0.0%
North	South	2.9%	3.6%	3.5%	0.1%
South	North	4.3%	3.5%	3.4%	0.1%
South	South	1.8%	3.9%	3.2%	0.7%

<b>Panel B: Portfolio Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2018</b>		
			<b>Total</b>	<b>Old Links</b>	<b>New Links</b>
North	North	26.0%	38.0%	38.0%	0.0%
North	South	2.3%	6.5%	6.2%	0.3%
South	North	1.0%	3.7%	3.2%	0.6%
South	South	0.3%	1.9%	1.4%	0.5%

<b>Panel C: Foreign Direct Investment</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2018</b>		
			<b>Total</b>	<b>Old Links</b>	<b>New Links</b>
North	North	18.9%	29.9%	29.1%	0.8%
North	South	4.3%	7.1%	6.0%	1.2%
South	North	2.7%	7.0%	5.0%	2.0%
South	South	1.6%	6.0%	4.5%	1.5%

Note: This table shows, for each block, the year-end value of international investment positions scaled by world gross domestic product (GDP), distinguishing between old and new links. Old links are country pairs that have a positive value in 2001. New links are country pairs that have a zero or missing value in 2001. Bilateral data are aggregated for all countries within a source region to all countries within a destination region. For each investment type and year, world GDP includes the GDP of destination countries for which we have data for that year (all source countries with data for a given year also have data as destination countries). Within each panel and year, world GDP is the same across blocks.



**Table 10. International Investment Positions/World GDP: Robustness**

Panel A: Role of China							
Source	Destination	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment	
		2001	2018	2001	2018	2001	2018
North	North	19.8%	19.0%	26.0%	38.0%	18.9%	29.9%
North	South (excl. China)	2.9%	3.3%	2.3%	6.0%	4.1%	6.6%
North	China	0.1%	0.3%	0.0%	0.5%	0.3%	0.6%
South (excl. China)	North	4.2%	3.1%	1.0%	3.5%	2.7%	6.4%
South (excl. China)	South (excl. China)	1.5%	2.1%	0.2%	1.0%	0.5%	2.6%
South (excl. China)	China	0.1%	0.9%	0.0%	0.6%	0.5%	1.3%
China	North	0.1%	0.4%	n/a	0.2%	0.1%	0.6%
China	South (excl. China)	0.2%	0.9%	n/a	0.2%	0.6%	2.1%

Panel B: Role of the Richest South Countries							
Source	Destination	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment	
		2001	2018	2001	2018	2001	2018
North	North	19.8%	19.0%	26.0%	38.0%	18.9%	29.9%
North	South (excl. Top 20)	1.4%	1.6%	1.1%	3.6%	3.2%	4.6%
North	South (Top 20)	1.5%	1.9%	1.2%	2.9%	1.1%	2.6%
South (excl. Top 20)	North	1.9%	1.7%	0.2%	1.0%	1.8%	4.6%
South (excl. Top 20)	South (excl. Top 20)	0.0%	0.4%	0.0%	0.2%	0.1%	1.4%
South (excl. Top 20)	South (Top 20)	0.5%	0.9%	0.0%	0.3%	0.7%	2.6%
South (Top 20)	North	2.4%	1.8%	0.9%	2.7%	1.0%	2.4%
South (Top 20)	South (excl. Top 20)	0.3%	1.3%	0.1%	0.9%	0.6%	1.5%
South (Top 20)	South (Top 20)	1.0%	1.2%	0.2%	0.5%	0.2%	0.5%

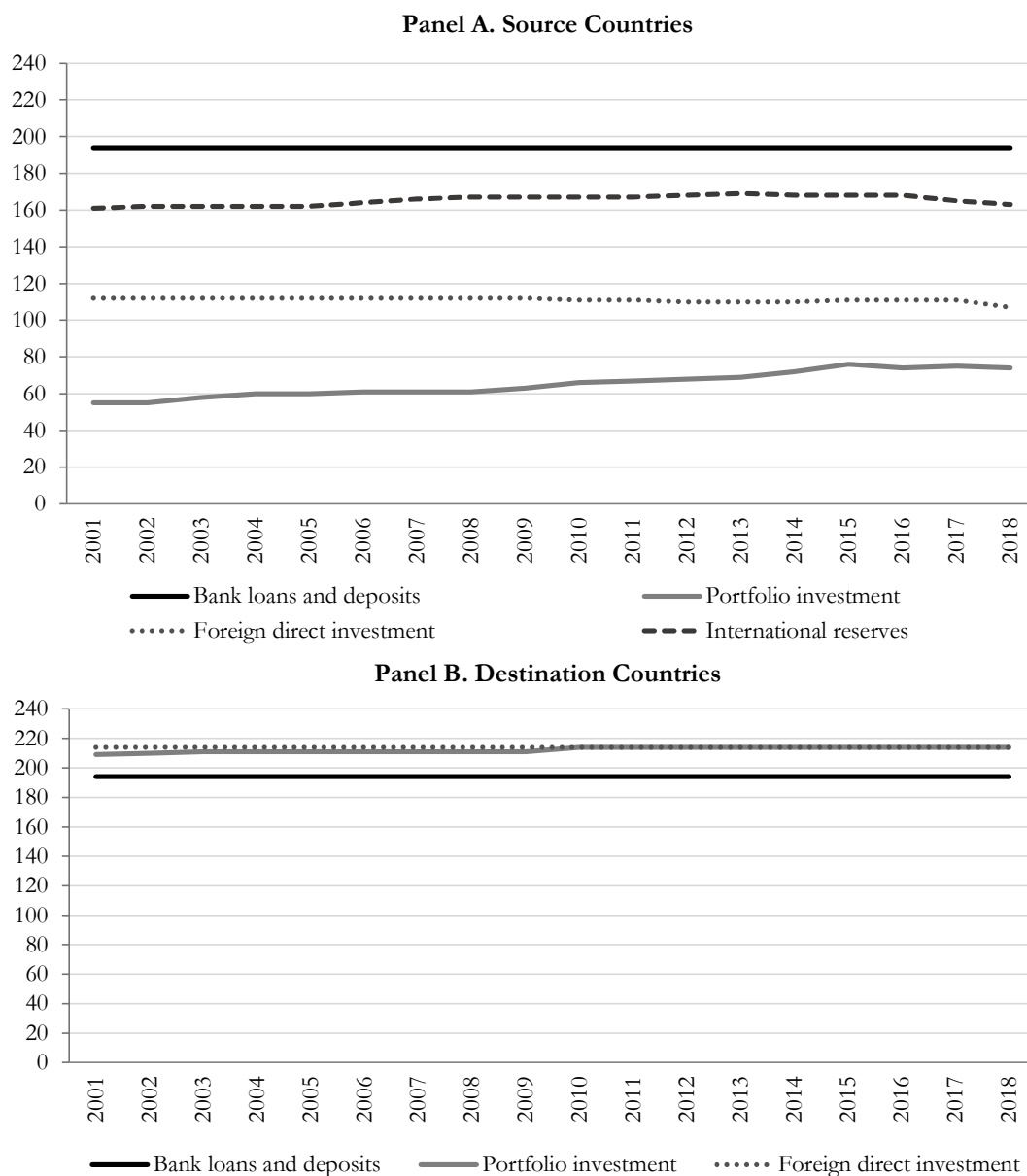
Note: This table shows the year-end value of international investment positions scaled by world gross domestic product (GDP) for alternative groupings of countries. Bilateral data are aggregated for all countries within a source region to all countries within a destination region. For each investment type and year, world GDP includes the GDP of destination countries for which we have data for that year (all source countries with data for a given year also have data as destination countries). Within each investment type and year, world GDP is the same across blocks. Panel A separates China from the rest of the South. For portfolio investment, there are no data available for China as a source of investments for 2001. Panel B separates the top-20 richest South countries from the rest of the South. The top-20 richest South countries are classified based on the International Monetary Fund's current GDP per capita in 2018 and include the following economies: Australia; Bahrain; Brunei Darussalam; Czech Republic; Estonia; Hong Kong SAR, China; Israel; Korea, Rep.; Kuwait; Lithuania; Malta; New Zealand; Oman; Qatar; Saudi Arabia; Singapore; Slovak Republic; Slovenia; Taiwan, China; and United Arab Emirates.

**Table 11. International Investment Position/World GDP: Role of Offshore Financial Centers**

Source	Destination	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		Total	
		2001	2018	2001	2018	2001	2018	2001	2018
North	North	19.8%	19.0%	26.0%	38.0%	18.9%	29.8%	64.6%	86.7%
North	South	2.9%	3.5%	2.3%	6.5%	4.3%	7.1%	9.6%	17.1%
North	OFCs	4.2%	2.0%	2.0%	4.8%	0.7%	3.3%	6.8%	9.9%
South	North	4.3%	3.5%	1.0%	3.7%	2.7%	6.9%	8.1%	14.2%
South	South	1.8%	3.9%	0.3%	1.9%	1.6%	6.0%	3.7%	11.7%
South	OFCs	0.4%	0.6%	0.2%	1.1%	0.9%	3.2%	1.5%	4.7%
OFCs	North	4.7%	2.0%	1.1%	3.6%	0.1%	0.2%	5.9%	5.8%
OFCs	South	0.4%	0.7%	0.1%	0.5%	0.0%	0.2%	0.6%	1.4%
OFCs	OFCs	0.2%	0.2%	0.1%	0.1%	0.0%	0.1%	0.3%	0.5%

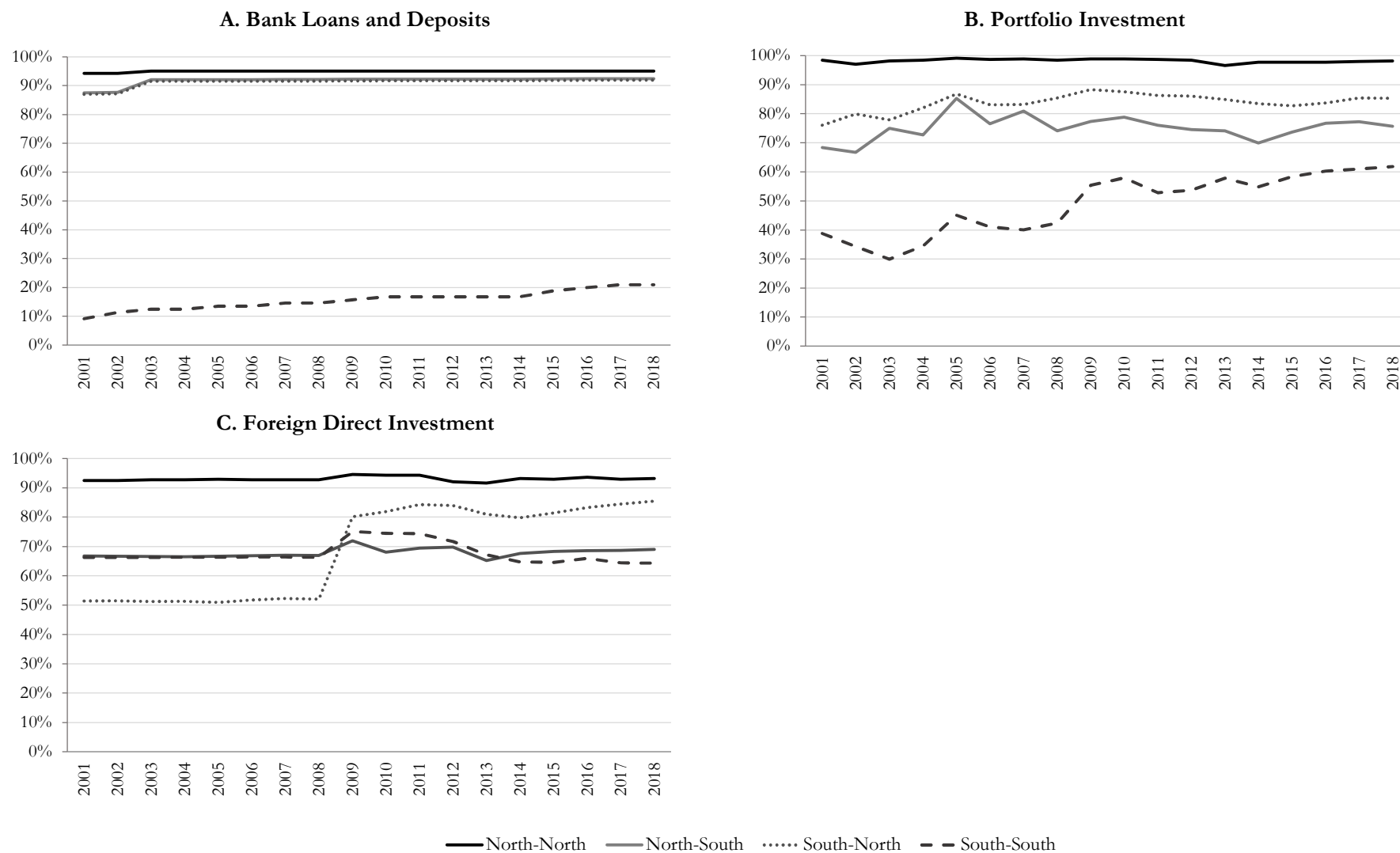
Note: This table shows the year-end value of international investment positions scaled by world gross domestic product (GDP), including the offshore financial centers (OFCs) as a separate region. OFCs are listed in appendix table 1. Bilateral data are aggregated for all countries within a source region to all countries within a destination region. For each investment type and year, world GDP includes the GDP of destination countries for which we have data for that year (all source countries with data for a given year also have data as destination countries). Within each investment type and year, world GDP is the same across blocks. Values in the "Total" columns include only those countries for which we have data for all investment types in the respective year.

**Appendix Figure 1. Number of Source and Destination Countries, by Year**



Note: This figure shows, for each investment type, the total number of countries with data as a source and destination each year. A country is considered to have data as a source (destination) in a specific year if the sum of all international investment positions for which the country is a source (destination) of funds is non-missing. For international reserves, there are no disaggregated data for destination countries. For bank loans and deposits and foreign direct investment (FDI), coverage has been enhanced through mirror data (appendix, sections A.1 and A.3).

Appendix Figure 2. Average Share of Counterparty Countries, by Source Country per Year and Block



Note: This figure shows, for each investment type and block, the average share of destination countries reported by each source country in all possible destination countries per year. A country is considered to have data as a source to a specific country in a specific year if the value of international investment positions is non-missing.

Appendix Table 1. List of Economies and Data Availability

	Economy	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		International Reserves
		Source	Destination	Source	Destination	Source	Destination	Source
North Countries	Austria	•	•	•	•	•	•	•
	Belgium	•	•	•	•	•	•	•
	Canada	•	•	•	•	•	•	•
	Denmark	•	•	•	•	•	•	•
	Finland	•	•	•	•	•	•	•
	France	•	•	•	•	•	•	•
	Germany	•	•	•	•	•	•	•
	Greece	•	•	•	•	•	•	•
	Iceland	•	•	•	•	•	•	•
	Ireland	•	•	•	•	•	•	•
	Italy	•	•	•	•	•	•	•
	Japan	•	•	•	•	•	•	•
	Luxembourg	•	•	•	•	•	•	•
	Netherlands	•	•	•	•	•	•	•
	Norway	•	•	•	•	•	•	•
	Portugal	•	•	•	•	•	•	•
	San Marino	•	•	•	•	•	•	•
	Spain	•	•	•	•	•	•	•
	Sweden	•	•	•	•	•	•	•
	Switzerland	•	•	•	•	•	•	•
	United Kingdom	•	•	•	•	•	•	•
	United States	•	•	•	•	•	•	•
South Countries	Afghanistan	•	•	•	•	•	•	•
	Albania	•	•	•	•	•	•	•
	Algeria	•	•	•	•	•	•	•
	American Samoa	•	•	•	•	•	•	•
	Angola	•	•	•	•	•	•	•
	Antigua and Barbuda	•	•	•	•	•	•	•
	Argentina	•	•	•	•	•	•	•
	Armenia	•	•	•	•	•	•	•
	Australia	•	•	•	•	•	•	•
	Azerbaijan	•	•	•	•	•	•	•
	Bahrain	•	•	•	•	•	•	•
	Bangladesh	•	•	•	•	•	•	•
	Barbados	•	•	•	•	•	•	•
	Belarus	•	•	•	•	•	•	•
	Benin	•	•	•	•	•	•	•
	Bhutan	•	•	•	•	•	•	•
	Bolivia	•	•	•	•	•	•	•
	Bonaire, Sint Eustatius and Saba	•	•	•	•	•	•	•
	Bosnia and Herzegovina	•	•	•	•	•	•	•
	Botswana	•	•	•	•	•	•	•
	Brazil	•	•	•	•	•	•	•
	Brunei Darussalam	•	•	•	•	•	•	•
	Bulgaria	•	•	•	•	•	•	•
	Burkina Faso	•	•	•	•	•	•	•
	Burundi	•	•	•	•	•	•	•
	Cabo Verde	•	•	•	•	•	•	•
	Cambodia	•	•	•	•	•	•	•
	Cameroon	•	•	•	•	•	•	•
	Central African Republic	•	•	•	•	•	•	•
	Chad	•	•	•	•	•	•	•
	Chile	•	•	•	•	•	•	•
	China	•	•	•	•	•	•	•
	Christmas Islands	•	•	•	•	•	•	•
	Cocos Islands	•	•	•	•	•	•	•
	Colombia	•	•	•	•	•	•	•
	Comoros	•	•	•	•	•	•	•
	Congo, Dem. Rep.	•	•	•	•	•	•	•
	Congo, Rep.	•	•	•	•	•	•	•
	Costa Rica	•	•	•	•	•	•	•
	Côte d'Ivoire	•	•	•	•	•	•	•
	Croatia	•	•	•	•	•	•	•
	Cuba	•	•	•	•	•	•	•
	Curacao	•	•	•	•	•	•	•
	Czech Republic	•	•	•	•	•	•	•
	Djibouti	•	•	•	•	•	•	•
	Dominica	•	•	•	•	•	•	•
	Dominican Republic	•	•	•	•	•	•	•
	Ecuador	•	•	•	•	•	•	•
	Egypt, Arab Rep.	•	•	•	•	•	•	•
	El Salvador	•	•	•	•	•	•	•

(cont.)

Appendix Table 1. List of Economies and Data Availability (cont.)

Economy	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		Int. Reserves
	Source	Destination	Source	Destination	Source	Destination	Source
South Countries	Equatorial Guinea	•	•	•	•	•	•
	Eritrea	•	•	•	•	•	•
	Estonia	•	•	•	•	•	•
	Ethiopia	•	•	•	•	•	•
	Faeroe Islands	•	•	•	•	•	•
	Falkland Islands	•	•	•	•	•	•
	Fiji	•	•	•	•	•	•
	French Guiana	•	•	•	•	•	•
	French Polynesia	•	•	•	•	•	•
	French Southern Territories	•	•	•	•	•	•
	Gabon	•	•	•	•	•	•
	Gambia, The	•	•	•	•	•	•
	Georgia	•	•	•	•	•	•
	Ghana	•	•	•	•	•	•
	Greenland	•	•	•	•	•	•
	Grenada	•	•	•	•	•	•
	Guadeloupe	•	•	•	•	•	•
	Guam	•	•	•	•	•	•
	Guatemala	•	•	•	•	•	•
	Guinea	•	•	•	•	•	•
	Guinea-Bissau	•	•	•	•	•	•
	Guyana	•	•	•	•	•	•
	Haiti	•	•	•	•	•	•
	Honduras	•	•	•	•	•	•
	Hong Kong SAR, China	•	•	•	•	•	•
	Hungary	•	•	•	•	•	•
	India	•	•	•	•	•	•
	Indonesia	•	•	•	•	•	•
	Iran, Islamic Rep.	•	•	•	•	•	•
	Iraq	•	•	•	•	•	•
	Israel	•	•	•	•	•	•
	Jamaica	•	•	•	•	•	•
	Jordan	•	•	•	•	•	•
	Kazakhstan	•	•	•	•	•	•
	Kenya	•	•	•	•	•	•
	Kiribati	•	•	•	•	•	•
	Korea, Dem. Rep.	•	•	•	•	•	•
	Korea, Rep.	•	•	•	•	•	•
	Kosovo, Rep.	•	•	•	•	•	•
	Kuwait	•	•	•	•	•	•
	Kyrgyz Republic	•	•	•	•	•	•
	Lao PDR	•	•	•	•	•	•
	Latvia	•	•	•	•	•	•
	Lebanon	•	•	•	•	•	•
	Lesotho	•	•	•	•	•	•
	Liberia	•	•	•	•	•	•
	Libya	•	•	•	•	•	•
	Lithuania	•	•	•	•	•	•
	North Macedonia	•	•	•	•	•	•
	Madagascar	•	•	•	•	•	•
	Malawi	•	•	•	•	•	•
	Malaysia	•	•	•	•	•	•
	Maldives	•	•	•	•	•	•
	Mali	•	•	•	•	•	•
	Malta	•	•	•	•	•	•
	Marshall Islands	•	•	•	•	•	•
	Martinique	•	•	•	•	•	•
	Mauritania	•	•	•	•	•	•
	Mauritius	•	•	•	•	•	•
	Mayotte	•	•	•	•	•	•
	Mexico	•	•	•	•	•	•
	Micronesia, Fed. Sts.	•	•	•	•	•	•
	Moldova	•	•	•	•	•	•
	Mongolia	•	•	•	•	•	•
	Montenegro	•	•	•	•	•	•
	Morocco	•	•	•	•	•	•
	Mozambique	•	•	•	•	•	•
	Myanmar	•	•	•	•	•	•
	Namibia	•	•	•	•	•	•
	Nauru	•	•	•	•	•	•
	Nepal	•	•	•	•	•	•

(cont.)

Appendix Table 1. List of Economies and Data Availability (cont.)

Economy	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		Int. Reserves
	Source	Destination	Source	Destination	Source	Destination	Source
South Countries	New Caledonia	•	•	•	•	•	•
	New Zealand	•	•	•	•	•	•
	Nicaragua	•	•	•	•	•	•
	Niger	•	•	•	•	•	•
	Nigeria	•	•	•	•	•	•
	Niue	•	•	•	•	•	•
	Norfolk Island	•	•	•	•	•	•
	Oman	•	•	•	•	•	•
	Pakistan	•	•	•	•	•	•
	Papua New Guinea	•	•	•	•	•	•
	Paraguay	•	•	•	•	•	•
	Peru	•	•	•	•	•	•
	Philippines	•	•	•	•	•	•
	Pitcairn	•	•	•	•	•	•
	Poland	•	•	•	•	•	•
	Puerto Rico	•	•	•	•	•	•
	Qatar	•	•	•	•	•	•
	Reunion	•	•	•	•	•	•
	Romania	•	•	•	•	•	•
	Russian Federation	•	•	•	•	•	•
	Rwanda	•	•	•	•	•	•
	São Tomé and Príncipe	•	•	•	•	•	•
	Saudi Arabia	•	•	•	•	•	•
	Senegal	•	•	•	•	•	•
	Serbia	•	•	•	•	•	•
	Sierra Leone	•	•	•	•	•	•
	Singapore	•	•	•	•	•	•
	Sint Maarten	•	•	•	•	•	•
	Slovak Republic	•	•	•	•	•	•
	Slovenia	•	•	•	•	•	•
	Solomon Islands	•	•	•	•	•	•
	Somalia	•	•	•	•	•	•
	South Africa	•	•	•	•	•	•
	South Sudan	•	•	•	•	•	•
	Sri Lanka	•	•	•	•	•	•
	St. Helena	•	•	•	•	•	•
	St. Kitts and Nevis	•	•	•	•	•	•
	St. Lucia	•	•	•	•	•	•
	St. Pierre and Miquelon	•	•	•	•	•	•
	St. Vincent and the Grenadines	•	•	•	•	•	•
	Sudan	•	•	•	•	•	•
	Suriname	•	•	•	•	•	•
	Eswatini	•	•	•	•	•	•
	Syrian Arab Republic	•	•	•	•	•	•
	Taiwan, China	•	•	•	•	•	•
	Tajikistan	•	•	•	•	•	•
	Tanzania	•	•	•	•	•	•
	Thailand	•	•	•	•	•	•
	Timor-Leste	•	•	•	•	•	•
	Togo	•	•	•	•	•	•
	Tokelau	•	•	•	•	•	•
	Tonga	•	•	•	•	•	•
	Trinidad and Tobago	•	•	•	•	•	•
	Tunisia	•	•	•	•	•	•
	Turkey	•	•	•	•	•	•
	Turkmenistan	•	•	•	•	•	•
	Tuvalu	•	•	•	•	•	•
	Uganda	•	•	•	•	•	•
	Ukraine	•	•	•	•	•	•
	United Arab Emirates	•	•	•	•	•	•
	Uruguay	•	•	•	•	•	•
	Uzbekistan	•	•	•	•	•	•
	Venezuela, RB	•	•	•	•	•	•
	Vietnam	•	•	•	•	•	•
	Virgin Islands, United States	•	•	•	•	•	•
	Wallis and Futuna	•	•	•	•	•	•
	West Bank and Gaza	•	•	•	•	•	•
	Western Sahara	•	•	•	•	•	•
	Yemen, Rep.	•	•	•	•	•	•
	Zambia	•	•	•	•	•	•
	Zimbabwe	•	•	•	•	•	•

(cont.)

Appendix Table 1. List of Economies and Data Availability (cont.)

	Economy	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		Int. Reserves
		Source	Destination	Source	Destination	Source	Destination	Source
Offshore Financial Centers	Andorra	•	•		•		•	
	Anguilla	•	•		•		•	•
	Aruba	•	•	•	•	•	•	•
	Bahamas, The	•	•	•	•		•	•
	Belize	•	•		•		•	•
	Bermuda	•	•	•	•		•	
	British Virgin Islands	•	•		•		•	
	Cayman Islands	•	•	•	•		•	
	Cook Islands				•		•	
	Cyprus	•	•	•	•	•	•	•
	Gibraltar	•	•	•	•		•	
	Guernsey	•	•	•	•		•	
	Isle of Man	•	•	•	•		•	
	Jersey	•	•	•	•		•	
	Liechtenstein	•	•		•		•	
	Macao SAR, China	•	•	•	•	•	•	•
	Monaco				•		•	
	Montserrat				•		•	•
	Netherlands Antilles	•	•	•	•		•	•
	Palau	•	•	•	•	•	•	
	Panama	•	•	•	•	•	•	•
	Samoa	•	•		•	•	•	•
	Seychelles	•	•		•	•	•	•
	Turks and Caicos	•	•		•		•	
	Vanuatu	•	•	•	•		•	•
Number of North Countries		22	22	21	22	21	22	22
Number of South Countries		178	178	57	192	95	192	148
Number of Offshore Centers		21	21	14	24	7	25	12

Note: The coverage of bank loans and deposits has been extended by the use of mirror data obtained from the 47 Bank for International Settlements (BIS) reporting countries reporting assets and liabilities vis-à-vis all countries and jurisdictions (appendix, section A.1). Sources and destinations not marked with dots are not identified as separate countries by the BIS, but are included in the data reported by their governing country. For foreign direct investment (FDI), coverage was enhanced through a similar procedure, using liabilities reported by the destination country when asset data are missing (appendix, section A.3).

This table indicates, for each country in the sample, whether we have data on that country as a source and destination. A country is considered a source (destination) of international investments if, for at least one year, the sum of all international investment positions for which the country is a source (destination) of funds is non-missing. For international reserves, we have country-to-region data, so we only indicate whether a country is a source. The list of offshore financial centers (OFCs) is based on the list of countries included in the International Monetary Fund's Staff Assessments on Offshore Financial Centers (OFCs) (available at: <https://www.imf.org/external/np/ofca/ofca.aspx>).



**Appendix Table 2.**  
**First Available Year for Top 10 Source Economies in 2018**

Panel A: Bank Loans and Deposits			Panel B: Portfolio Investment		
Economy	Share of Inv. (2018)	First Year as Source	Economy	Share of Inv. (2018)	First Year as Source
<b>North</b>			<b>North</b>		
United Kingdom	26%	2001	United States	24%	2001
United States	19%	2001	Luxembourg	11%	2001
France	10%	2001	Germany	8%	2001
Germany	9%	2001	Japan	8%	2001
Luxembourg	5%	2001	Ireland	8%	2001
Netherlands	5%	2001	United Kingdom	7%	2001
Japan	5%	2001	France	7%	2001
Switzerland	3%	2001	Netherlands	5%	2001
Canada	3%	2001	Canada	4%	2001
Ireland	3%	2001	Italy	4%	2001
<b>South</b>			<b>South</b>		
Hong Kong SAR, China	20%	2001	Hong Kong SAR, China	19%	2001
China	18%	2001	Singapore	17%	2001
Singapore	13%	2001	Australia	14%	2001
Taiwan, China	5%	2001	Korea, Rep.	9%	2001
Australia	5%	2001	China	8%	2015
Saudi Arabia	4%	2001	Saudi Arabia	4%	2013
United Arab Emirates	3%	2001	Chile	3%	2001
Korea, Rep.	3%	2001	Mauritius	3%	2001
Russian Federation	3%	2001	South Africa	3%	2001
Bahrain	2%	2001	Israel	2%	2001
Panel C: Foreign Direct Investment			Panel D: International Reserves		
Economy	Share of Inv. (2018)	First Year as Source	Economy	Share of Inv. (2018)	First Year as Source
<b>North</b>			<b>North</b>		
United States	20%	2001	Japan	44%	2001
Netherlands	19%	2001	Switzerland	26%	2001
Luxembourg	14%	2001	United Kingdom	6%	2001
United Kingdom	6%	2001	United States	4%	2001
Switzerland	6%	2001	Canada	3%	2001
Germany	5%	2001	Denmark	2%	2001
France	5%	2001	France	2%	2001
Japan	5%	2001	Norway	2%	2001
Ireland	3%	2001	Germany	2%	2001
Spain	3%	2001	Spain	2%	2001
<b>South</b>			<b>South</b>		
China	21%	2001	China	35%	2001
Hong Kong SAR, China	11%	2001	Saudi Arabia	6%	2001
Singapore	8%	2001	Taiwan, China	5%	2001
Brazil	5%	2001	Hong Kong SAR, China	5%	2001
Australia	5%	2001	Korea, Rep.	5%	2001
Mexico	5%	2001	Russian Federation	4%	2001
India	4%	2001	India	4%	2001
Korea, Rep.	4%	2001	Brazil	4%	2001
Mauritius	4%	2001	Singapore	3%	2001
South Africa	3%	2001	Thailand	2%	2001

Note: This table indicates, for the 10 largest source countries in each region, the first year for which we have data on the country as a source of international investment positions. A country is considered a source in a specific year if the sum of all international investment positions is non-missing for that year. The 10 largest source countries for each investment type in each region are classified based on the share of the country's total international investment position in the region's total international investment position in 2018.

**Appendix Table 3.**  
**Portfolio Investment International Positions: Equity vs. Debt**

<b>Panel A: International Investment Positions/World GDP</b>					
<b>Portfolio Equity</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	12.2%	19.5%	10.3%	19.3%
North	South	1.3%	4.3%	1.7%	3.7%
South	North	0.5%	1.3%	0.7%	2.1%
South	South	0.1%	0.9%	0.6%	1.0%
<b>Portfolio Debt</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	13.8%	23.9%	20.8%	18.7%
North	South	1.0%	1.8%	1.3%	2.7%
South	North	0.5%	1.2%	1.0%	1.6%
South	South	0.2%	0.4%	0.3%	0.8%
<b>Panel B. Regional Share of International Investment Positions</b>					
<b>Portfolio Equity</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	86.4%	75.0%	77.2%	73.8%
North	South	9.2%	16.4%	12.9%	14.3%
South	North	3.6%	4.9%	5.4%	8.0%
South	South	0.7%	3.6%	4.5%	3.9%
<b>Portfolio Debt</b>					
<b>Source</b>	<b>Destination</b>	<b>2001</b>	<b>2007</b>	<b>2008</b>	<b>2018</b>
North	North	88.9%	87.4%	88.9%	78.3%
North	South	6.6%	6.5%	5.5%	11.5%
South	North	3.4%	4.5%	4.2%	6.9%
South	South	1.2%	1.5%	1.3%	3.4%

Note: This table shows, for each block, the year-end value of international portfolio investment positions distinguishing between equity and debt. Panel A shows the value of international investment positions scaled by world gross domestic product (GDP). For each investment type and year, world GDP includes the GDP of destination countries for which we have information for that year (all source countries with information for a given year also have information as destination countries). Within each investment type and year, world GDP is the same across blocks. Panel B shows the share of international investment positions. For each investment type, the sum of North-to-North, North-to-South, South-to-North, and South-to-South shares in a given year is 100 percent. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.