Bilateral International Investments: The Big Sur?

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Abstract

This paper presents novel stylized facts about the rise of the South in global finance using country-to-country data. To do so, the paper assembles comprehensive bilateral data on cross-border bank loans and deposits, portfolio investment, foreign direct investment, and international reserves from 2001 to 2018. The main findings are that investments involving the South, and especially within the South, have grown faster than those within the North. By 2018, South-to-South investments accounted for 8% of total international investments, while investments between the South and the North accounted for an additional 26%. The fastest growth occurred in portfolio investment and international reserves, whereas the slowest growth was in banking. These trends are not driven by China, any particular South region, or offshore financial centers. South-to-South investments grew the fastest even after controlling for regional GDP growth. The extensive margin played a significant role in the growth of investments within the South.

JEL classification codes: F21, F36, G15

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

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1. Introduction

Since the early 1990s, the economic weight of the South, emerging markets and developing economies, has risen sharply.[1] Several studies document that the South accounts for a growing share of global economic activity (IMF 2017; UNCTAD 2018) and international trade in goods (Hanson 2012). However, 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 key databases on bilateral international investments for bank loans and deposits, portfolio investment in debt and equity, foreign direct investment (FDI), and international reserves. The country-to-country nature of these data allows us to shed new light on the process of international financial integration. We examine who integrates with whom by splitting cross-border investments into four blocks: South-to-South, South-to-North, North-to-South, and North-to-North. We also analyze the degree of financial integration along the intensive margin (the value of investments) and the extensive margin (the number of bilateral links) for each investment type across the four blocks.

We assemble global bilateral data from 2001 to 2018 covering most of the North and South countries in the world, which we make publicly available.[2] The data sources are the Bank for International Settlements (BIS) for bank loans and deposits, the International Monetary Fund (IMF) for portfolio investment, the United Nations, and the IMF for FDI, and the IMF for international reserves. Our bilateral data capture most of the aggregate international investment positions (IIPs) at the country level commonly used in the literature (e.g., Lane and Milesi-Ferretti 2018).[3] In particular,

[1] We use the Bank for International Settlement's country grouping of advanced economies as the North and take all other countries and jurisdictions as the South.

[2] Data on bank loans and deposits are shared on an aggregate basis to preserve confidentiality.

[3] The data for international reserves are not bilateral. We estimate how much reserves each country holds in the North and in the South based on the currency denomination of reserves.

aggregating our bilateral positions across all country pairs yields values close to those obtained by aggregating IIPs across 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 both as a share of total global investments and as a ratio to world gross domestic product (GDP). South-to-South investments have been the ones that grew the fastest throughout the sample, followed by North-to-South and South-to-North investments, outpacing North-to-North investments. Although this growth partly mirrors the rapid economic growth of the South between 2001 and 2018, investments involving the South have grown faster than investments within the North even after controlling for regional GDP growth.[4] This is especially the case after the 2007–08 global financial crisis (GFC). By 2018, although North-to-North investments still accounted for 66% of global investments, South-to-South investments and investments between the South and the North had respectively risen to 8% and 26% of global investments. The rise 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. Both the intensive and extensive margins contributed to its rise, while links established since 2001 accounted for a sizable share of the South-to-South investments in 2018.

Second, the South has become more integrated into global finance across all investment types but with marked shifts in the composition and direction of investments. Portfolio investment and international reserves involving the South grew faster than FDI since 2001, which in turn grew faster than bank loans and deposits. Despite this growth, the weight of the South in portfolio investment was still smaller than in other investments in 2018. In contrast, South-to-North reserves were 73% of the total in 2018. In 2001, the South's integration with the rest of the world was mainly as a destination

[4] Throughout the paper, the expression "investments involving" a group of countries refers to the investments for which those countries are a source and/or a destination. For example, investments involving the South include the blocks North-to-South, South-to-North, and South-to-South.

of FDI from the North and as source of loans and deposits and international reserves to the North. By 2018, the South had grown substantially as a source of FDI to both the North and the South and as a destination of loans and deposits from both the North and the South.

Third, when we divide the South into regions, we do not find the growth of international investments involving China or the rest of Asia to be very different from the growth of investments involving other South regions. In fact, Africa is the region with the fastest growth in portfolio investment and FDI, and Eastern Europe and Central Asia is the region with the fastest growth in loans and deposits. Investments between the regions of the South tended to grow more rapidly than those within the same South regions. Furthermore, we find that offshore financial centers (OFCs) also played a role in the rise of the South in global finance as they gradually facilitated more investments involving the South.[5] Including OFCs as a separate group or as part of the North and South does not change our overall conclusions and tends to reinforce the trends documented in the paper.

Our paper is related to research on gross stocks of international investments. A seminal contribution is Lane and Milesi-Ferretti (2001, 2007), who construct external assets and liabilities for each country vis-à-vis the rest of the world by combining IIP data with cumulative gross capital flows from the balance of payments. Several papers have used their data to show that external assets and liabilities grew rapidly until the GFC but have since stagnated somewhat (Gourinchas et al. 2010; Obstfeld 2012; Lane and Milesi-Ferretti 2018).[6] Other studies analyze bilateral international investments, as we do in this paper, but typically focus on a single investment type and use gravity models to estimate the role of various determinants of capital flows and international investments

[5] See Zucman (2013), Lane and Milesi-Ferretti (2018), and Coppola et al. (2021) for evidence on the growing importance of OFCs as international financial intermediaries.

[6] Other studies focus on net and gross capital flows. Several papers document the existence of large net flows from the South to the North, known as global imbalances (Bernanke 2005; Obstfeld and Rogoff 2005; Caballero et al. 2008). Other work documents that gross capital flows have increased even faster than net flows (Borio and Disyatat 2011; Forbes and Warnock 2012; Shin 2012; Bluedorn et al. 2013; Broner et al. 2013; Avdjiev et al. 2022).

(Portes and Rey 2005; Aviat and Coeurdacier 2007; Stein and Daude 2007; Lane and Milesi-Ferretti 2008; Coeurdacier and Guibaud 2011; Aggarwal et al. 2012; Hale and Obstfeld 2016; Hellmanzik and Schmitz 2017; Brei and von Peter 2018). A few papers combine bilateral 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 et al. 2010; Kubelec and Sa 2012).

Complementing this literature, our paper uses 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 countries' aggregate investment positions vis-à-vis the rest of the world, our bilateral data shed light on the source and destination of international investments. This granularity allows us to show, for example, that South-to-South integration has grown the fastest. We also ensure that our bilateral data on investment types are exhaustive and mutually exclusive. For example, our data on bank loans and deposits improve over previous studies by stripping out banks' portfolio holdings because these are already included in countries' reported portfolio investment. 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. Sections 4 and 5 examine the growth of different regions of the South and the role of OFCs. Section 6 relates financial integration to economic growth. Section 7 explores financial integration on the extensive margin, and Section 8 concludes. The appendix describes in detail the global data sets we use and how we process them for our analysis.

2. Constructing Bilateral Investment Positions

This section describes the four data sources we use to construct our data sets on bilateral investments and discusses potential concerns. Throughout the paper, the term "international" means cross-border between any pair of countries or jurisdictions.[7] International investments are reported on a residency basis, in line with the 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 (McCauley et al. 2019) or ultimate borrowers (Bertaut et al. 2021; Coppola et al. 2021; Beck et al. 2023).

Our definition of North and South follows the BIS country groupings for advanced economies and for emerging markets and developing economies.[8] The groupings remain unchanged throughout our sample period and are based on economic performance and institutional factors before 2001. The North consists of advanced economies: Australia, Canada, Japan, New Zealand, the United States, and Western Europe (including all euro area countries and small European economies, such as San Marino) as well as their overseas and dependent territories. The South comprises all other economies.

We consider OFCs separately, using the definition of the IMF's Staff Assessments on Offshore Financial Centers (IMF 2000). Although we exclude OFCs from most sections of the paper, our results are robust to their inclusion (Section 5). Appendix Table 1 provides the full list of countries in the North and South, as well as OFCs.

[7] In this paper, we use the term countries or economies to denote sovereign states as well as jurisdictions and dependent territories that are usually reported as separate economies. Not all of these economies are sovereign states.

[8] See https://www.bis.org/statistics/country_groupings.pdf. As alternative definitions of the North, we used Canada, Japan, the United States, and Western Europe, the IMF classification of advanced countries, and countries with high GDP per capita at the beginning of the sample. In all cases, we obtained qualitatively similar results as those reported in the paper.

2.1. Data Description

We study four complementary types of investments: (i) cross-border bank loans and deposits from the Locational Banking Statistics of the BIS, (ii) portfolio investment in debt and equity from the Coordinated Portfolio Investment Survey (CPIS) of the IMF, (iii) FDI 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 constructed by combining the International Financial Statistics (IFS) with the Currency Composition of Official Foreign Exchange Reserves (COFER) database, both compiled by the IMF.

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 in our paper) countries' external assets and liabilities in the External Wealth of Nations database (Lane and Milesi-Ferretti 2001, 2007). But instead of aggregate international investments at the country level, our data are bilateral and therefore also capture the source and destination countries for each type of investment.

Our data sets represent year-end nominal stocks of cross-border investments, which we express in constant, 2011 U.S. dollar values. For loans and deposits, portfolio investment, and FDI, the data are bilateral, country-to-country. For international reserves, there are no publicly available data for the destination of reserves across countries. Therefore, we combine data on the level of international reserves for each country from the IMF's IFS with the currency denomination of reserves for advanced and emerging economies from the IMF's COFER.[9] We make two assumptions. First, we assume that the allocation of reserves across destination currencies is common across source countries within the North and within the South. Second, we assume that reserves denominated in a

[9] The IMF's classification of advanced and emerging economies is similar to the BIS country groupings we use to allocate countries to the North and South. We thus assign the reserve currency composition of advanced economies to the North and that of emerging economies to the South.

given currency consist of debt of the country (or countries) issuing that currency (e.g., we assume that U.S. dollar and euro denominated reserves are issued by the U.S. and euro area countries, respectively). We thus obtain region-to-region and country-to-region estimates for reserve holdings.[10] The appendix provides detailed explanations of how we construct the data for each investment type.

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 vis-à-vis country A as the investments for the country pair A→B. Using this method, the only case when coverage remains incomplete is for bilateral positions where neither the source nor the destination country report data. If both sides report, we reconcile the two observations 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. Online Appendix Table 1 lists every country by region and indicates whether the country appears as source and/or destination (and from which year) across the different investment types.[11] 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, and the country-to-region data on international reserves cover 182 source countries.

[10] The COFER data have two shortcomings. First, COFER stopped making the currency breakdown for advanced and emerging economies publicly available in 2015, and thus we carry forward the 2014 currency allocation. Second, until 2014, reserves denominated in South currencies, including the Chinese renminbi, were reported in the category "other currencies" together with reserves denominated in currencies of a few smaller North countries. We assign this category to the South as a destination even though this might overestimate the size of the South as a destination of reserves.

[11] In Appendix Table 1, we consider a country to be a source (destination) of international investments 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.

2.2. Data 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 that are the main focus of our analysis.[12] In this subsection, we examine how these two data issues affect our specific data sets and explain how we address them throughout our analysis.

One concern relates to changes in country coverage over time. If the number of reporting countries grows over time, we could overestimate the increase in the value of international investments and in the number of active links. To evaluate whether changes in country coverage affect our results, we first compute the number of countries that appear in the data as source and destination countries by year and investment type (Online Appendix Figure 1). Overall, the number of source and destination countries is broadly stable over time.[13]

Changes in country coverage might still be a concern if some of the countries entering the sample are very large. For bank loans and deposits, FDI, and international reserves, the 10 largest countries in each region (in terms of investments in 2018) have data on the sources of international investments throughout the entire sample period. For loans and deposits, China and Russia started reporting to the BIS in 2015, but part of their positions before 2015 can be inferred from mirror data reported by all other BIS reporting countries (Appendix A.1). For portfolio investment, China (fifth largest) started reporting in 2015 and Saudi Arabia (sixth largest) in 2013.[14]

[12] For a discussion of these data issues, see Lane and Milesi-Ferretti (2001) and Alfaro et al. (2007).

[13] The number of source countries for portfolio investment did increase from 55 in 2001 to 74 in 2018. Nevertheless, we report similar results from country-to-country bilateral regressions, which are not affected by this increase in country coverage. In addition, the results remained robust in (unreported) specifications where we restricted the sample to country pairs that have data throughout the entire sample period.

[14] Moreover, when we split the South into regions, we show that our results are not driven by China (Section 4).

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. We calculate the average share of counterparty countries in each regional block reported by source countries each year (Online Appendix Figure 2). 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. For FDI, there was a marked jump in reported counterparties in 2009, particularly South-to-South. This jump occurred because the IMF's CDIS data, available from 2009 onward, have 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, in country-to-country regressions, we control for changes in country coverage.

A second concern with the bilateral data is that there are reporting thresholds and missing values. If a country adopts a threshold to avoid reporting low-value investments, this can generate spurious zero values or missing values. As a result, a zero value might reflect a zero position between countries or a positive value below the threshold. In addition, a missing value might reflect that the position is below the threshold or that the information is truly missing. In practice, countries often report even very small values of international investments, suggesting that any reporting thresholds are low. The treatment of missing values is less consequential for the analysis of the value of investments (Sections 3–6) than for the extensive margin (Section 7).[15] Missing values are also less pervasive in large countries. Thus, we report alternative specifications using only the top quintile of countries (according to their average GDP during 2001–18).

To show that our bilateral data provide good coverage of overall cross-border investments, we compare Lane and Milesi-Ferretti's (2001, 2007) global IIP aggregates (summing across all

[15] The appendix explains how we treat missing values. For robustness, we conducted alternative analyses in which all missing values were treated as zeros. The results were qualitatively similar to the ones reported in the paper.

countries) with our aggregated bilateral data (summing across all country pairs) on a yearly basis (Figure 1). We use other investments from the IIP as a proxy for bank loans and deposits. 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 similar dynamics thereafter, although our values are smaller.[16]

3. Value of International Investments over Time

In this section, we analyze the process of the South's financial integration by focusing on the size of investment positions over time at the aggregate regional level and at the country level. We first measure the size of investments for the North-to-North, North-to-South, South-to-North, and South-to-South blocks relative to world GDP and relative to total investments. We then perform regressions at the region-to-region, country-to-region, and country-to-country levels to estimate investment growth rates at the three levels of aggregation.

3.1. Aggregate Regional Investments

Figure 2 tracks the evolution of IIPs relative to world GDP over time, showing each region-to-region block separately. Table 1 reports the values for 2001, 2007, 2008, and 2018 to compare positions at the beginning and at the end of the sample and around the GFC. To compute the regional values, we aggregate the bilateral data for all countries of the source region to all countries of the destination region. For instance, Panel A "North-to-South" shows the value of bank loans and deposits extended by North countries to all South countries combined. For each investment type and year, world GDP includes the GDP of those countries for which investment data are available.

[16] Much of the gap reflects that "Other Investment" in the IIP covers more than just the bank loans and deposits included in our bilateral data, namely trade credit and other accounts receivable as well as insurance and pension-related assets, such as technical reserves and entitlements (IMF 2009, Table 6.1).

Figure 2 and Table 1 show that the South has increased the value of international investments with the rest of the world, as a source of investments to the North and as a destination of investments from the North. South-to-South investments have grown even faster than North-to-South and South-to-North investments, across all investment types. Between 2001 and 2018, South-to-South investments as a share of world GDP grew twofold for bank loans and deposits, fourfold for FDI, sevenfold for international reserves, and ninefold for portfolio investment. The growth of the South contrasts with that of North-to-North investments, which expanded at the slowest pace. The latter grew by less than 60% for all investment types and even saw a small decline for loans and deposits over the sample period.

Despite the overall expansion of international investments between 2001 and 2018 across all investment types, there was a change in these trends during the GFC. Particularly marked was the contraction of North-to-North international loans and deposits, which continued to fall in the aftermath of the GFC. At the global level, the ratio of loans and deposits to world GDP declined from 47% in 2007 to 30% in 2018. By contrast, South-to-South international loans and deposits expanded in the aftermath of the GFC. In portfolio investment, South-to-South positions grew sharply in the run-up to the GFC and continued expanding at a slower rate thereafter. South-to-South international reserves continued to grow after the GFC until 2011, when they stagnated.

Although the South has become more integrated into global finance across all investment types, we observe significant changes in the composition and direction of international investments. Regarding composition, the South participated in global finance in 2001 mainly through FDI and loans and deposits (8% of world GDP each) and to a lesser extent through international reserves (4%) and portfolio investment (3%). By 2018, loans and deposits, portfolio investment, and international reserves involving the South had become similar in size (10% of world GDP each), while FDI remained larger (18%). South-to-South investments alone captured from 0.3% to 6% of world GDP

in 2018, depending on the investment type. Although still small in size at the end of the sample, portfolio investment grew significantly in relative terms, from 0.2% of world GDP in 2001 to 1.6% in 2018.[17]

Regarding the direction of investment, in 2001 the South was mainly a destination of FDI from the North (4.1% of world GDP, versus 2.4% as a source) and as a source of loans and deposits to the North (4.1%, versus 2.7% as a destination, Table 1). By 2018, the South had become equally important as a source and destination of FDI vis-à-vis the North (6.3% and 6.4%, respectively) and as a source and destination of loans and deposits (3.4% each). Meanwhile, FDI and banking between South countries had grown to a similar size (5.5% for FDI and 3.6% for loans and deposits). Regarding international reserves, investments involving the South remained overwhelmingly South-to-North, standing at 10% of world GDP in 2018.[18]

Investments involving the South also grew substantially as a share of the global total. Table 2 reports the respective year-end shares of each block in total international investment, where the shares across the four blocks add up to 100%. The table shows that, for each investment type, the South accounted for an increasing share of the global total, mirrored in a shrinking North-North block.[19] Between 2001 and 2018, the share of international investments involving the South increased by 5 percentage points (p.p.) for banks loans and deposits, 8 p.p. for FDI, 10 p.p. for portfolio investment, and 16 p.p. for reserves. Despite the rise of the South, North-to-North IIPs were still the largest in 2018 except for international reserves, where the South-to-North block accounted for 73% of the

[17] Both portfolio debt and portfolio equity grew substantially during the sample period, with portfolio equity increasing faster (Online Appendix Table 2).

[18] Given the shortcomings of the IMF's COFER data mentioned in Section 2.1, we are likely underestimating the growth of the South as a destination of reserves. In particular, we are missing the rise of the Chinese renminbi as a reserve currency because we keep the 2014 currency allocation for the period 2015–2018. In 2016, the share of international reserves denominated in Chinese renminbi stood at 1.1%. In 2018 this share was 1.9%, and by 2021 it had risen to 2.8%, only below the U.S. dollar, euro, yen, and British pound shares (Appendix Section A.4).

[19] To ensure that the results are not driven by improving data coverage for the South in recent years, we constructed Tables 1 and 2 including only country pairs for which we have data for all years in our sample. The observed trends are qualitatively similar to those reported here.

total. In the case of loans and deposits and FDI, South-to-South investments came to rival North-to-South and South-to-North investments. This is remarkable given the magnitude of the North in overall investments.

To trace the evolution of the overall magnitude of the South, the bottom panel of Table 2 reports the shares of each block by summing the positions across all investment types. The panel shows that the share of the North-to-North block monotonically declined over time, from 75% in 2001 to 66% in 2018. The largest increase occurred in the South-to-South block, from 4% to 8% between 2001 and 2018. The South-to-North block also grew significantly, from 12% to 16%.

3.2. Value Trend Regressions at Three Levels of Aggregation

We next estimate panel regressions of the evolution of IIPs over time to test more formally whether investments involving South countries grew faster than those involving North countries. We run growth regressions at three levels of aggregation, where all observations enter at equal weights (regardless of how large the IIP of each country (or country pair) is in the aggregate). This helps to test whether the aggregate trends we document are common across countries or are driven by a few large countries. First, we estimate region-to-region (R-R) regressions to test whether the trends discussed so far are statistically significant. Then, the more granular country-to-region (C-R) regressions, which include country-to-region and region-to-country investments, examine whether these trends are widely shared at the country level.[20] Last, the most granular country-to-country (C-C) regressions determine whether the aggregate patterns hold for the average country pair in the global financial network. We repeat these C-C regressions for the top quintile of countries by GDP to show

[20] For international reserves, the regressions can only be run at the R-R and C-R levels and the latter using information only at the C-R level because region-to-country data are not available.

that our estimates are not distorted by smaller countries that might not be representative of the aggregate and tend to have more missing bilateral data.

We estimate the following regression:

$$log(Value_{i,j,t}) = \beta_{NN} Trend_{i,j,t}^{NN} + \beta_{NS} Trend_{i,j,t}^{NS} + \beta_{SN} Trend_{i,j,t}^{SN} + \beta_{SS} Trend_{i,j,t}^{SS} + \theta_{i,j} + \varepsilon_{i,j,t}, \quad (1)$$

where *i* and *j* indicate the source and destination region or country, respectively, and *t* denotes time in years. The independent variables consist of time trends for each block. For example, $Trend_{i,j,t}^{NN}$ is equal to *t* when both *i* and *j* are in the North and is equal to zero otherwise. The other trends are analogously defined. The regressions also include fixed effects, $\theta_{i,j}$, defined at the level of data aggregation.[21] The main coefficients of interest are the βs for each trend by block, which estimate the average annual percentage change in the value of investments for the countries of 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 a source or as a destination of international investment.

We first estimate this regression using ordinary least squares (OLS) with the log of the value of investments as the dependent variable. As an alternative, we estimate Poisson pseudo maximum likelihood (PPML) C-C regressions with the value of investments as the dependent variable to explicitly account for zero-valued observations at this most granular level. The estimated coefficients represent the slope of each trend as a percentage change since the model uses a log transformation of the dependent variable. Using PPML regressions as an alternative to OLS regressions is common practice in the trade and finance literature using bilateral data (Santos Silva and Tenreyro 2006; Brei and von Peter 2018).

[21] The R-R regressions include R-R fixed effects (North-to-North, North-to-South, South-to-North, and South-to-South). The C-R regressions include C-R fixed effects (country-to-North, country-to-South, North-to-country, and South-to-country). For the C-C estimations, the regressions include C-C fixed effects that control for time-invariant bilateral terms included in gravity models (e.g., distance and common language).

We report both OLS and PPML C-C estimations because they provide somewhat different insights on the intensive margin (the growth in the value of investments) and the extensive margin (the growth in the number of bilateral links). The OLS regressions capture trends in the intensive margin as they estimate growth dynamics conditional on positive investment. The PPML regressions retain observations with zero values, and thus capture the dynamics in international investments along both the intensive and the extensive margins. At higher levels of aggregation, there is less of a distinction between the intensive and extensive margins.

Table 3 shows that the differences across regional blocks discussed in Section 3.1 are economically and statistically significant at all three levels of aggregation (R-R, C-R, and C-C). In particular, the regressions show that the South grew faster than the North in global finance during 2001–18 across the four investment types. To statistically compare the slopes of these trends, the table reports three Wald tests that compute the difference between the growth rates of South-to-South and North-to-North ($\beta_{SS} - \beta_{NN}$), South as a destination and North as a destination ($\beta_{NS} + \beta_{SS} - \beta_{NN} - \beta_{SN}$), and South as a source and North as a source ($\beta_{SN} + \beta_{SS} - \beta_{NN} - \beta_{NS}$).

The results show that South-to-South investments consistently grew faster than North-to-North investments (Table 3, Wald test 1). The slope estimates are similar across data aggregation levels and investment types, although there is some variation in the magnitudes. For example, at the R-R level, South-to-South loans and deposits expanded at a rate of 9% per year, which is 8 p.p. faster than the North-to-North growth rate of 1% per year. The difference in growth rates is 10 p.p. per year for portfolio investment, 7 p.p. per year for FDI, and 11 p.p. per year for international reserves.

Table 3 also provides evidence that the South expanded faster than the North, both as a destination and as a source 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 5 p.p. per year faster, on average, than investment to North countries (Wald test 2). The same regression

shows that portfolio investment from South countries (to the North and South) also increased 5 p.p. faster than investment from North countries (Wald test 3). Although there is variation in the magnitude of the estimates across data aggregation levels and investment types, the patterns are robust.[22]

4. Regional Differences across the South

An important question about the financial integration of the South is whether the patterns described so far are driven by specific regions or are common across regions. To explore this, we partition the South into six regions: China, Asia (excluding China), Africa, Eastern Europe and Central Asia, Latin America and the Caribbean, and the Middle East, as shown in Appendix Table 1.[23] We exclude international reserves from this analysis for lack of granular country-level data as a destination.

Figure 3 reports the growth rate in the value of IIPs relative to world GDP for each region of the South separately vis-à-vis the North and vis-à-vis the South as a whole (including each region). The dots in the North-to-South column represent the growth rate in investments from the North to each region of the South. Likewise, the six dots for South-to-North show growth of investments from the six South regions to the North. The dots in the South-to-South column plot the growth rates in investments from each region of the South to the South as a whole and vice versa. Online Appendix Table 5 reports each value displayed in Figure 3.

[22] As discussed in Section 2, when merging UNCTAD and CDIS data for FDI, there was a large increase in the number of reported counterparties in 2009, especially for South countries (Appendix Section A.3). Online Appendix Table 3 reports a robustness test where we add to all the specifications a dummy that equals one from 2009 onward interacted with R-R dummies. This assigns all the growth in FDI positions from 2008 to 2009 to the change in coverage. These estimations still show South-to-South FDI grew faster than North-to-North FDI and that the South expanded faster than the North both as a source and a destination of FDI.

[23] Throughout the paper, China refers to mainland China. As an alternative, we analyze the joint positions of China and Hong Kong SAR. Doing this does not qualitatively affect the comparisons of China with other regions of the South in terms of growth or level of positions (Online Appendix Figures 3 and 4).

The figure shows that South-to-South investments grew faster than North-to-North investments for all regions of the South and for all investment types. Moreover, North-to-South and South-to-North investments tended to grow more rapidly than investments within the North. One exception is loans and deposits, for which South-to-North investments grew, on average, at a similar pace as North-to-North investments. The other exception is North-to-South FDI that grew at a similar average rate as North-to-North FDI. Across investment types, portfolio investment grew the fastest, followed by FDI.

Figure 4 contrasts growth in investments within and across the regions of the South.[24] For each of the six South regions, the figure distinguishes investments within the same region (intraregional) from those vis-à-vis the other five regions of the South (interregional). Again, investments involving the South grew faster than those involving the North (light gray bars), but the interregional component (gray) tended to grow more rapidly than the intraregional one (black). Importantly, the different regions of the South grew at comparable rates, showing that China is not unique when it comes to the financial integration of the South. In fact, Africa was the region that grew the fastest for interregional portfolio investment and FDI, and Eastern Europe and Central Asia was the region that grew the fastest for intraregional loans and deposits.

Last, Figure 5 shows where the North and the six regions of the South stood in 2018 in terms of the level of their international investment. Despite the rise of the South, the largest bilateral investments were still those within the North, with portfolio investment at 40% of world GDP, FDI at 32%, and loans and deposits at 20%. The North's investments with the South comes a distant second. Among the regions of the South, Asia (excluding China) held the largest investments vis-à-vis the North (gray) and other regions of the South (black bars). China looms large in loans and deposits

[24] In Figures 4 and 5, interregional investments of region A vis-à-vis region B include investments from countries in region A to countries in region B and from countries in region B to countries in region A.

and in FDI vis-à-vis other regions of the South. Both Eastern Europe and Central Asia and Latin America and the Caribbean held large FDI positions vis-à-vis the North.

5. Accounting for Offshore Activity

This section examines the role of OFCs in the South's financial integration.[25] In general, OFCs are neither the ultimate source nor a final destination for international investments (Hines, Jr. 2010; Lane and Milesi-Ferretti 2011; Borga and Caliandro 2020). This fact is often taken as a reason for excluding OFCs in empirical work. However, OFCs are prominent intermediaries in global capital flows and as such they play a role in routing investments between North and South. Another reason for excluding OFCs is limited data availability, especially in bilateral statistics. We went to great lengths to maximize coverage by using mirror data (as explained in the appendix). For portfolio investment and FDI, the bilateral data for OFCs have better coverage for liabilities than for assets, thanks to the assets that other countries report vis-à-vis OFCs.

To provide a fuller picture, we incorporate OFCs in two steps. We start from the *direct* positions North and South countries hold with each other. The first four rows of Table 4 reproduce results from Table 1 discussed above. The scale of *indirect* investment via OFCs can be inferred from the next five rows.[26] As expected, the total loans and deposits placed with OFCs approximately equal those that OFCs hold on the asset side. For other instruments, notably for FDI, OFC liabilities exceed their assets, presumably reflecting incomplete reporting.

In terms of scale, OFCs account for a smaller share of global investments than the South. In 2018, the value of investments routed through OFCs represented 15% worth of world GDP; by contrast, the South accounted for 27% (these amounts aggregate the liabilities in loans and deposits,

[25] Data availability for each OFC by investment type is presented in Online Appendix Table 1.

[26] Treating OFCs as a separate group of countries expands the analysis from 2x2 blocks to 3x3 blocks reported in nine rows in Table 4.

portfolio investment, and FDI of the respective region). Over time, the prominence of OFCs has grown in FDI and portfolio investment but declined in banking. Between 2001 and 2018, FDI and portfolio investment involving OFCs grew from 1.7% to 7% and from 3.5% to 10% of world GDP, respectively. By contrast, the corresponding total for loans and deposits fell from 10% to 5.5% during the same period.

OFCs still cater mostly to the North, but the South is catching up. Investments between OFCs and the North exceeded those between OFCs and the South throughout the sample period.[27] The exception is FDI, for which the South uses OFCs as much as the North does. By 2018, almost half of the FDI routed through OFCs came from the South, totaling 3% of world GDP (up from 0.9% in 2001). Admittedly, the surge in FDI over time also includes transactions in which firms headquartered in the South raise capital through their OFC subsidiaries and then channel the funds to the home country in the form of intracompany FDI. Some papers try to correct for this source of bias (Bertaut et al. 2021; Coppola et al. 2021), but only for portfolio investment and for a small set of countries.

OFCs gradually facilitate more investment involving the South. Their bilateral positions with the South have grown faster than those with the North. International investments (loans and deposits, portfolio investment, and FDI) from the South to OFCs increased about threefold in terms of world GDP, from 1.5% in 2001 to 5% in 2018. Meanwhile, North investments routed through OFCs grew from 7% to 10% of world GDP. On the asset side, a growing share of investments recorded in OFCs went to countries in the South: 38% of the identified FDI assets in 2018 were vis-à-vis the South, up from 16% in 2001.[28] The finding that the South channels part of its investments through OFC is consistent with other findings in the literature. For example, there is evidence that a large share of

[27] Indeed, several major OFCs, such as the Cayman Islands or Jersey, mainly serve large, advanced economies nearby.
[28] This calculation divides the row "OFCs to South" by all investments booked by OFCs as a source (three rows).

China's investments in the rest of the South since the early 2000s has been conducted via OFCs (Horn et al. 2021).

An alternative to treating OFCs as a separate group is to expand the North and the South to incorporate individual OFCs in their respective regions, following the BIS country groupings.[29] Doing so makes each OFC's positions count toward the bilateral investments involving the North or the South. Accordingly, the investment positions in Table 4 (Panel B) are larger than they are in Table 1 without OFCs. Including OFCs scales up the value of South-to-North investments the most, from 3% to 4% of world GDP for portfolio investment and from 6% to 9% of world GDP for FDI. Overall, incorporating OFCs enriches the analysis but does not affect our main results regarding the size and growth of the South in international investments.

6. Financial Integration and Economic Growth

A natural question at this point is whether the rapid financial integration of the South simply mirrors fast economic growth or whether South IIPs grew even faster than GDP. To answer this question, we scale investment positions by the GDPs of the source and destination countries/regions involved. More precisely, we divide IIPs by "regional GDPs," defined as the square root of the product of the GDPs of the source and of the destination countries/regions. We choose this scaling because it is symmetric and homogeneous of degree one. According to this benchmark, if the GDPs of both the source and destination country/region double, international investments between them should also

[29] Most OFCs are either small European economies (e.g., Andorra and Liechtenstein) or dependent territories whose governing state is an advanced economy, such as the Netherlands and the United Kingdom (e.g., Aruba and Cayman Islands, respectively). These are grouped with advanced economies (North). Others, such as Macao SAR and Panama, are included with emerging market economies (South) (https://www.bis.org/statistics/country_groupings.pdf).

double.[30] This can be understood as a bilateral version of Lane and Milesi-Ferretti's (2007) measure of international financial integration, which scales a country's external position by its GDP.

We first rerun the analysis in Section 3.2 with the new scaling of international investments. Table 5 matches Table 1 except that international investments are scaled by regional GDPs instead of world GDP. In addition, Table 6 reports estimations analogous to those in Table 3 with the rescaled dependent variable. The βs still measure average annual growth rates within and across regions, this time of investments relative to the respective regions' GDPs:

$$log\left(\frac{Value_{i,j,t}}{\sqrt{GDP_{i,t} \times GDP_{j,t}}}\right) = \beta_{NN} Trend_{i,j,t}^{NN} + \beta_{NS} Trend_{i,j,t}^{NS} + \beta_{SN} Trend_{i,j,t}^{SN} + \beta_{SS} Trend_{i,j,t}^{SS} + \theta_{i,j} + \varepsilon_{i,j,t}\,. \quad (2)$$

Overall, the results in Tables 5 and 6 are qualitatively similar to those in Tables 1 and 3, even though the differences in growth rates tend to be smaller, especially for the PPML estimations. For international reserves, it is still the case that South-to-South positions grew the fastest, followed by South-to-North and North-to-South investments (Tables 5–6, Panel D). Similarly, portfolio investment involving the South grew faster than that within the North (Panel B). Moreover, the South grew more as a destination than as a source of portfolio investment, as reflected in the North-to-South and South-to-North results. In contrast, for FDI, the South grew more as a source, with larger South-to-North than North-to-South coefficients (Panel C). But, again, South-to-South FDI grew the fastest. For loans and deposits, South-to-South investments grew faster than those involving the North (Panel A).

The regressions so far restrict the dynamics of international investments to linear trends (Equation (2)). In Section 3.2, this specification was reasonable because the growth of the South dominates the overall dynamics when investments are not scaled. Imposing linear regional trends

[30] As an alternative, we ran regressions using source and destination GDPs as independent variables. Their associated coefficients varied across specifications, ranging from 0.3 to 0.8 for the C-C estimations. Thus, using 0.5 or the square root of GDPs is a reasonable benchmark.

appears more restrictive here because the growth of the South is not as strong as in Section 3.2. For example, Table 5 shows that the dynamics of loans and deposits and portfolio investment were quite different before and after the GFC. Indeed, Lane and Milesi-Ferretti (2018) observe that the decades-long expansion in external positions relative to world GDP had come to a halt in the GFC.[31] To allow for more flexible dynamics, we thus estimate the following specification at the granular C-C level of aggregation for loans and deposits, portfolio investment, and FDI:

$$log\left(\frac{Value_{i,j,t}}{\sqrt{GDP_{i,t}\times GDP_{j,t}}}\right) = \beta_{NN,t} + \beta_{NS,t} + \beta_{SN,t} + \beta_{SS,t} + \theta_{i,j} + \varepsilon_{i,j,t}. \quad (3)$$

Equation (3) generalizes (2) in that the four linear trend slopes are replaced by separate time dummies for every year in each block.

Figure 6 shows the estimates for $\beta_{NN,t}, \beta_{NS,t}, \beta_{SN,t}, \beta_{SS,t}$ for the top quintile of countries in the sample, which report data more consistently over time. The GFC represents a structural break for all investment types. For portfolio investment, the South integrated faster than the North, both before and after the GFC. The pace of North-to-North integration slowed down after the GFC, but integration involving the South continued to expand. Between 2001 and 2007, bank loans and deposits increased for all blocks except for North-to-South. After the GFC, only the South-to-South block continued to outpace GDP. For FDI, between 2001 and 2007, the South-to-South block saw FDI expand in line with GDP, whereas FDI grew faster in the other three blocks. Since the GFC, however, FDI within the South outpaced GDP by more than North-to-South and North-to-North FDI. Only South-to-North FDI grew even faster in relative terms.

[31] Lane and Milesi-Ferretti (2018) analyze the evolution of total world investments as a fraction of total world GDP. They find that GDP growth of emerging economies lowered this measure of international financial integration. This is consistent with our findings that international financial integration of the South grew faster than that of the North. Because South financial integration started from a much lower level than North financial integration, its contribution to the growth of total world investments was smaller than its contribution to the growth of total world GDP.

7. Extensive Margin

In this section, we explore the role of the extensive margin in the rise of the South in global finance. We restrict the analysis to loans and deposits, portfolio investment, and FDI since international reserves are not available at the granular C-C level.

We first document the evolution of the share of each regional block in the total number of global active bilateral links.[32] Table 7 is the counterpart to Table 2, now for the extensive margin. It shows that the number of links involving the South increased markedly since 2001. In particular, the global share of South-to-South links approximately doubled for the three investment types between 2001 and 2018. Meanwhile, the share of North-to-North links fell substantially, particularly for FDI where links within the North only accounted for 10% of global links by 2018. Evidently, countries in the South have gradually become more interconnected with the North and with each other. To get a visual sense of the rise in interconnectedness within the South, Figure 7 maps all active links within the South in 2001 and in 2018. Evidently, South countries have become more interconnected in the three investment types.

We next estimate panel regressions of the evolution of international links over time to test more formally whether connectedness grew faster in the South than in the North (Table 8). We follow the same approach as in Section 3.2. We run regressions analogous to Equation (1) for the number of active links instead of the log value of investments. At the R-R and C-R levels of aggregation, we employ Poisson regressions, as is customary with count dependent variables.[33] As before, the coefficients of interest are the trend slopes for each block, which now estimate the average annual percentage change in the number of active links for each block.

[32] 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 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).

[33] 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 logit regressions with the dependent variable being an indicator equal to one if the link between two countries is active and equal to zero if it is inactive. We include R-R fixed effects because specifications with C-C fixed effects would drop all country pairs that remain active or inactive throughout the sample period.[34] We report the average marginal effects (AME), the estimated probability for the first period of the sample (the "baseline probability"), and the implied average annual percentage change in the predicted probabilities over the sample period.[35]

Table 8 confirms that South connectedness increased faster than North connectedness, with the pattern of growth in linkages matching that in the value of investments (Table 3) across the four regional blocks. This is observed at all levels of aggregation. The number of North-to-North links has grown slowly across all investment types, reflecting the fact that North countries were already well connected among themselves in 2001. The number of links involving the South grew significantly faster, particularly those within the South. The most striking result is for the growth of FDI links. The baseline probability of any two South countries being connected through FDI was 5% in 2001 and grew by 15% per year, on average, over the entire sample period. This contrasts with a rate of 2% for country pairs in the North.[36]

Despite the proliferation of financial linkages, it remains to be seen whether newly formed links are quantitatively important in international investments. To assess their economic significance, we analyze how much international investments in 2018 can be attributed to new links. We classify as old links those that were active in 2001 and as new links those that were inactive or missing in 2001

[34] 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.

[35] 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.

[36] As in Section 3.2, we run a robustness test to account for the increased coverage of FDI investments starting in 2009. In particular, we attribute 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 (Online Appendix Table 4).

and became active at any point during 2002–18. This allows us to split the value of investments in 2018 (Table 1) into the shares carried by old versus new links.

Table 9 shows that links established since 2001 accounted for almost none of the value of investments within the North. New links played more of a role for investments involving the South, especially within the South. For both portfolio investment and loans and deposits, new links involving the South (the sum of North-to-South, South-to-North, and South-to-South blocks) carried investments worth 1% of world GDP in 2018, whereas old links accounted for 9%. For FDI, new links involving the South were more substantial, amounting to 4% worth of world GDP in 2018, compared to 14% for old links. Indeed, much of the FDI from the South was delivered through linkages established after 2001: they accounted for a quarter of total investments in both the South-to-North and South-to-South blocks.

8. Conclusions

This paper analyzes the rise of the South in global finance. It combines rich bilateral data sets that jointly provide the broadest coverage of international investment positions in terms of countries, years, and financial instruments. The paper shows that the South's weight in international investments steadily increased between 2001 and 2018. For all investment types, North-to-North investments grew the slowest, South-to-North and North-to-South investments grew faster, and South-to-South investments grew the fastest. Moreover, South portfolio investment and international reserves grew more than South FDI, which in turn expanded more rapidly than South loans and deposits. Despite the South's rapid progress toward financial integration, by 2018 the South still accounted for a lower share of international financial assets and liabilities than the North, even though the GDP of both regions had become similar.

These patterns are robust to several extensions. First, they are not driven by any particular set of countries in the South. Although China and the rest of Asia grew more prominent in global finance during this period, the same holds for other regions. In fact, Africa is the region with the fastest growth in portfolio investment and FDI with the rest of the South, albeit from a very low base. Eastern Europe is the region with the fastest intraregional growth in loans and deposits. Second, although our baseline analysis excludes investments to and from OFCs, the inclusion of OFCs tends to reinforce our results as the South increasingly engages in offshore finance. Third, we show that the rapid financial integration of the South generally exceeds the pace of economic growth.

The rise of the South is also reflected in the extensive margin. North countries were already well connected with other North countries in 2001, so the growth in North-to-North links was moderate during our sample period. By contrast, countries in the South have gradually become better connected both with countries in the North and with other countries in the South. Indeed, new links established since 2001 account for a sizable share of South-to-South investments in 2018.

Our paper provides new stylized facts about the process of financial integration for the four main types of international investments. The bilateral data assembled for the paper could be valuable for other research, for example, on the exposure and transmission of shocks across countries or on the role of financial centers in intermediating investments across countries. It could also be used to explore whether different types of international investments and trade in goods and services are complementary or substitutes at the bilateral level. The data could be complemented along various dimensions, notably by incorporating information on the residence or nationality of the ultimate lenders and borrowers. The data could also be enriched to include bilateral information on underrepresented investment types (official loans and trade credit) and off-balance sheet positions (derivatives, credit lines, and guarantees). Unfortunately, such data do not currently exist with the same level of coverage and granularity as the data used in this paper.

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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 examined.

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 bank positions, 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 as major offshore financial centers, each reporting loans and deposits with 210 counterparty countries and jurisdictions. 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 banks' holdings of debt and equity to avoid double counting 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.

We construct loans and deposits by converting all reported LBS data (including restricted and confidential series) into a bilateral C-C format. The LBS data are collected in a "banks-to-country"

format: banks in each reporting country *i* record their loans to, and deposits from, every counterparty country *j* (all sectors). We transform this into a "C-C" format by using mirror data available from the reported liabilities (Brei and von Peter 2018). That format requires us to include loans and deposits from and to *all sectors*, in both country *i* and country *j*. The claims held by *banks* in country *i* represent bank lending to every other country *j* (all sectors). In addition, country *i* has *non-bank* entities (e.g., households and corporates) placing deposits with banks in country *j*, which also represent claims of country *i* on country *j*. These can be inferred from the reported liabilities that banks in country *j* owe to non-banks in country *i*.[37] Interbank positions appear twice whenever source and destination are both reporting countries. In those instances, we select the larger of the two reported values.[38]

We use mirror data to maximize coverage. Loans and deposits are available whenever the source *or* destination country reports bilateral positions since banks report both assets and liabilities. For example, before banks in China started to report their loans and deposits vis-à-vis the rest of the world in 2015, our mirror data capture the loans and deposits that China held with, and owed to, each BIS reporting country. However, mirror data cannot help when neither the source nor destination country reports to the BIS, which afflicts mainly the South-to-South block.

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 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 the banks in their jurisdiction hold claims or owe liabilities, any missing observation is most likely a true zero, and we code it as such. This procedure could underestimate the number and value

[37] These mirror liabilities are reliable: banks know in which country the holders of their deposits reside (unlike for holders of their debt securities).

[38] 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"). Taking the larger value gets closer to the ideal of all banks on both sides.

of active links for those reporting countries that do not require banks to report the complete breakdown of all counterparty countries when positions are below a reporting threshold.

The BIS introduced a change in the decimal reporting in 2012. Countries historically reported positions expressed in U.S. dollars rounded to the closest million. Until 2012, this practice concealed positions below USD 0.5 million (a low threshold in the context of country-to-country investment). We deal with this break in the series by setting all links below USD 0.5 million to zero throughout. This ensures that all reported loans and deposits are subject to a constant reporting threshold throughout the sample period.

The loans and deposits data used in the analysis include free, restricted, and confidential observations that are accessible only at the BIS. For the public domain, BIS data have to be aggregated to preserve confidentiality. As a result, we cannot share the disaggregated C-C data. Instead, we share most of the loans and deposits data aggregated at the C-R and R-C levels, although even at this level some observations must remain concealed to comply with data sharing rules.

A.2. Portfolio Investment

For portfolio investment, we rely on the CPIS 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- and short-term debt securities.[39] 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. The data are reported at the bilateral country-to-country level for all sectors. We determine the value of investments to be

[39] The data for the United States are based on the Treasury International Capital System (TIC) data provided by the U.S. Treasury to the IMF. Researchers interested just in bilateral investments in the U.S. can use the TIC data on U.S. portfolio liabilities to complement the CPIS asset data. In this paper, we do not use these additional U.S. data because the TIC liabilities data include official reserves and because we want to avoid combining data sets that are compiled using different methodologies for different countries.

equal to the value of assets reported by the source country. We also disregard the value of liabilities reported by the destination country because it is often missing since issuers of tradable instruments typically do not know the location of the holders of these instruments. Countries report missing values and zeros in the CPIS database, which we use as such.[40] According to the CPIS guidelines, missing values represent data that are either unavailable or masked to preserve confidentiality.

While the CPIS is the best bilateral data available for international portfolio investment for a broad set of countries, we also acknowledge its shortcomings. One problem is the limited number of reporting countries, which we cannot compensate through mirror data due to the lack of data on liabilities. The CPIS reports 74 source and 214 destination countries in 2018; the regions with the poorest coverage are Africa and the Middle East. Another potential shortcoming involves the holdings in investment funds. For example, consider an investor from country A that invests in a mutual fund located in country B, which then holds in its portfolio securities from country C. Fundamentally, this is an investment from country A to country C, but the data show two investments, one from A to B and another from B to C. This problem is attenuated to the extent that investment funds located in the South mostly hold securities from the South and investment funds located in the North mostly hold securities from the North. For more discussions on the CPIS data, see Felettigh and Monti (2008), Lane and Milesi-Ferretti (2011), and Josyula (2018).

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

[40] One exception is a jump in the number of reported zeros in 2004 and 2005 compared with 2003 and 2006. Most of the zeros 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.

(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, starting in 2009. UNCTAD provides FDI data collected primarily from national sources and supplemented with data from other international organizations (https://unctad.org/fdistatistics). The IMF's CDIS data are constructed using market and book values, whereas the UNCTAD's FDI data are constructed using historical cost, market value and, especially for developing countries, cumulated FDI flows. The IMF's CDIS data are preferrable because estimates based on historical costs and accumulated FDI flows are less precise than those that use market value.[41] We thus use the IMF's CDIS data for the period 2009–18 and the UNCTAD's FDI data for the period 2001–08.

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 countries both report information. 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 not available but its mirror value obtained from liabilities (assets) data is, we use this mirror datapoint. Whenever both assets and liabilities are available and the corresponding values do not coincide, we use the maximum of the two for reasons cited in Appendix A.1.

When combining the two FDI databases, we adjust the UNCTAD data so that they match the CDIS data in the period 2009–12. Specifically, we calculate the ratio of the CDIS value to the UNCTAD value for each country pair for the earliest year with positive reported values on both data sets. If this is not possible, the UNCTAD data are excluded for that country pair. We then multiply

[41] Estimates based on historical costs and accumulated FDI flows are particularly deceptive for long-term investments and in countries with high inflation and/or volatile exchange rates (Patterson et al. 2004; Kerner 2014).

the UNCTAD data for 2001–08 by this ratio. For the period 2009–12, we use the CDIS data when the CDIS reported value is positive or zero; otherwise, we use the UNCTAD data.[42]

A.4. International Reserves

In contrast to the other investment types, holdings of international reserves are unavailable at the country-to-country level. Instead, as explained in the main text, we construct a country-to-region and region-to-region data set on international reserves by 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 global international reserves. 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.

We assume that the 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 proportions as the region as a whole. We further assume that reserves denominated in a currency are held as debt owed by the country or group of countries issuing that currency. For the euro area, the data reveal the value of international reserves that countries hold in euros but not the value of reserves held in assets of any single euro area country. But since all euro area countries are in the North, this does not pose a problem for the construction of country-to-region

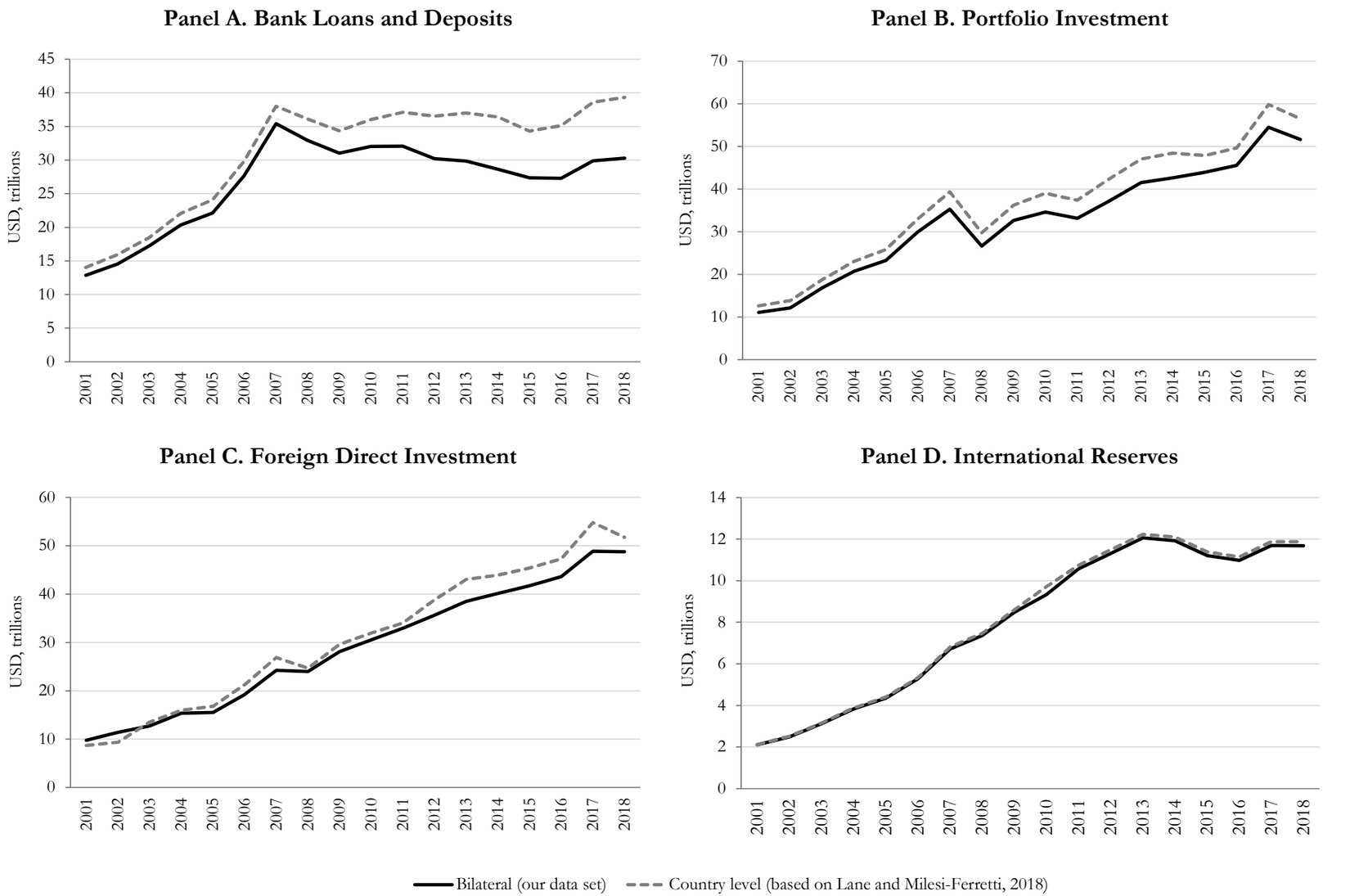
[42] The CDIS data report as zeros many observations that the UNCTAD data report as missing. Hence, it is likely that many missing observations in the UNCTAD data are true zero-valued observations rather than missing values. To minimize the underreporting of zero-valued observations, we assume that if the first non-missing observation for a country pair is a zero, all previous observations are also zero.

and region-to-region data. 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.

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 some high-income economies that we consider in our analysis to be part of the South (e.g., the Czech Republic, Hong Kong SAR, and Singapore). This should have a small impact on our results.

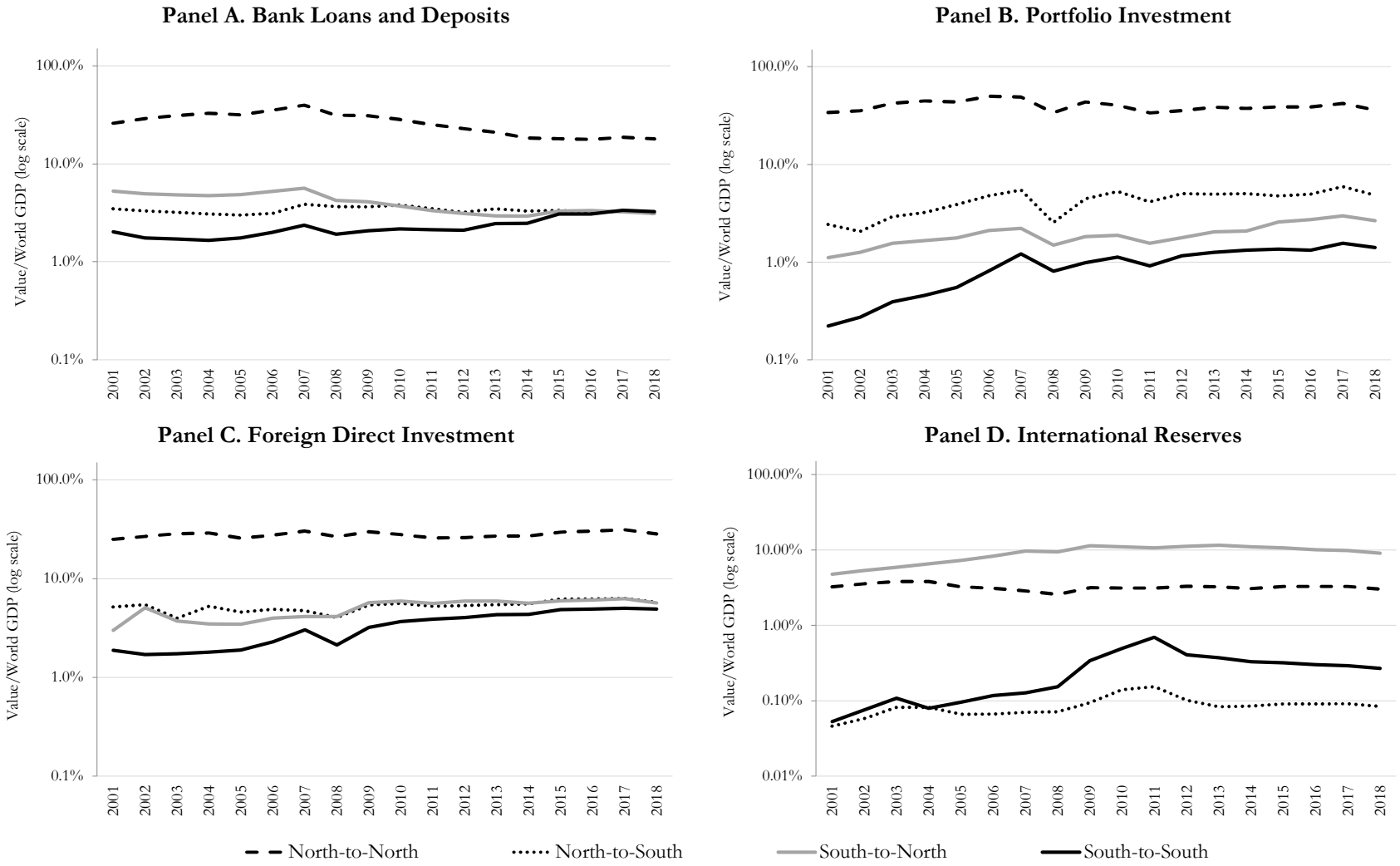
Regarding the COFER currency partition, we assume that international reserves held in "other currencies" are held entirely in South currencies. This last assumption is based on the results of the IMF's 2015 "Survey on the Holdings of Currencies in Official Foreign Currency Assets," covering holdings of 130 countries in 2013 and 2014. The survey shows that the main North currencies identified in COFER (the Australian dollar, Canadian dollar, euro, Japanese yen, pound sterling, Swiss franc, and U.S. dollar) capture the bulk of the holdings in the North. Those missing from COFER are the Swedish krona, the Norwegian krone, and the New Zealand dollar. The survey also shows substantial reserves held in South currencies (the Chinese renminbi, Singapore dollar, South African rand, Russian ruble, Indian rupee, and Brazilian real, in order of importance) not disaggregated in COFER. The Chinese renminbi started to be reported in COFER in 2016. The COFER data also include "unallocated reserves," which we assume to be allocated across currencies in the same proportion as the "allocated reserves."

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



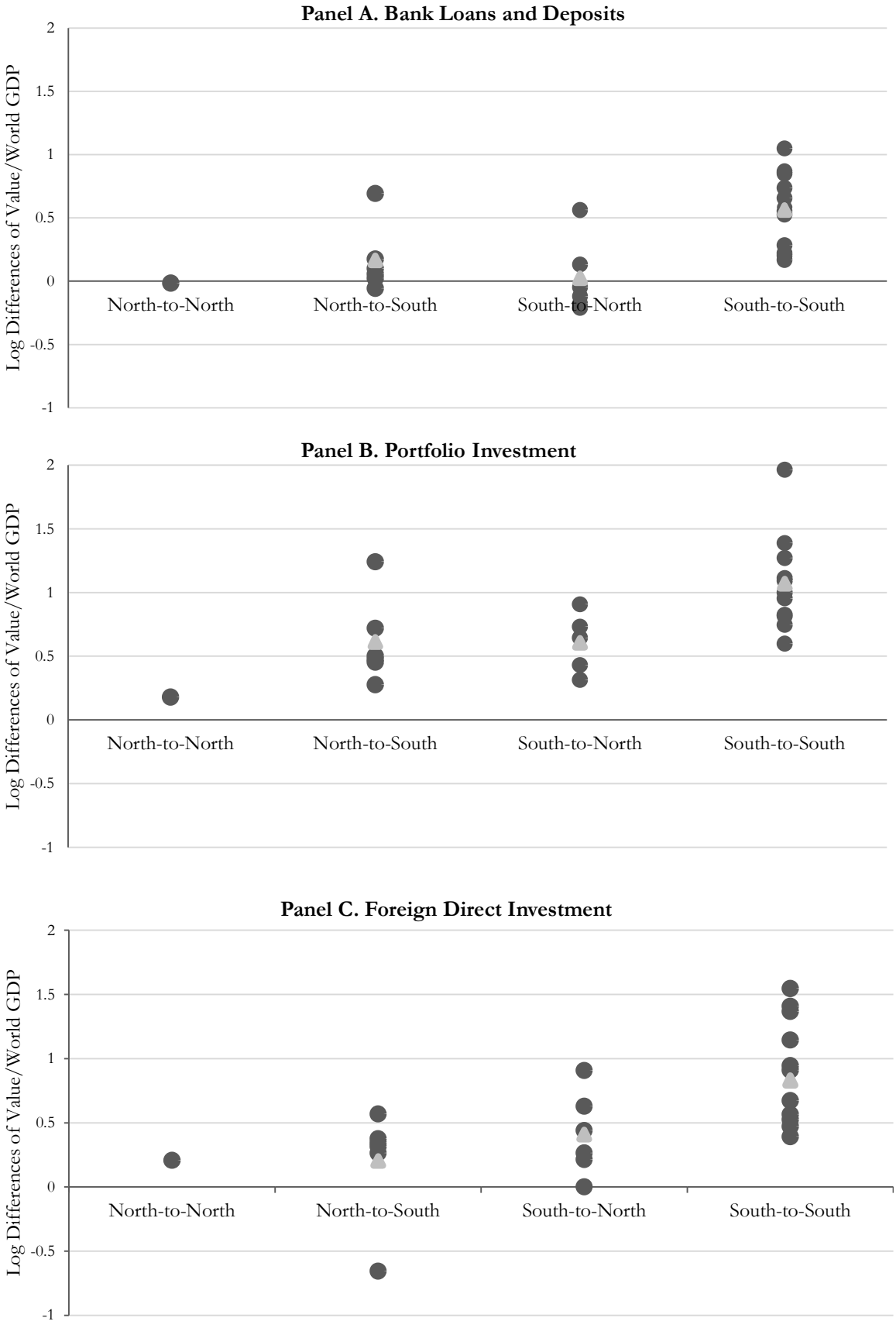
This figure compares the global totals of international investment positions for the bilateral data constructed in the paper with the country-level data constructed by Lane and Milesi-Ferretti (2018). Bilateral data are at the country-pair level, and we first obtain country-level data by aggregating values for each source country to all destination countries per year. We then aggregate the country-level data for those countries that appear in both samples, to obtain the global totals shown. For comparison purposes, we include OFCs. For the rest of our analysis, we exclude OFCs unless otherwise noted. Values are in trillions of 2011 U.S. dollars (USD).

Figure 2. Size of International Investment Positions, by Block



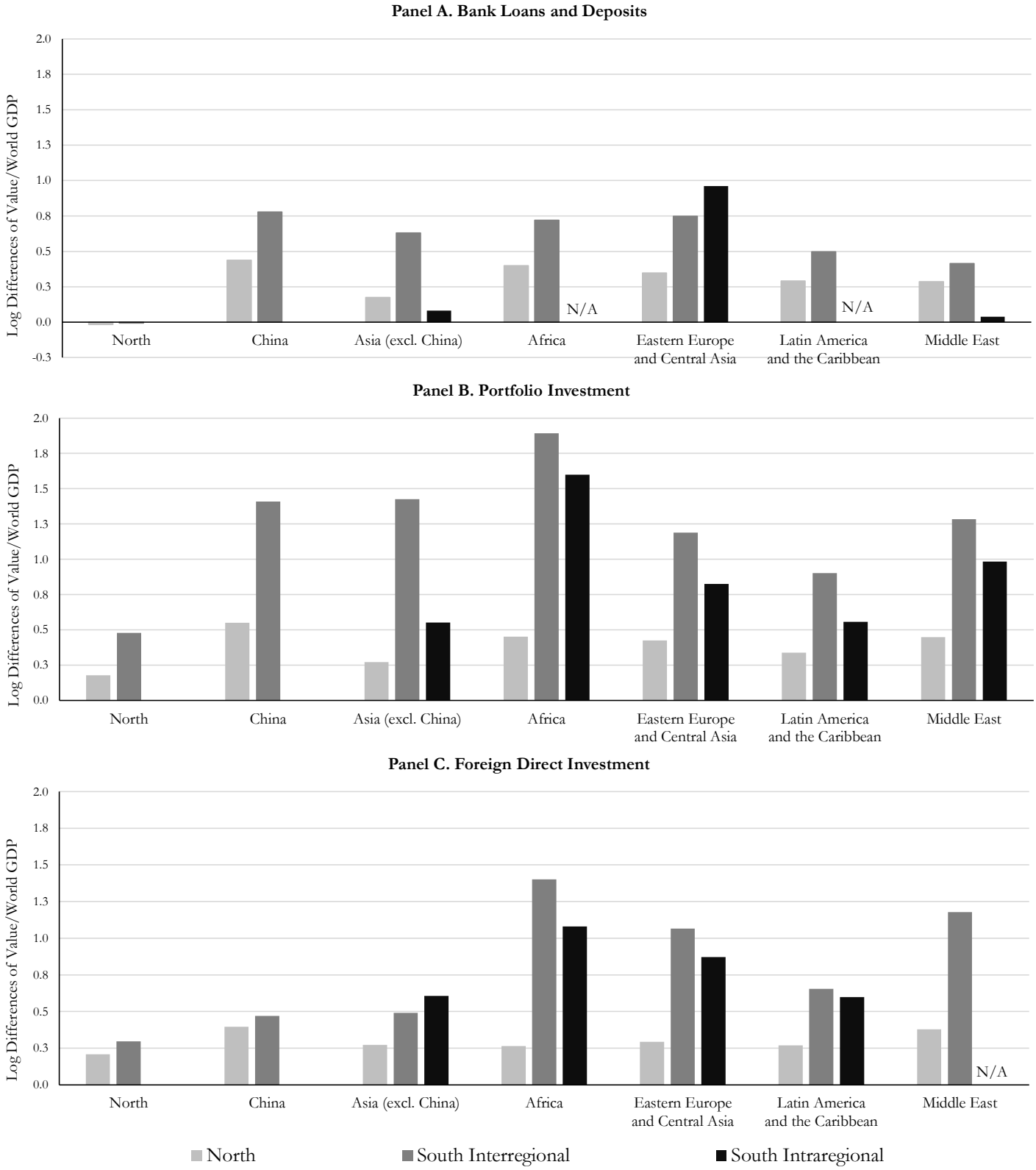
This figure shows, for each type of investment, the trends in the value of international investment positions by block as a ratio of world GDP. Bilateral data are aggregated for all countries within a source region to all countries within a destination region. For each investment type and year, world GDP includes the GDP of destination countries for which investment positions are available for that year (all source countries with data for a given year also have data as destination countries). Values are in millions of 2011 U.S. dollars (USD). We exclude OFCs.

Figure 3. Growth of International Investment Positions, by South Region



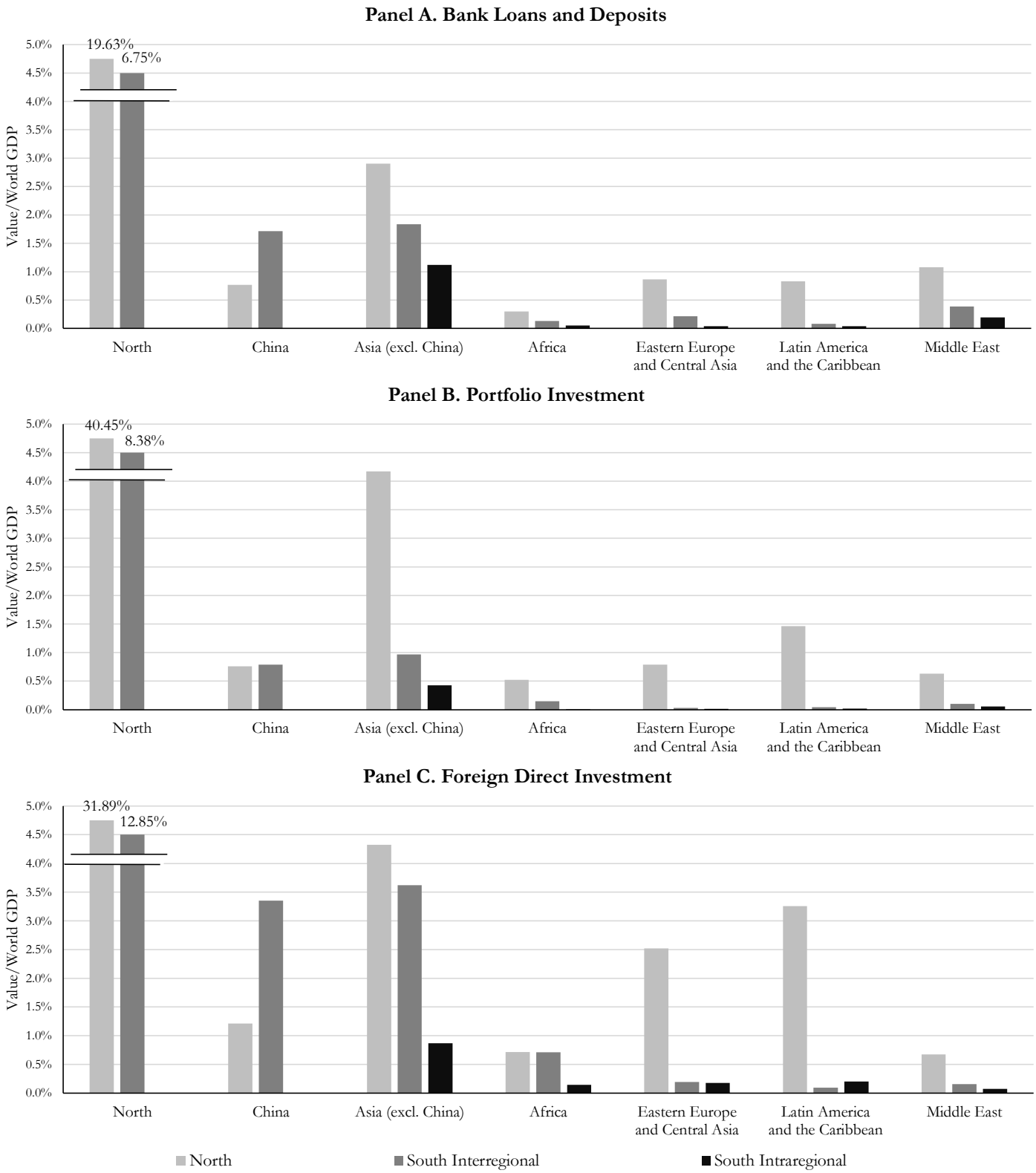
This figure compares the growth in values of international investment from 2001 to 2018. Each dark dot represents the log difference between 2001 and 2018 in value of investments from one region to another (as a ratio of world GDP), as described in Section 4. Light triangles represent mean differences across the respective dots. We exclude OFCs.

Figure 4. Growth of North and South, by South Region



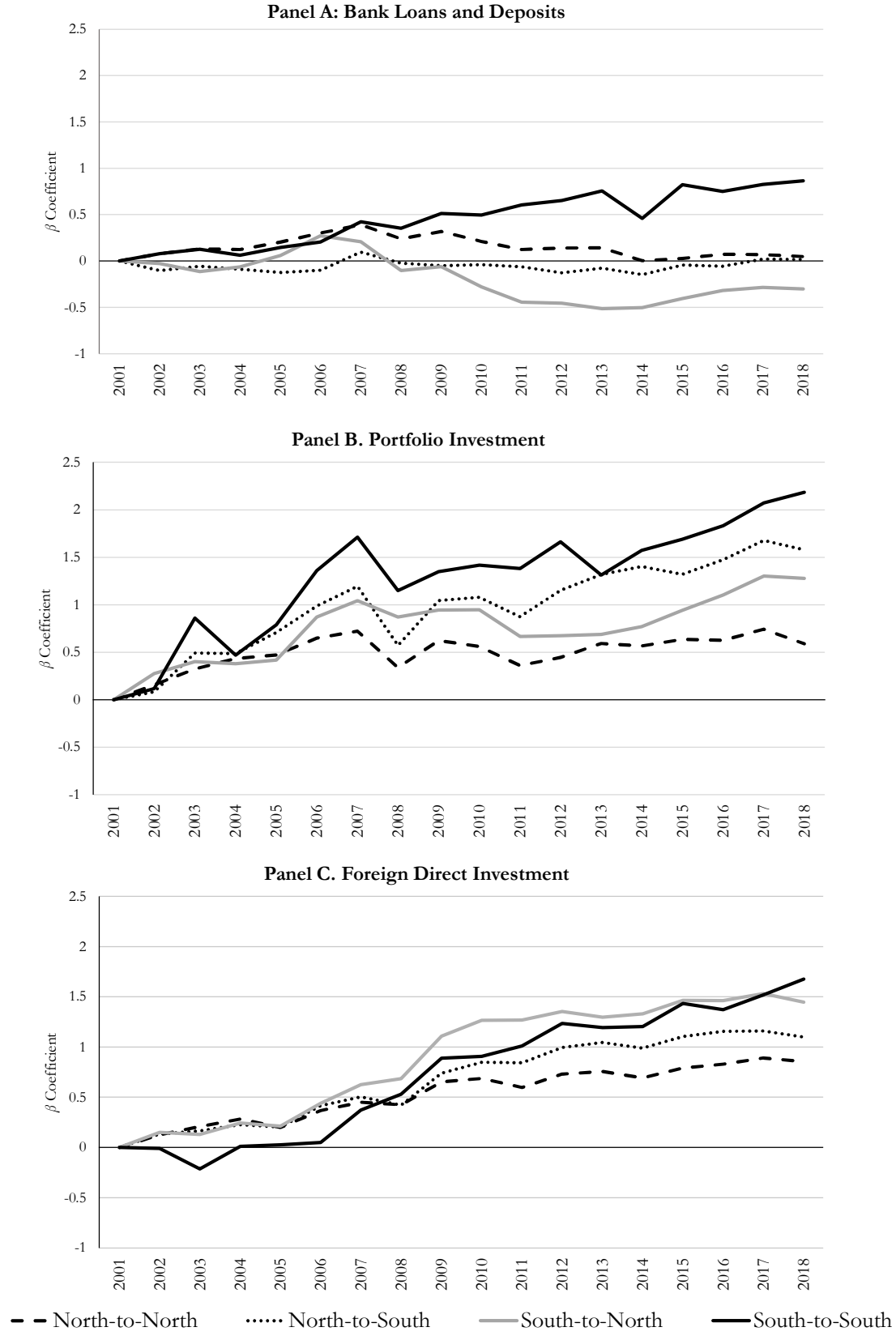
This figure contrasts growth in international investments within and across the regions of the South. Each bar represents the log difference between 2001 and 2018 in the value of investments as a ratio of world GDP. North bars represent changes from and to the North. South interregional bars represent changes from and to the other five regions of the South. South intraregional bars represent changes within the same region of the South. Regions with N/A in the South intraregional bar have zero within-region positions in 2001 due to incomplete reporting. We exclude OFCs.

Figure 5. International Investment Positions in 2018, by South Region



This figure contrasts the value in international investments within and across the regions of the South in 2018, using the same aggregations as Figure 4. Each bar represents the aggregate investment positions as a ratio of world GDP. North bars represent investments from and to the North. South interregional bars represent investments from and to the other five regions of the South. South intraregional bars represent investments within the same region of the South. We exclude OFCs.

Figure 6. Growth in the Value of International Investment Positions over Regional GDPs

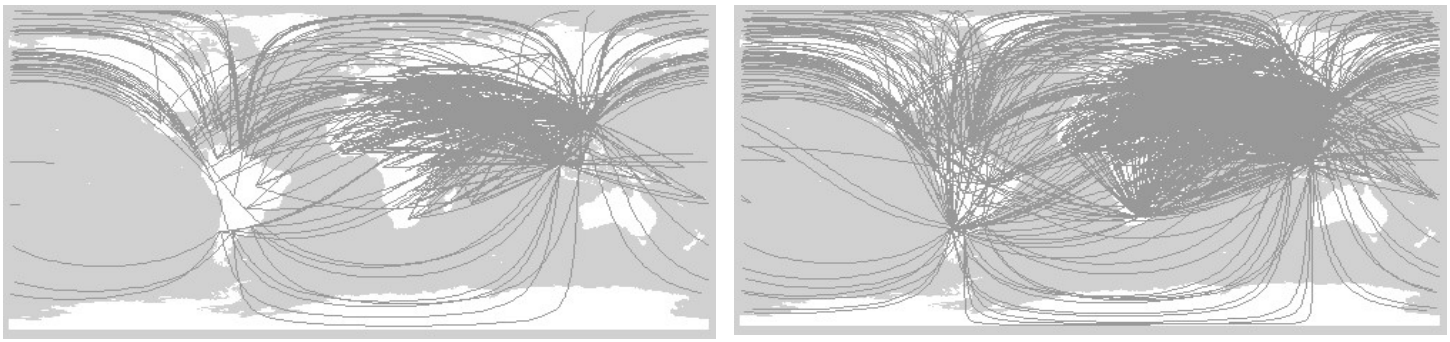


This figure compares year-end values of international investment positions for the top quintile of countries at the country-to-country level (excluding OFCs), estimated by ordinary least squares. We set the baseline at 2001, so that the time-varying fixed effects in subsequent years measure the extent to which investment positions exceed GDP (see Equation (3)). The dependent variable is defined as the aggregate investment position as a ratio of regional GDP (the square root of the product of the GDPs of the source and destination regions).

Figure 7. Proliferation of South-South Links

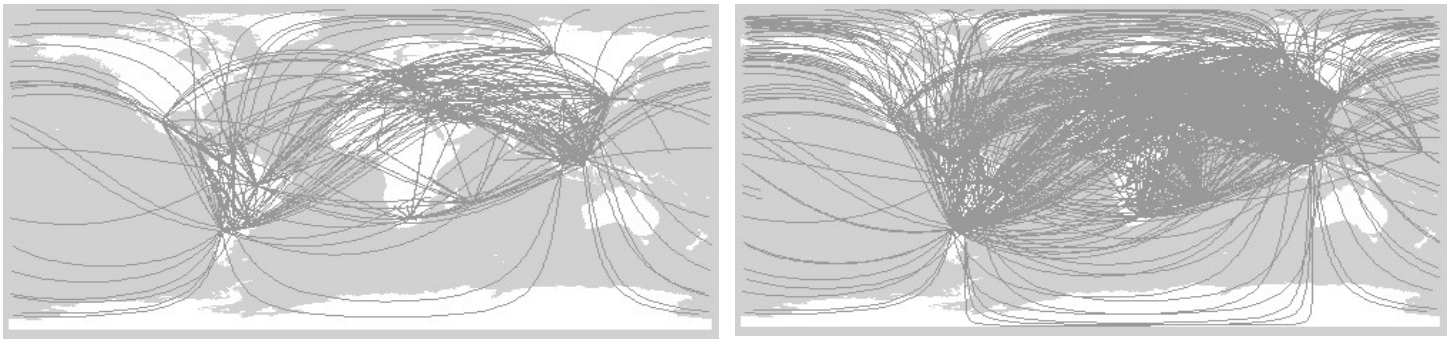
Panel A. Bank Loans and Deposits

2001 **2018**



Panel B. Portfolio Investment

2001 **2018**



Panel C. Foreign Direct Investment

2001 **2018**

The maps show the year-end active links between South countries. Every line in each map represents an active link (i.e. an investment position with positive value) from one South country to another.

Table 1. International Investment Positions/World GDP

Panel A. Bank Loans and Deposits

Source	Destination	2001	2007	2008	2018
North	North	20.4%	36.5%	29.9%	19.6%
North	South	2.7%	3.6%	3.5%	3.4%
South	North	4.1%	5.2%	4.0%	3.4%
South	South	1.6%	2.2%	1.8%	3.6%
Total		28.9%	47.4%	39.3%	30.0%

Panel B. Portfolio Investment

Source	Destination	2001	2007	2008	2018
North	North	26.7%	45.1%	32.4%	40.2%
North	South	1.9%	5.0%	2.4%	5.4%
South	North	0.9%	2.0%	1.4%	3.0%
South	South	0.2%	1.1%	0.8%	1.6%
Total		29.7%	53.3%	37.0%	50.1%

Panel C. Foreign Direct Investment

Source	Destination	2001	2007	2008	2018
North	North	19.7%	27.9%	25.4%	31.7%
North	South	4.1%	4.4%	3.9%	6.4%
South	North	2.4%	3.8%	4.0%	6.3%
South	South	1.5%	2.8%	2.0%	5.5%
Total		27.6%	38.9%	35.3%	50.0%

This table

Panel D. International Reserves

Source	Destination	2001	2007	2008	2018
North	North	2.5%	2.6%	2.5%	3.4%
North	South	0.0%	0.1%	0.1%	0.1%
South	North	3.7%	8.9%	9.0%	10.0%
South	South	0.0%	0.1%	0.1%	0.3%
Total		6.4%	11.7%	11.7%	13.8%

This table shows, for each block, the year-end value of international investment positions as a ratio of world GDP. Bilateral investment positions 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 investment data are available 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 for that year.

Table 2. Share of International Investment Positions

Panel A. Bank Loans and Deposits

Source	Destination	2001	2007	2008	2018
North	North	70.72%	76.98%	76.17%	65.48%
North	South	9.46%	7.51%	8.88%	11.30%
South	North	14.33%	10.92%	10.29%	11.35%
South	South	5.49%	4.59%	4.65%	11.86%

Panel B. Portfolio Investment

Source	Destination	2001	2007	2008	2018
North	North	90.05%	84.65%	87.49%	80.21%
North	South	6.43%	9.43%	6.58%	10.76%
South	North	2.94%	3.82%	3.85%	5.91%
South	South	0.59%	2.09%	2.08%	3.12%

Panel C. Foreign Direct Investment

Source	Destination	2001	2007	2008	2018
North	North	71.34%	71.80%	72.00%	63.41%
North	South	14.75%	11.20%	10.99%	12.87%
South	North	8.55%	9.81%	11.22%	12.69%
South	South	5.36%	7.20%	5.79%	11.03%

Panel D. International Reserves

Source	Destination	2001	2007	2008	2018
North	North	40.01%	22.50%	21.01%	24.42%
North	South	0.57%	0.55%	0.58%	0.68%
South	North	58.77%	75.94%	77.15%	72.73%
South	South	0.65%	1.00%	1.25%	2.17%

Panel E. Total

Source	Destination	2001	2007	2008	2018
North	North	75.01%	74.18%	73.20%	66.01%
North	South	9.46%	8.60%	8.01%	10.65%
South	North	11.98%	13.11%	14.90%	15.73%
South	South	3.55%	4.11%	3.89%	7.61%

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 equals 100%. Panel E shows, for each block, the share of international investment positions across all investments types. Bilateral investment positions 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-to-Region	Country-to-Region	Country-to-Country		Country-to-Country Top 20%	
Estimation Method	OLS	OLS	OLS	PPML	OLS	PPML
Dependent Variable	Log(Value)	Log(Value)	Log(Value)	Value	Log(Value)	Value
North-to-North Trend	0.014	0.031 ***	0.007 **	0.010 **	0.009 **	0.011 **
	(0.012)	(0.008)	(0.003)	(0.004)	(0.004)	(0.005)
North-to-South Trend	0.054 ***	0.043 ***	0.030 ***	0.048 ***	0.038 ***	0.059 ***
	(0.006)	(0.006)	(0.003)	(0.004)	(0.006)	(0.005)
South-to-North Trend	0.017 ***	0.028 ***	0.002	0.015 ***	0.005	0.025 ***
	(0.005)	(0.006)	(0.003)	(0.005)	(0.006)	(0.007)
South-to-South Trend	0.092 ***	0.147 ***	0.064 ***	0.079 ***	0.102 ***	0.136 ***
	(0.004)	(0.008)	(0.004)	(0.014)	(0.011)	(0.015)
Wald Tests on Trend Coefficients:						
1. South-to-South — North-to-North	0.078 ***	0.116 ***	0.056 ***	0.070 ***	0.092 ***	0.124 ***
2. South Destination — North Destination	0.057 ***	0.065 ***	0.042 ***	0.051 ***	0.063 ***	0.079 ***
3. South Source — North Source	0.020 ***	0.050 ***	0.014 ***	0.018 **	0.029 ***	0.045 ***
Fixed Effects	R-R	C-R, R-C	C-C	C-C	C-C	C-C
Number of Observations	72	12,974	106,675	146,380	22,479	24,078

Panel B. Portfolio Investment

Level of Data Aggregation	Region-to-Region	Country-to-Region	Country-to-Country		Country-to-Country Top 20%	
Estimation Method	OLS	OLS	OLS	PPML	OLS	PPML
Dependent Variable	Log(Value)	Log(Value)	Log(Value)	Value	Log(Value)	Value
North-to-North Trend	0.050 ***	0.072 ***	0.070 ***	0.044 ***	0.040 ***	0.041 ***
	(0.009)	(0.011)	(0.004)	(0.003)	(0.004)	(0.003)
North-to-South Trend	0.098 ***	0.166 ***	0.130 ***	0.081 ***	0.120 ***	0.079 ***
	(0.013)	(0.012)	(0.004)	(0.004)	(0.007)	(0.005)
South-to-North Trend	0.096 ***	0.099 ***	0.095 ***	0.080 ***	0.085 ***	0.065 ***
	(0.008)	(0.012)	(0.007)	(0.010)	(0.012)	(0.014)
South-to-South Trend	0.154 ***	0.160 ***	0.112 ***	0.103 ***	0.143 ***	0.119 ***
	(0.018)	(0.012)	(0.007)	(0.012)	(0.017)	(0.012)
Wald Tests on Trend Coefficients:						
1. South-to-South — North-to-North	0.104 ***	0.087 ***	0.042 ***	0.059 ***	0.103 ***	0.078 ***
2. South Destination — North Destination	0.053 ***	0.077 ***	0.038 ***	0.030 ***	0.069 ***	0.046 ***
3. South Source — North Source	0.051 ***	0.010	0.003	0.029 ***	0.034 ***	0.032 ***
Fixed Effects	R-R	C-R, R-C	C-C	C-C	C-C	C-C
Number of Observations	72	8,449	71,614	95,591	18,069	20,257

(cont.)

Table 3. Growth in the Value of International Investment Positions (continued)

Panel C. Foreign Direct Investment

Level of Data Aggregation	Region-to-Region	Country-to-Region	Country-to-Country		Country-to-Country Top 20%	
Estimation Method	OLS	OLS	OLS	PPML	OLS	PPML
Dependent Variable	Log(Value)	Log(Value)	Log(Value)	Value	Log(Value)	Value
North-to-North Trend	0.059 ***	0.068 ***	0.076 ***	0.055 ***	0.064 ***	0.046 ***
	(0.005)	(0.008)	(0.004)	(0.006)	(0.004)	(0.004)
North-to-South Trend	0.070 ***	0.121 ***	0.096 ***	0.065 ***	0.106 ***	0.075 ***
	(0.005)	(0.009)	(0.005)	(0.009)	(0.007)	(0.005)
South-to-North Trend	0.089 ***	0.162 ***	0.109 ***	0.070 ***	0.128 ***	0.078 ***
	(0.009)	(0.016)	(0.006)	(0.009)	(0.009)	(0.008)
South-to-South Trend	0.128 ***	0.265 ***	0.144 ***	0.102 ***	0.161 ***	0.097 ***
	(0.008)	(0.012)	(0.005)	(0.006)	(0.013)	(0.008)
Wald Tests on Trend Coefficients:						
1. South-to-South — North-to-North	0.069 ***	0.196 ***	0.068 ***	0.047 ***	0.097 ***	0.051 ***
2. South Destination — North Destination	0.025 ***	0.078 ***	0.028 ***	0.021 ***	0.038 ***	0.024 ***
3. South Source — North Source	0.044 ***	0.118 ***	0.040 ***	0.026 ***	0.060 ***	0.027 ***
Fixed Effects	R-R	C-R, R-C	C-C	C-C	C-C	C-C
Number of Observations	72	9,959	86,410	125,180	17,522	20,470

Panel D. International Reserves

Level of Data Aggregation	Region-to-Region	Country-to-Region
Estimation Method	OLS	OLS
Dependent Variable	Log(Value)	Log(Value)
North-to-North Trend	0.049 ***	0.012
	(0.005)	(0.015)
North-to-South Trend	0.083 ***	0.046 ***
	(0.013)	(0.015)
South-to-North Trend	0.095 ***	0.083 ***
	(0.014)	(0.005)
South-to-South Trend	0.164 ***	0.152 ***
	(0.022)	(0.005)
Wald Tests on Trend Coefficients:		
1. South-to-South — North-to-North	0.115 ***	0.139 ***
2. South Destination — North Destination	0.051 ***	0.051 ***
3. South Source — North Source	0.063 ***	0.088 ***
Fixed Effects	R-R	C-R
Number of Observations	72	5,952

This table reports estimated 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). Country-to-region regressions include country-to-region (C-R) and region-to-country (R-C) investments (except for international reserves). Regressions include R-R, C-R and R-C, or C-C fixed effects. Country-to-Country Top 20% includes only source and destination countries that are in the top quintile in terms of average GDP. The Wald tests show whether the differences between sets of coefficients are significantly different from zero. 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.

Table 4. International Investment Positions/World GDP: Role of Offshore Financial Centers

Panel A. OFCs as a Separate Block

		Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		International Reserves	
Source	**Destination**	**2001**	**2018**	**2001**	**2018**	**2001**	**2018**	**2001**	**2018**
North	North	20.4%	19.6%	26.7%	40.1%	19.7%	31.6%	2.5%	3.4%
North	South	2.7%	3.4%	1.9%	5.4%	4.1%	6.4%	0.0%	0.1%
South	North	4.1%	3.4%	0.9%	3.0%	2.4%	6.3%	3.7%	10.0%
South	South	1.6%	3.5%	0.2%	1.6%	1.5%	5.5%	0.0%	0.3%
North	OFCs	4.2%	2.0%	2.0%	4.9%	0.7%	3.4%	N/A	N/A
OFCs	North	4.7%	2.1%	1.2%	3.7%	0.1%	0.2%	0.0%	0.0%
South	OFCs	0.4%	0.5%	0.2%	1.0%	0.9%	3.1%	N/A	N/A
OFCs	South	0.4%	0.6%	0.1%	0.4%	0.0%	0.2%	0.0%	0.0%
OFCs	OFCs	0.2%	0.2%	0.1%	0.1%	0.0%	0.1%	N/A	N/A
Total		38.7%	35.4%	33.1%	60.2%	29.2%	56.9%	6.4%	13.8%

Panel B. OFCs Included in the North and South

		Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		International Reserves	
Source	**Destination**	**2001**	**2018**	**2001**	**2018**	**2001**	**2018**	**2001**	**2018**
North	North	27.8%	23.4%	29.8%	48.6%	20.3%	35.1%	2.5%	3.4%
North	South	3.8%	4.0%	2.1%	5.8%	4.1%	6.7%	0.0%	0.1%
South	North	5.3%	4.0%	1.1%	4.1%	3.3%	9.2%	3.7%	10.0%
South	South	1.8%	4.0%	0.2%	1.7%	1.5%	5.8%	0.0%	0.3%
Total		38.7%	35.4%	33.1%	60.2%	29.2%	56.9%	6.4%	13.8%

This table shows the year-end value of international investment positions as a ratio of world GDP. Panel A breaks out OFCs as a separate region, while Panel B incorporates each OFC in the North or the South. 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 investment positions are available 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" rows are the sum across blocks for that year.

Table 5. International Investment Positions/Regional GDPs

Panel A. Bank Loans and Deposits

Source	Destination	2001	2007	2008	2018
North	North	27.0%	53.9%	45.8%	35.3%
North	South	6.4%	7.6%	7.3%	6.8%
South	North	9.6%	11.1%	8.5%	6.8%
South	South	6.5%	6.7%	5.3%	8.0%

Panel B. Portfolio Investment

Source	Destination	2001	2007	2008	2018
North	North	35.4%	66.9%	49.7%	72.5%
North	South	4.4%	10.8%	5.1%	10.9%
South	North	3.0%	5.6%	3.9%	6.4%
South	South	1.1%	4.4%	2.9%	3.8%

Panel C. Foreign Direct Investment

Source	Destination	2001	2007	2008	2018
North	North	26.1%	41.4%	39.0%	57.2%
North	South	9.5%	9.3%	8.1%	12.9%
South	North	5.9%	8.8%	8.9%	13.8%
South	South	6.5%	9.3%	6.3%	13.4%

Panel D. International Reserves

Source	Destination	2001	2007	2008	2018
North	North	3.3%	3.9%	3.7%	6.0%
North	South	0.1%	0.1%	0.1%	0.2%
South	North	8.8%	19.1%	19.0%	20.2%
South	South	0.2%	0.4%	0.4%	0.7%

This table shows, for each block, the year-end value of international investment positions as a ratio of regional GDPs. Bilateral data are aggregated for all countries within a source region to all countries within a destination region. Regional GDPs are defined as the square root of the product of the GDPs of the source and of the destination regions. For each investment type and year, regional GDPs include the GDP of the countries for which investment data are available for that year. For international reserves, because we have no information on the destination countries, we use as destination GDP the GDP of the countries in that region that report data as a source of international reserves.

Table 6. Growth in the Value of International Investment Positions over Regional GDPs

Panel A. Bank Loans and Deposits

Level of Data Aggregation	Region-to-Region	Country-to-Region	Country-to-Country		Country-to-Country Top 20%	
Estimation Method	OLS	OLS	OLS	PPML	OLS	PPML
Dependent Variable	Log(Value)	Log(Value)	Log(Value)	Value	Log(Value)	Value
North-to-North Trend	0.004	0.012 **	-0.008 **	-0.013 ***	-0.006 *	-0.005
	(0.008)	(0.005)	(0.003)	(0.005)	(0.004)	(0.005)
North-to-South Trend	0.011 ***	0.008	-0.007 **	0.031 ***	0.001	0.034 ***
	(0.003)	(0.006)	(0.003)	(0.008)	(0.006)	(0.005)
South-to-North Trend	-0.026 ***	-0.007	-0.035 ***	-0.018 ***	-0.032 ***	-0.019 ***
	(0.004)	(0.005)	(0.002)	(0.006)	(0.006)	(0.005)
South-to-South Trend	0.016 **	0.081 ***	0.010 **	0.010	0.052 ***	0.071 ***
	(0.006)	(0.008)	(0.004)	(0.008)	(0.010)	(0.010)
Wald Tests on Trend Coefficients:						
1. South-to-South — North-to-North	0.013	0.070 ***	0.018 ***	0.024 **	0.058 ***	0.076 ***
2. South Destination — North Destination	0.025 ***	0.043 ***	0.023 ***	0.036 ***	0.045 ***	0.065 ***
3. South Source — North Source	-0.012 **	0.027 ***	-0.005	-0.012 *	0.012 *	0.011 *
Fixed Effects	R-R	C-R, R-C	C-C	C-C	C-C	C-C
Number of Observations	72	12,485	103,519	140,963	22,194	23,432

Panel B. Portfolio Investment

Level of Data Aggregation	Region-to-Region	Country-to-Region	Country-to-Country		Country-to-Country Top 20%	
Estimation Method	OLS	OLS	OLS	PPML	OLS	PPML
Dependent Variable	Log(Value)	Log(Value)	Log(Value)	Value	Log(Value)	Value
North-to-North Trend	0.039 ***	0.050 ***	0.051 ***	0.037 ***	0.025 ***	0.031 ***
	(0.006)	(0.007)	(0.004)	(0.004)	(0.004)	(0.003)
North-to-South Trend	0.054 ***	0.126 ***	0.096 ***	0.074 ***	0.084 ***	0.065 ***
	(0.009)	(0.012)	(0.004)	(0.005)	(0.006)	(0.004)
South-to-North Trend	0.038 ***	0.054 ***	0.061 ***	0.055 ***	0.052 ***	0.027 **
	(0.004)	(0.011)	(0.007)	(0.007)	(0.012)	(0.012)
South-to-South Trend	0.064 ***	0.088 ***	0.063 ***	0.033 ***	0.095 ***	0.063 ***
	(0.013)	(0.012)	(0.007)	(0.007)	(0.017)	(0.013)
Wald Tests on Trend Coefficients:						
1. South-to-South — North-to-North	0.025 *	0.038 ***	0.012	-0.004	0.070 ***	0.032 **
2. South Destination — North Destination	0.021 **	0.055 ***	0.023 ***	0.007	0.051 ***	0.035 ***
3. South Source — North Source	0.004	-0.017	-0.011 **	-0.012 *	0.019 *	-0.003
Fixed Effects	R-R	C-R, R-C	C-C	C-C	C-C	C-C
Number of Observations	72	8,118	70,241	93,445	17,784	19,179

(cont.)

Table 6. Growth in the Value of International Investment Positions over Regional GDPs (continued)

Panel C. Foreign Direct Investment

Level of Data Aggregation	Region-to-Region	Country-to-Region	Country-to-Country		Country-to-Country Top 20%	
Estimation Method	OLS	OLS	OLS	PPML	OLS	PPML
Dependent Variable	Log(Value)	Log(Value)	Log(Value)	Value	Log(Value)	Value
North-to-North Trend	0.048 ***	0.050 ***	0.058 ***	0.062 ***	0.050 ***	0.041 ***
	(0.002)	(0.007)	(0.004)	(0.014)	(0.004)	(0.006)
North-to-South Trend	0.027 ***	0.085 ***	0.063 ***	0.010	0.073 ***	0.050 ***
	(0.005)	(0.009)	(0.004)	(0.029)	(0.007)	(0.008)
South-to-North Trend	0.045 ***	0.123 ***	0.084 ***	0.026	0.096 ***	0.048 ***
	(0.007)	(0.015)	(0.005)	(0.023)	(0.009)	(0.009)
South-to-South Trend	0.052 ***	0.198 ***	0.100 ***	0.085 ***	0.113 ***	0.034 ***
	(0.003)	(0.012)	(0.005)	(0.010)	(0.013)	(0.011)
Wald Tests on Trend Coefficients:						
1. South-to-South — North-to-North	0.005	0.148 ***	0.042 ***	0.023	0.063 ***	-0.007
2. South Destination — North Destination	-0.007	0.055 ***	0.011 **	0.004	0.020 **	-0.003
3. South Source — North Source	0.012 **	0.093 ***	0.032 ***	0.019	0.043 ***	-0.005
Fixed Effects	R-R	C-R, R-C	C-C	C-C	C-C	C-C
Number of Observations	72	9,541	84,275	121,492	16,957	18,548

Panel D. International Reserves

Level of Data Aggregation	Region-to-Region	Country-to-Region
Estimation Method	OLS	OLS
Dependent Variable	Log(Value)	Log(Value)
North-to-North Trend	0.037 ***	-0.014
	(0.003)	(0.014)
North-to-South Trend	0.039 ***	-0.013
	(0.010)	(0.014)
South-to-North Trend	0.051 ***	0.035 ***
	(0.009)	(0.005)
South-to-South Trend	0.087 ***	0.071 ***
	(0.017)	(0.005)
Wald Tests on Trend Coefficients:		
1. South-to-South — North-to-North	0.050 ***	0.086 ***
2. South Destination — North Destination	0.019 *	0.019 *
3. South Source — North Source	0.031 ***	0.067 ***
Fixed Effects	R-R	C-R
Number of Observations	72	5,950

This table reports 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). In contrast to Table 3, international investments are scaled by regional GDPs, defined as the square root of the product of the GDPs of the source and of the destination countries/regions. There are three levels of data aggregation: region-to-region (R-R), country-to-region (C-R), and country-to-country (C-C). Country-to-region regressions include country-to-region (C-R) and region-to-country (R-C) investments (except for international reserves). Regressions include R-R, C-R and R-C, or C-C fixed effects. Country-to-Country Top 20% includes only source and destination countries that are in the top quintile in terms of average GDP. The Wald tests show whether the differences between sets of coefficients are significantly different from zero. 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.

Table 7. Share of Active Links in the Global Total, by Block

Panel A. Bank Loans and Deposits

Source	Destination	2001	2007	2008	2018
North	North	15.4%	14.1%	14.3%	12.2%
North	South	31.1%	31.2%	30.7%	27.6%
South	North	37.6%	36.8%	36.8%	32.8%
South	South	15.9%	18.0%	18.2%	27.4%

Panel B. Portfolio Investment

Source	Destination	2001	2007	2008	2018
North	North	25.0%	19.2%	19.4%	15.9%
North	South	42.3%	40.5%	39.9%	38.7%
South	North	17.7%	17.5%	17.8%	16.7%
South	South	15.0%	22.9%	22.9%	28.7%

Panel C. Foreign Direct Investment

Source	Destination	2001	2007	2008	2018
North	North	26.4%	21.9%	21.7%	9.8%
North	South	36.3%	34.3%	34.3%	25.0%
South	North	15.4%	16.3%	17.0%	19.9%
South	South	21.9%	27.5%	27.0%	45.4%

This table shows, for each block, the share of active links in total active links per investment type. For each investment type shown in the different panels, the sum of North-to-North, North-to-South, South-to-North, and South-to-South shares in a given year equals 100 percent. Active links refer to investment positions with positive value from one country to another. Country pairs with a missing value are excluded from the count. Bilateral data are aggregated for all countries within a source region to all countries within a destination region.

Table 8. Growth of Active Links

Panel A. Bank Loans and Deposits					
Level of Data Aggregation	**Region-to-Region**	**Country-to-Region**	**Country-to-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	0.005 ***	0.005 ***	0.003 ***	68%	0.4%
	(0.002)	(0.001)	(0.001)		
North-to-South Trend	0.012 ***	0.012 ***	0.004 ***	47%	0.8%
	(0.001)	(0.002)	(0.000)		
South-to-North Trend	0.011 ***	0.011 ***	0.004 ***	56%	0.7%
	(0.001)	(0.002)	(0.000)		
South-to-South Trend	0.055 ***	0.055 ***	0.003 ***	32%	1.0%
	(0.001)	(0.007)	(0.001)		
Wald Tests on Trend Coefficients:					
1. South-to-South — North-to-North	0.050 ***	0.050 ***			
2. South Destination — North Destination	0.025 ***	0.025 ***			
3. South Source — North Source	0.025 ***	0.025 ***			
Fixed Effects	R-R	C-R, R-C	R-R		
Number of Observations	72	13,752	211,556		

Panel B. Portfolio Investment					
Level of Data Aggregation	**Region-to-Region**	**Country-to-Region**	**Country-to-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	0.019 ***	0.013 ***	0.000	82%	0.0%
	(0.002)	(0.001)	(0.001)		
North-to-South Trend	0.039 ***	0.036 ***	0.008 ***	39%	1.8%
	(0.001)	(0.003)	(0.001)		
South-to-North Trend	0.037 ***	0.027 ***	-0.003 ***	73%	-0.4%
	(0.002)	(0.002)	(0.001)		
South-to-South Trend	0.074 ***	0.065 ***	0.006 ***	24%	2.2%
	(0.002)	(0.003)	(0.001)		
Wald Tests on Trend Coefficients:					
1. South-to-South — North-to-North	0.054 ***	0.053 ***			
2. South Destination — North Destination	0.028 ***	0.030 ***			
3. South Source — North Source	0.026 ***	0.022 ***			
Fixed Effects	R-R	C-R, R-C	R-R		
Number of Observations	72	9,971	154,014		

Panel C. Foreign Direct Investment					
Level of Data Aggregation	**Region-to-Region**	**Country-to-Region**	**Country-to-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	0.025 ***	0.025 ***	0.015 ***	59%	2.1%
	(0.002)	(0.003)	(0.001)		
North-to-South Trend	0.068 ***	0.068 ***	0.024 ***	18%	7.3%
	(0.001)	(0.005)	(0.000)		
South-to-North Trend	0.106 ***	0.107 ***	0.036 ***	15%	10.2%
	(0.002)	(0.005)	(0.001)		
South-to-South Trend	0.127 ***	0.129 ***	0.026 ***	5%	14.9%
	(0.001)	(0.005)	(0.000)		
Wald Tests on Trend Coefficients:					
1. South-to-South — North-to-North	0.101 ***	0.104 ***			
2. South Destination — North Destination	0.032 ***	0.032 ***			
3. South Source — North Source	0.070 ***	0.072 ***			
Fixed Effects	R-R	C-R, R-C	R-R		
Number of Observations	72	11,673	291,604		

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, counting the investment positions with positive value from one country/region to another. For the logit regressions, the dependent variable is an indicator variable that takes a value of one whenever bilateral investment is positive and zero if the value is zero. Country pairs with a missing value are excluded. For these regressions, we report the average marginal effect, the estimated probability for the first period of the sample (when 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). Country-to-region regressions include both country-to-region (C-R) and region-to-country (R-C) investments. Regressions include R-R, or C-R and R-C fixed effects. The Wald tests show whether the differences between sets of coefficients are significantly different from zero. 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.

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

Panel A. Bank Loans and Deposits

			2018		
Source	**Destination**	**2001**	**Total**	**Old Links**	**New Links**
North	North	20.4%	19.6%	19.6%	0.0%
North	South	2.7%	3.4%	3.3%	0.1%
South	North	4.1%	3.4%	3.3%	0.1%
South	South	1.6%	3.6%	2.9%	0.6%
Total		28.9%	30.0%	29.2%	0.8%

Panel B. Portfolio Investment

			2018		
Source	**Destination**	**2001**	**Total**	**Old Links**	**New Links**
North	North	26.7%	40.2%	40.1%	0.1%
North	South	1.9%	5.4%	5.1%	0.2%
South	North	0.9%	3.0%	2.4%	0.5%
South	South	0.2%	1.6%	1.1%	0.4%
Total		29.7%	50.1%	48.8%	1.3%

Panel C. Foreign Direct Investment

			2018		
Source	**Destination**	**2001**	**Total**	**Old Links**	**New Links**
North	North	19.7%	31.7%	30.4%	1.3%
North	South	4.1%	6.4%	5.5%	1.0%
South	North	2.4%	6.3%	4.5%	1.8%
South	South	1.5%	5.5%	4.2%	1.3%
Total		27.6%	50.0%	44.6%	5.4%

This table shows, for each block, the year-end value of international investment positions as a ratio of world GDP, distinguishing between the values associated with 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.

Appendix Table 1. List of Countries, by Region

North	South						OFCs
	Africa	Asia	Eastern Europe and Central Asia	Latin America and the Caribbean	Middle East	Others	
Australia*	Angola	Afghanistan	Albania	Antigua and Barbuda	Algeria	Christmas Islands	Andorra†
Austria*	Benin	American Samoa	Armenia	Argentina*	Bahrain	Cocos Islands	Anguilla†
Belgium*	Botswana	Bangladesh	Azerbaijan	Barbados	Egypt, Arab Rep.	French Guiana	Aruba†
Bonaire, Sint Eustatius, and Saba	Burkina Faso	Bhutan	Belarus	Bolivia	Iran, Islamic Rep.*	French Southern Territories	Bahamas, The‡
Canada*	Burundi	Brunei Darussalam	Bosnia and Herzegovina	Brazil*	Iraq	Guadeloupe	Belize‡
Curacao	Cabo Verde	Cambodia	Bulgaria	Chile	Israel	Guam	Bermuda†
Denmark*	Cameroon	China (Mainland)*	Croatia	Colombia*	Jordan	Marshall Islands	British Virgin Islands†
Estonia	Central African Republic	Fiji	Czech Republic	Costa Rica	Kuwait	Martinique	Cayman Islands†
Faeroe Islands	Chad	Hong Kong SAR, China*	Georgia	Cuba	Lebanon	Mayotte	Cook Islands‡
Falkland Islands	Comoros	India*	Hungary	Dominica	Libya	Micronesia, Fed. Sts.	Cyprus†
Finland	Congo, Dem. Rep.	Indonesia*	Kazakhstan	Dominican Republic	Morocco	Nauru	Gibraltar†
France*	Congo, Rep.	Kiribati	Kosovo, Rep.	Ecuador	Oman	Niue	Guernsey†
French Polynesia	Cote d'Ivoire	Korea, Dem. Rep.	Kyrgyz Republic	El Salvador	Qatar	Norfolk Island	Isle of Man†
Germany*	Djibouti	Korea, Rep.*	Macedonia, FYR	Grenada	Saudi Arabia*	Pitcairn	Jersey†
Greece*	Equatorial Guinea	LAO, PDR	Moldova	Guatemala	Syrian Arab Republic	Reunion	Liechtenstein†
Greenland	Eritrea	Malaysia	Mongolia	Guyana	Tunisia	St. Pierre and Miquelon	Macao SAR, China‡
Iceland	Ethiopia	Maldives	Montenegro	Haiti	United Arab Emirates*	Tokelau	Monaco†
Ireland*	Gabon	Myanmar	Poland*	Honduras	West Bank and Gaza	Western Sahara	Montserrat†
Italy*	Gambia, The	Nepal	Romania	Jamaica	Yemen, Rep.		Netherlands Antilles†
Japan*	Ghana	Pakistan	Russian Federation*	Mexico*			Palau‡
Latvia	Guinea	Papua New Guinea	Serbia	Nicaragua			Panama‡
Lithuania	Guinea-Bissau	Philippines	Tajikistan	Paraguay			Samoa‡
Luxembourg	Kenya	Singapore	Turkey*	Peru			Seychelles‡

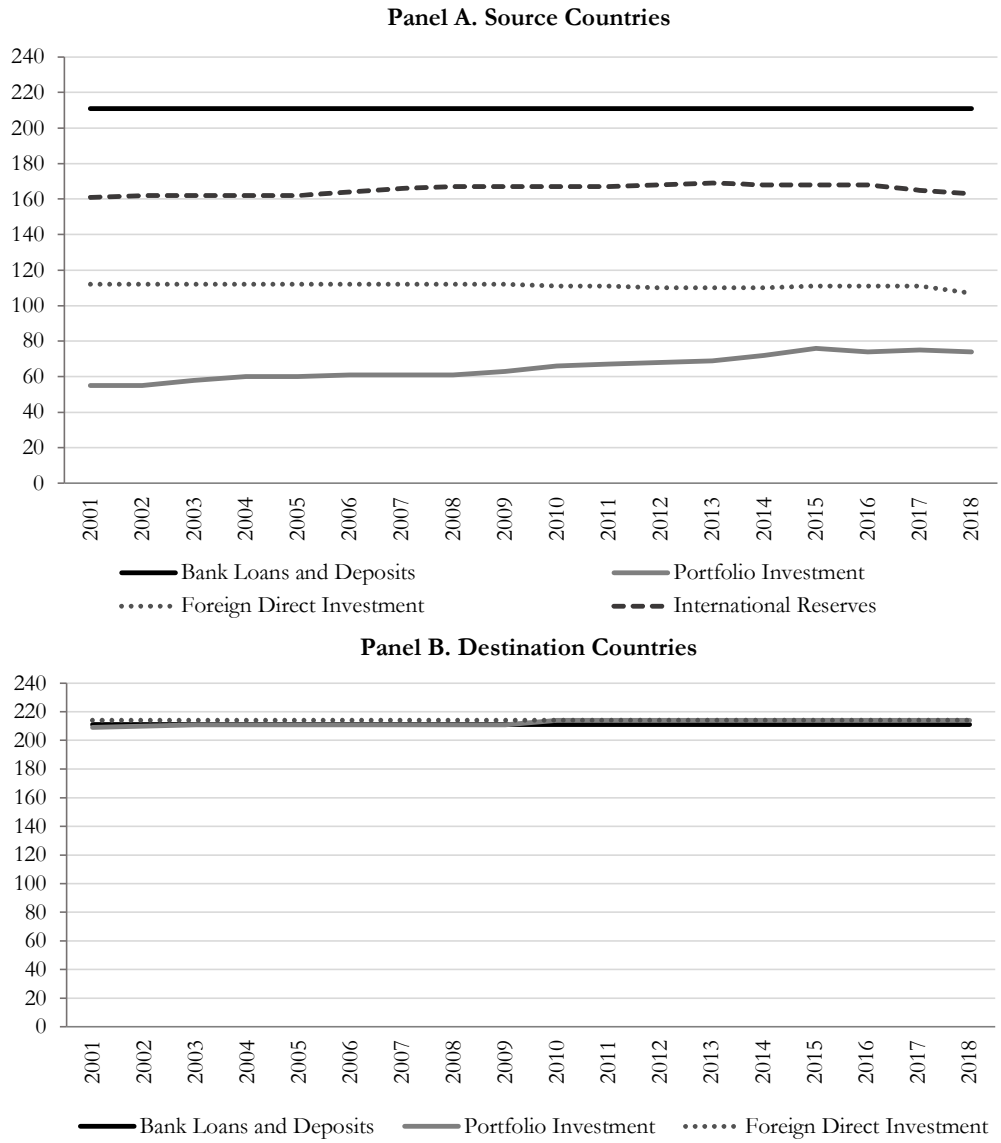
(cont.)

Appendix Table 1. List of Countries, by Region (continued)

North	South						OFCs
	Africa	Asia	Eastern Europe and Central Asia	Latin America and the Caribbean	Middle East	Others	
Malta	Lesotho	Solomon Islands	Turkmenistan	Puerto Rico			Turks and Caicos†
Netherlands*	Liberia	Sri Lanka	Ukraine	St. Kitts and Nevis			Vanuatu‡
New Caledonia	Madagascar	Taiwan, China*	Uzbekistan	St. Lucia			
New Zealand	Malawi	Thailand*		St. Vincent and the Grenadines			
Norway*	Mali	Timor-Leste		Suriname			
Portugal	Mauritania	Tonga		Trinidad and Tobago			
San Marino	Mauritius	Tuvalu		Uruguay			
Sint Maarten	Mozambique	Vietnam		Venezuela. R.B.*			
Slovak Republic	Namibia			Virgin Islands, United States			
Slovenia	Niger						
Spain*	Nigeria*						
St. Helena	Rwanda						
Sweden*	Sao Tome and Principe						
Switzerland*	Senegal						
United Kingdom*	Sierra Leone						
United States*	Somalia						
Wallis and Futuna	South Africa*						
	South Sudan						
	Sudan						
	Swaziland						
	Tanzania						
	Togo						
	Uganda						
	Zambia						
	Zimbabwe						

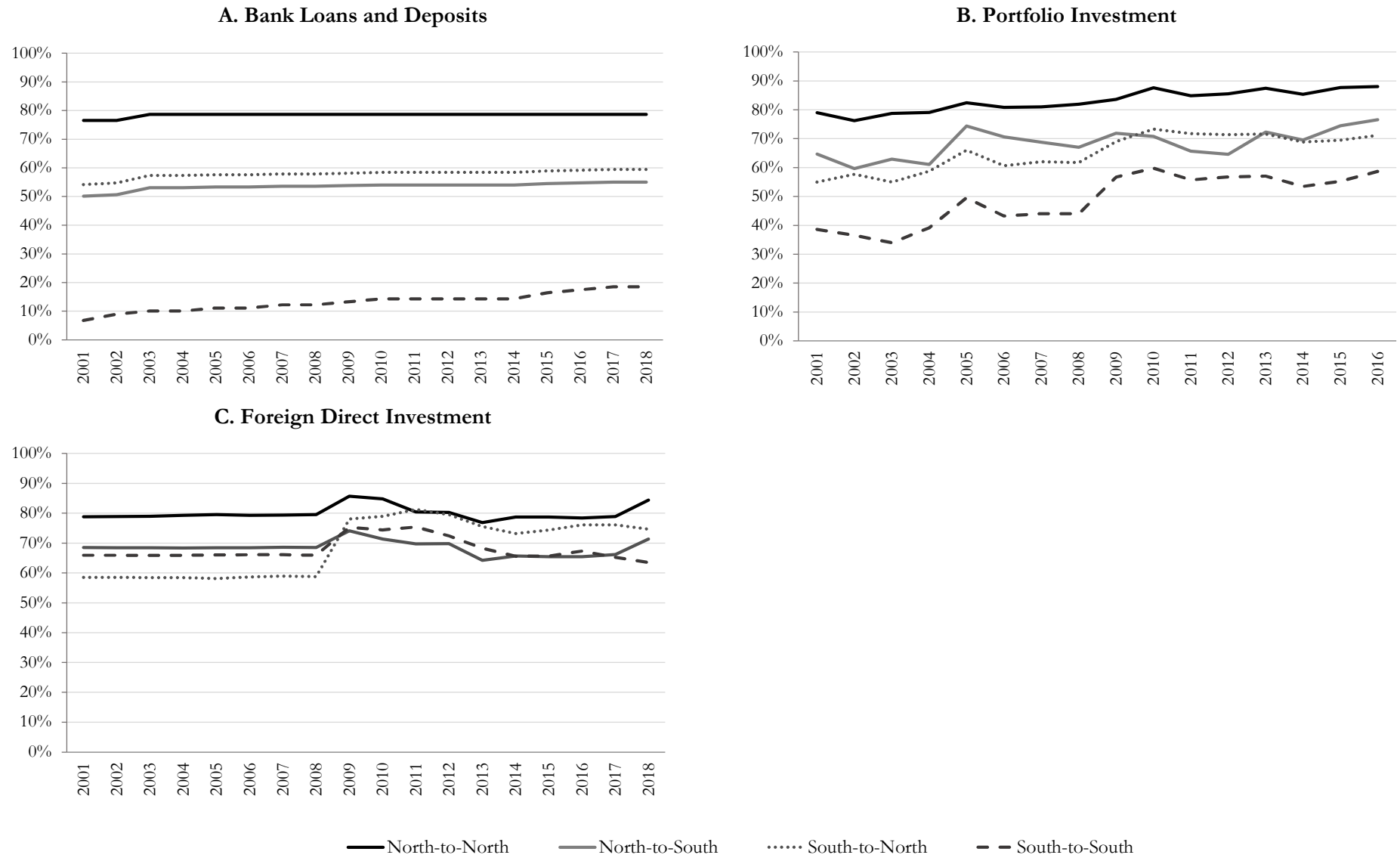
This table indicates the classification of countries by region. For this table Asia includes China, but the figures in the paper report China (mainland) and Asia (excluding China) separately. The countries in the "others" category are included in the South region but are excluded in the figures that show different South regions. Countries with a * symbol are those that belong to the top quintile in terms of average GDP. OFCs with a † symbol are those that belong to the North and those with a ‡ symbol belong to the South in the BIS country classification. The list of OFCs is based on the list of countries included in the International Monetary Fund's Staff Assessments on Offshore Financial Centers (IMF 2000).

Online Appendix Figure 1. Number of Source and Destination Countries, by Year and Investment Type



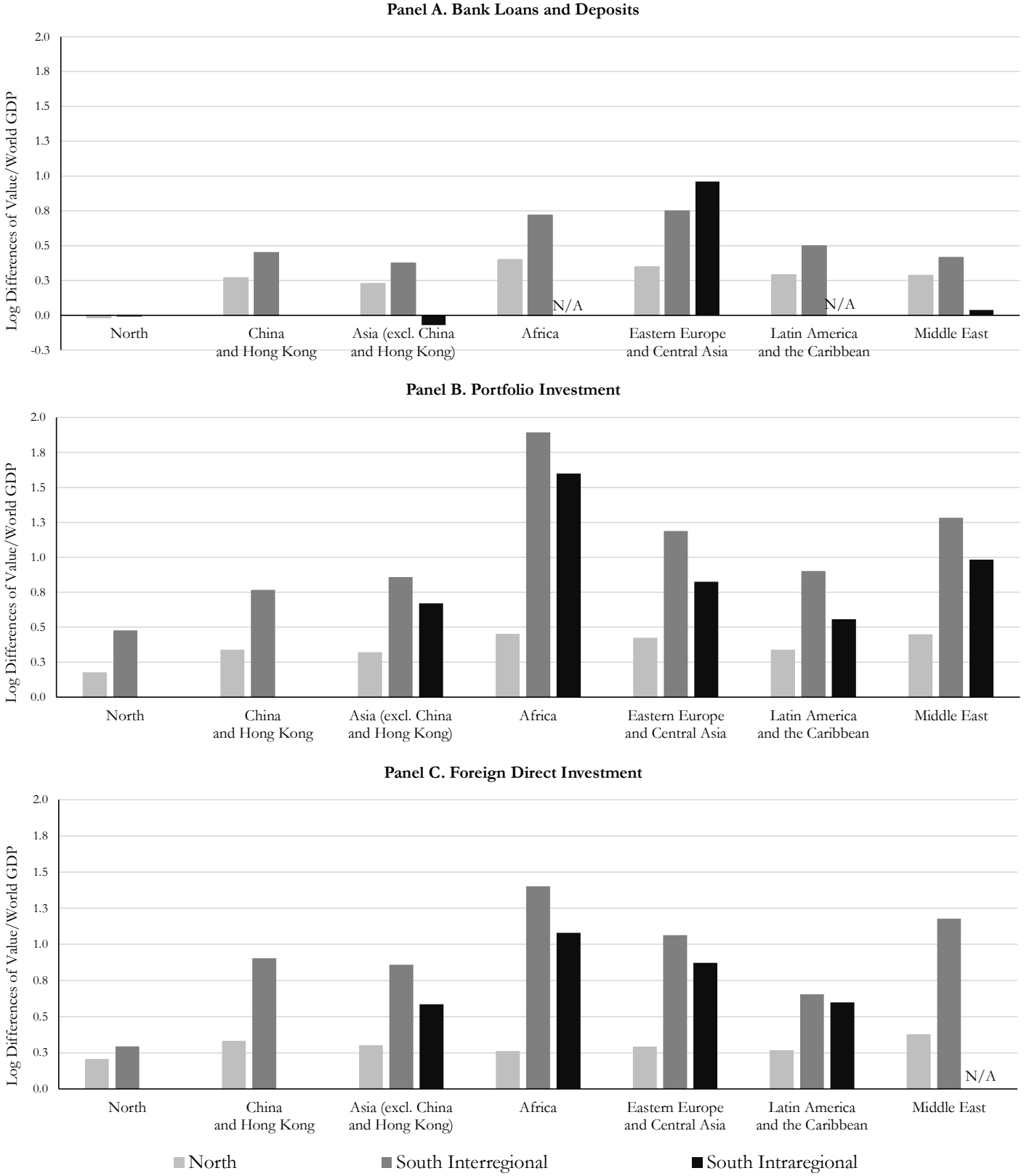
This figure shows, for each investment type, the total number of countries for which investment data are available in a given year. A country is considered to have data as a source (destination) in a specific year if any international investment position for which the country is a source (destination) is non-missing. For international reserves, there are no data disaggregated by destination countries. For bank loans and deposits and foreign direct investment, coverage has been enhanced through mirror data (Sections A.1 and A.3).

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



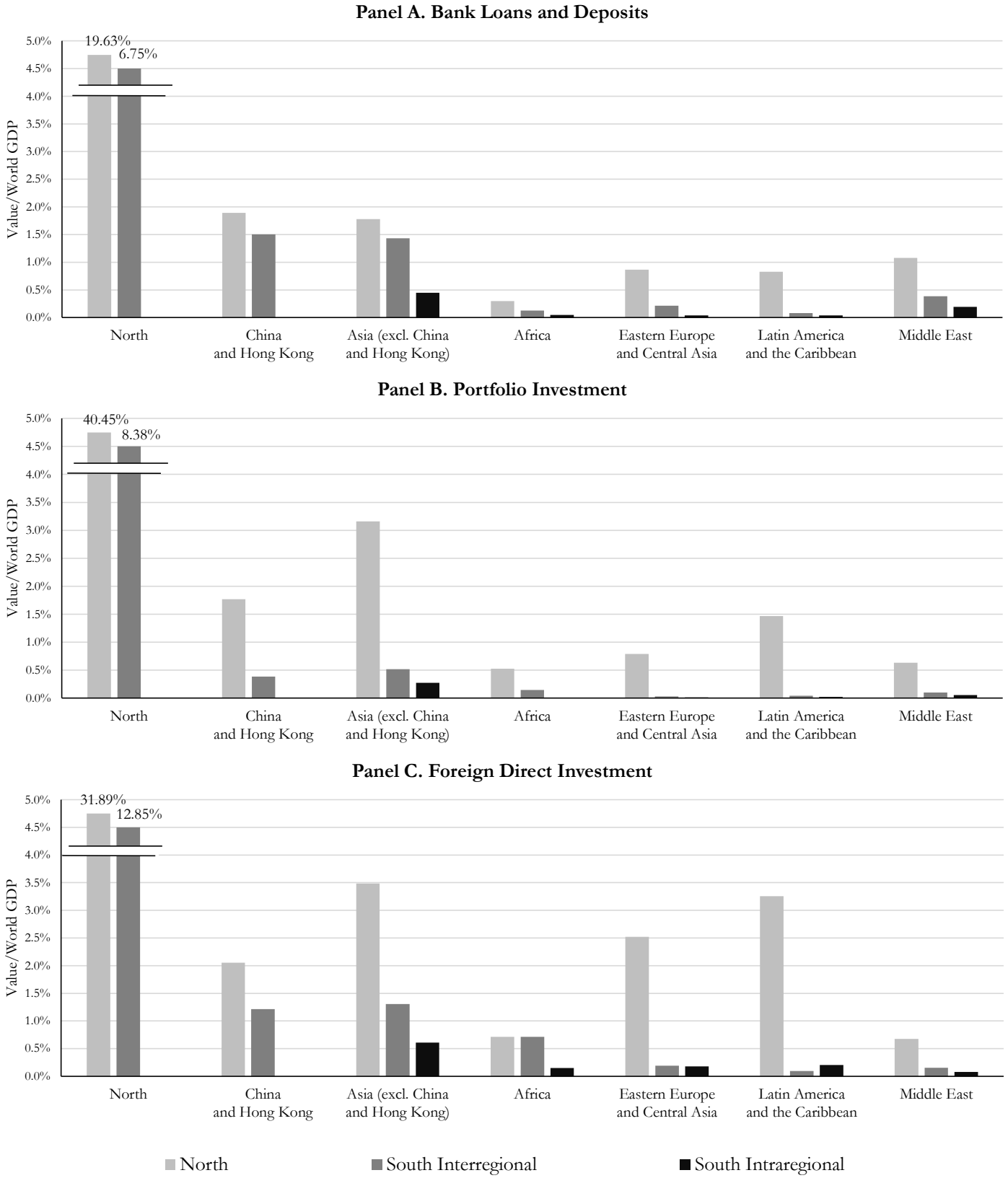
This figure shows, for each investment type and block, the average share of destination countries reported (i.e., non-missing) across all source countries per year.

Online Appendix Figure 3. Growth of North and South, by South Region: China and Hong Kong as a Region



This figure contrasts growth in international investments within and across the regions of the South. Relative to Figure 4, in this figure China and Hong Kong are considered jointly; no intraregional values are reported between them. Each bar represents the log difference between 2001 and 2018 in the value of investments as a ratio of world GDP. North bars represent changes from and to the North. South interregional bars represent changes from and to the other five regions of the South. South intraregional bars represent changes within the same region of the South. Regions with N/A in the South intraregional bar have zero within-region positions in 2001 due to incomplete reporting. We exclude OFCs.

Online Appendix Figure 4. International Investment Positions in 2018, by Region: China and Hong Kong as a Region



This figure contrasts the value in international investments within and across the regions of the South in 2018, using the same aggregations as Figure 4. Relative to Figure 5, in this figure China and Hong Kong are considered jointly; no intraregional values are reported between them. Each bar represents the aggregate investment positions involving that region in 2018 as a ratio of world GDP. North bars represent investments from and to the North. South interregional bars represent investments from and to the other five regions of the South. South intraregional bars represent investments within the same region of the South. We exclude OFCs.

Online Appendix Table 1. List of Economies and Data Availability, by Region

	Economy	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		International Reserves
		Source	Destination	Source	Destination	Source	Destination	Source
North	Australia*	●	●	●	●	●	●	●
	Austria*	●	●	●	●	●	●	●
	Belgium*	●	●	●	●	●	●	●
	Bonaire, Sint Eustatius, and Saba				2010	2009	●	
	Canada*	●	●	●	●	●	●	●
	Curacao	●	●	2010	2010	●	●	2010
	Denmark*	●	●	●	●	●	●	●
	Estonia	●	●	●	●	●	●	●
	Faeroe Islands	●	●		●	2009	●	
	Falkland Islands	●	●		●	2009	●	
	Finland	●	●	●	●	●	●	●
	France*	●	●	●	●	●	●	●
	French Polynesia	●	●		●	●	●	
	Germany*	●	●	●	●	●	●	●
	Greece*	●	●	●	●	●	●	●
	Greenland	●	●		●	2009	●	
	Iceland	●	●	●	●	●	●	●
	Ireland*	●	●	●	●	●	●	●
	Italy*	●	●	●	●	●	●	●
	Japan*	●	●	●	●	●	●	●
	Latvia	●	●	2006	●	●	●	●
	Lithuania	●	●	2009	●	●	●	●
	Luxembourg	●	●	●	●	●	●	●
	Malta	●	●	●	●	●	●	●
	Netherlands*	●	●	●	●	●	●	●
	New Caledonia	●	●		●	●	●	
	New Zealand	●	●	●	●	●	●	●
	Norway*	●	●	●	●	●	●	●
	Portugal	●	●	●	●	●	●	●
	San Marino	●	●		●	2009	●	●
	Sint Maarten				2010	2011	●	
	Slovak Republic	●	●	●	●	●	●	●
	Slovenia	●	●	2009	●	●	●	●
	Spain*	●	●	●	●	●	●	●
	St. Helena	●	●		●	●	●	
	Sweden*	●	●	●	●	●	●	●
	Switzerland*	●	●	●	●	●	●	●
	United Kingdom*	●	●	●	●	●	●	●
	United States*	●	●	●	●	●	●	●
	Wallis and Futuna	●	●		●	2009	●	
Africa	Angola	●	●		●	●	●	●
	Benin	●	●		●	●	●	
	Botswana	●	●		●	●	●	●
	Burkina Faso	●	●		●	●	●	
	Burundi	●	●		●	●	●	●
	Cabo Verde	●	●		●	●	●	●
	Cameroon	●	●		●	●	●	●
	Central African Republic	●	●		●	●	●	●
	Chad	●	●		●	●	●	●
	Comoros	●	●		●	●	●	●
	Congo, Dem. Rep.	●	●		●	●	●	●
	Congo, Rep.	●	●		●	●	●	●
	Cote d'Ivoire	●	●		●	●	●	
	Djibouti	●	●		●	●	●	●
	Equatorial Guinea	●	●		●	●	●	●
	Eritrea	●	●		●	●	●	●
	Ethiopia	●	●		●	●	●	●
	Gabon	●	●		●	●	●	●
	Gambia, The	●	●		●	●	●	●
	Ghana	●	●		●	●	●	●
	Guinea	●	●		●	●	●	●
	Guinea-Bissau	●	●		●	●	●	
	Kenya	●	●		●	●	●	●
	Lesotho	●	●		●	2007	●	●
	Liberia	●	●	2012	●	●	●	●
	Madagascar	●	●		●	2002	●	●
	Malawi	●	●		●	●	●	●
	Mali	●	●		●	●	●	
	Mauritania	●	●		●	●	●	●
	Mauritius	●	●	●	●	●	●	●
	Mozambique	●	●		●	●	●	●
	Namibia	●	●		●	2015	●	●

(cont.)

Online Appendix Table 1. List of Economies and Data Availability by Region (continued)

	Economy	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		Int. Reserves
		Source	Destination	Source	Destination	Source	Destination	Source
Africa	Niger	•	•		•	•	•	
	Nigeria*	•	•		•	•	•	•
	Rwanda	•	•		•	•	•	•
	Sao Tome and Principe	•	•		•	•	•	•
	Senegal	•	•		•	•	•	
	Sierra Leone	•	•		•	•	•	•
	Somalia	•	•		•	•	•	
	South Africa*	•	•	•	•	•	•	•
	South Sudan	•	•		2003	2009	•	2012
	Sudan	•	•		•	•	•	•
	Swaziland	•	•		•	•	•	•
	Tanzania	•	•		•	•	•	•
	Togo	•	•		•	•	•	
	Uganda	•	•		•	•	•	•
	Zambia	•	•		•	•	•	•
	Zimbabwe	•	•		•	•	•	•
Asia	Afghanistan	•	•		•	•	•	2008
	American Samoa				•	•	•	
	Bangladesh	•	•	2014	•	•	•	•
	Bhutan	•	•		•	•	•	•
	Brunei Darussalam	•	•		•	•	•	•
	Cambodia	•	•		•	•	•	•
	China (Mainland)*	•	•	2015	•	•	•	•
	Fiji	•	•		•	•	•	•
	Hong Kong SAR, China*	•	•	•	•	•	•	•
	India*	•	•	2004	•	•	•	•
	Indonesia*	•	•	•	•	•	•	•
	Kiribati	•	•		•	2009	•	
	Korea, Dem. Rep.	•	•		•	•	•	
	Korea, Rep.*	•	•	•	•	•	•	•
	LAO, PDR	•	•		•	•	•	•
	Malaysia	•	•	•	•	•	•	•
	Maldives	•	•		•	•	•	•
	Myanmar	•	•		•	2015	•	•
	Nepal	•	•		•	•	•	•
	Pakistan	•	•	2002	•	•	•	•
	Papua New Guinea	•	•		•	•	•	•
	Philippines	•	•	•	•	•	•	•
	Singapore	•	•	•	•	•	•	•
	Solomon Islands	•	•		•	2014	•	•
	Sri Lanka	•	•		•	•	•	•
	Taiwan, China*	•	•		•	•	•	•
	Thailand*	•	•	•	•	•	•	•
	Timor-Leste	•	•		•	•	•	2002
	Tonga	•	•		•	•	•	•
	Tuvalu	•	•		•	•	•	
	Vietnam	•	•		•	•	•	•
Eastern Europe and Central Asia	Albania	•	•	2015	•	•	•	•
	Armenia	•	•		•	•	•	•
	Azerbaijan	•	•		•	•	•	•
	Belarus	•	•	2014	•	•	•	•
	Bosnia and Herzegovina	•	•		•	•	•	•
	Bulgaria	•	•	•	•	•	•	•
	Croatia	•	•		•	•	•	•
	Czech Republic	•	•	•	•	•	•	•
	Georgia	•	•		•	•	•	•
	Hungary	•	•	•	•	•	•	•
	Kazakhstan	•	•	•	•	•	•	•
	Kosovo, Rep.			2010	2002	•	•	2007
	Kyrgyz Republic	•	•		•	•	•	•
	Macedonia, FYR	•	•	2016	•	•	•	•
	Moldova	•	•		•	•	•	•
	Mongolia	•	•	2010	•	•	•	•
	Montenegro	•	•		•	•	•	2007
	Poland*	•	•	•	•	•	•	•
	Romania	•	•	•	•	•	•	•
	Russian Federation*	•	•	•	•	•	•	•
	Serbia	•	•		•	•	•	2006
	Tajikistan	•	•		•	•	•	•
	Turkey*	•	•	•	•	•	•	•
	Turkmenistan	•	•		•	2009	•	
	Ukraine	•	•	•	•	•	•	•
	Uzbekistan	•	•		•	2009	•	2013

(cont.)

Online Appendix Table 1. List of Economies and Data Availability by Region (continued)

		Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		Int. Reserves
	Economy	Source	Destination	Source	Destination	Source	Destination	Source
Latin America and the Caribbean	Antigua and Barbuda				•	•	•	•
	Argentina*	•	•	•	•	•	•	•
	Barbados	•	•	2003	•	•	•	•
	Bolivia	•	•	2011	•	•	•	•
	Brazil*	•	•	•	•	•	•	•
	Chile	•	•	•	•	•	•	•
	Colombia*	•	•	•	•	•	•	•
	Costa Rica	•	•	•	•	•	•	•
	Cuba	•	•		•	2009	•	
	Dominica	•	•		•	•	•	•
	Dominican Republic	•	•		•	•	•	•
	Ecuador	•	•		•	•	•	•
	El Salvador	•	•	2018	•	•	•	•
	Grenada	•	•		•	2009	•	•
	Guatemala	•	•		•	•	•	•
	Guyana	•	•		•	2009	•	•
	Haiti	•	•		•	•	•	•
	Honduras	•	•	2014	•	•	•	•
	Jamaica	•	•		•	•	•	•
	Mexico*	•	•	2003	•	•	•	•
	Nicaragua	•	•		•	•	•	•
	Paraguay	•	•		•	•	•	•
	Peru	•	•	2015	•	•	•	•
	Puerto Rico				•	•	•	
	St. Kitts and Nevis				•	•	•	•
	St. Lucia	•	•		•	•	•	•
	St. Vincent and the Grenadines	•	•		•	•	•	•
	Suriname	•	•		•	•	•	•
	Trinidad and Tobago	•	•		•	2005	•	•
	Uruguay	•	•	•	•	•	•	•
	Venezuela. R.B.*	•	•	•	•	•	•	•
	Virgin Islands, United States				•	•	•	
Middle East	Algeria	•	•		•	•	•	•
	Bahrain	•	•	•	•	•	•	•
	Egypt, Arab Rep.	•	•	•	•	•	•	•
	Iran, Islamic Rep.*	•	•		•	•	•	
	Iraq	•	•		•	•	•	•
	Israel	•	•	•	•	•	•	•
	Jordan	•	•		•	•	•	•
	Kuwait	•	•	2003	•	•	•	•
	Lebanon	•	•	•	•	•	•	•
	Libya	•	•		•	•	•	•
	Morocco	•	•		•	•	•	•
	Oman	•	•		•	2005	•	•
	Qatar	•	•		•	2008	•	•
	Saudi Arabia*	•	•	2013	•	•	•	•
	Syrian Arab Republic	•	•		•	•	•	•
	Tunisia	•	•		•	•	•	•
	United Arab Emirates*	•	•		•	•	•	•
	West Bank and Gaza	•	•	2015	•	•	•	2006
	Yemen, Rep.	•	•		•	•	•	•
Others	Christmas Islands				•	2009	•	
	Cocos Islands				•	2009	•	
	French Guiana				•	2009	•	
	French Southern Territories				•	2009	•	
	Guadeloupe				•	2009	•	
	Guam				•	2009	•	
	Marshall Islands	•	•		•	•	•	
	Martinique				•	2009	•	
	Mayotte				•	2009	•	
	Micronesia, Fed. Sts.	•	•		•	•	•	•
	Nauru	•	•		•	•	•	
	Niue				•	•	•	
	Norfolk Island				•	2009	•	
	Pitcairn				•	2009	•	
	Reunion				•	2009	•	
	St. Pierre and Miquelon				•	2009	•	
	Tokelau				•	•	•	
	Western Sahara				•	2009	•	

(cont.)

Online Appendix Table 1. List of Economies and Data Availability by Region (continued)

	Economy	Bank Loans and Deposits		Portfolio Investment		Foreign Direct Investment		Int. Reserves
		Source	Destination	Source	Destination	Source	Destination	Source
Offshore Financial Centers	Andorra†	●	●		●	2009	●	
	Anguilla†				●	●	●	●
	Aruba‡	●	●	●	●	●	●	●
	Bahamas, The‡	●	●	●	●	●	●	●
	Belize†	●	●		●	●	●	●
	Bermuda†	●	●	●	●	●	●	
	British Virgin Islands†	●	●		●	●	●	
	Cayman Islands‡	●	●	●	●	●	●	
	Cook Islands†				●	●	●	
	Cyprus†	●	●	●	●	●	●	●
	Gibraltar†	●	●	2004	●	2009	●	
	Guernsey†	●	●	●	●	2009	●	
	Isle of Man†	●	●	●	●	2009	●	
	Jersey†	●	●	●	●	2009	●	
	Liechtenstein‡	●	●		●	2009	●	
	Macao SAR, China†	●	●	●	●	●	●	●
	Monaco†				●	2009	●	
	Montserrat†				●	2009	●	●
	Netherlands Antilles‡			●	●	●	●	●
	Palau‡	●	●	2014	●	2014	●	
	Panama‡	●	●	●	●	●	●	●
	Samoa‡	●	●		●	2009	●	●
	Seychelles†	●	●		●	●	●	●
	Turks and Caicos‡	●	●		●	●	●	
	Vanuatu‡	●	●	●	●	●	●	●
	Number of countries in North	38	38	30	40	40	40	31
	Number of countries in Africa	48	48	3	48	48	48	39
	Number of countries in Asia	30	30	11	31	31	31	27
	Number of countries in Eastern Europe and Central Asia	25	25	14	26	26	26	25
	Number of countries in Latin America and the Caribbean	28	28	13	32	32	32	29
	Number of countries in the Middle East	19	19	7	19	19	19	18
	Number of countries in Other	3	3	0	18	18	18	1
	Number of countries in Offshore Financial Centers 0	20	20	14	25	25	25	12

This table indicates, for each country in the sample, whether we have data on that country as a source and as a destination. A country is considered a source (destination) of international investments if any international investment position for which the country is a source (destination) is non-missing. For international reserves, only country-to-region (source) data are available. The countries in the "others" category are included in the South region but are excluded from the totals for individual regions of the South. Countries with a * symbol are those that belong to the top quintile in terms of average GDP. OFCs with a † symbol are those that belong to North, and those with a ‡ symbol are those that belong to South. Each dot indicates that data are available throughout; blanks indicate missing data throughout, years indicate where data become available after 2001. The coverage of bank loans and deposits and foreign direct investment has been extended by using mirror data (see appendix). The list of OFCs is based on the list of countries included in the International Monetary Fund's Staff Assessments on Offshore Financial Centers (IMF 2000).

Online Appendix Table 2.
Portfolio Investment International Positions: Equity vs. Debt

Panel A. International Investment/World GDP

Portfolio Equity

Source	Destination	2001	2007	2008	2018
North	North	12.6%	20.4%	10.8%	20.3%
North	South	1.1%	3.8%	1.5%	3.3%
South	North	0.3%	0.9%	0.5%	1.6%
South	South	0.1%	0.8%	0.6%	0.9%

Portfolio Debt

Source	Destination	2001	2007	2008	2018
North	North	14.1%	24.7%	21.5%	19.8%
North	South	0.8%	1.2%	0.8%	2.0%
South	North	0.6%	1.1%	0.9%	1.4%
South	South	0.1%	0.3%	0.2%	0.7%

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 as a ratio of world GDP. Bilateral investment positions 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 investment position are available 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.

Online Appendix Table 3. Foreign Direct Investment, Growth in the Value of International Investment Positions: Robustness

Level of Data Aggregation	Region-to-Region	Country-to-Region	Country-to-Country		Country-to-Country Top 20%	
Estimation Method	**OLS**	**OLS**	**OLS**	**PPML**	**OLS**	**PPML**
Dependent Variable	**Log(Value)**	**Log(Value)**	**Log(Value)**	**Value**	**Log(Value)**	**Value**
North-to-North Trend	0.061 ***	0.071 ***	0.073 ***	0.053 ***	0.064 ***	0.046 ***
	(0.011)	(0.013)	(0.005)	(0.004)	(0.004)	(0.004)
North-to-South Trend	0.055 ***	0.100 ***	0.074 ***	0.050 ***	0.106 ***	0.075 ***
	(0.006)	(0.012)	(0.005)	(0.008)	(0.007)	(0.005)
South-to-North Trend	0.058 ***	0.074 ***	0.083 ***	0.043 ***	0.128 ***	0.078 ***
	(0.016)	(0.012)	(0.006)	(0.008)	(0.009)	(0.008)
South-to-South Trend	0.101 ***	0.145 ***	0.126 ***	0.082 ***	0.161 ***	0.097 ***
	(0.014)	(0.010)	(0.005)	(0.004)	(0.013)	(0.008)
Wald Tests on Trend Coefficients:						
1. South-to-South — North-to-North	0.040 **	0.074 ***	0.054 ***	0.030 ***	0.097 ***	0.051 ***
2. South Destination — North Destination	0.019	0.050 ***	0.022 ***	0.018 ***	0.038 ***	0.024 ***
3. South Source — North Source	0.022 *	0.024 **	0.031 ***	0.012 *	0.060 ***	0.027 ***
Fixed Effects	R-R	C-R, R-C	C-C	C-C	C-C	C-C
R-R Fixed Effects x Post-2008 Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	72	9,959	86,410	125,180	17,522	20,470

This table reports results for Table 3 when controlling for the change in FDI coverage when CDIS data replaces UNCTAD data. 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). Country-to-region regressions include country-to-region (C-R) and region-to-country (R-C) investments. Regressions include R-R, C-R and R-C, or C-C fixed effects. Country-to-Country Top 20% includes only source and destination countries that are in the top quintile in terms of average GDP. Regressions also include the interaction between R-R dummies and a dummy that equals one after 2008. The Wald tests show whether the differences between sets of coefficients are significantly different from zero. 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.

Online Appendix Table 4. Foreign Direct Investment, Growth of Active Links: Robustness

Level of Data Aggregation	**Region-to-Region**	**Country-to-Region**	**Country-to-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	0.014 ***	0.014 ***	0.011 ***	63%	1.6%
	(0.003)	(0.001)	(0.001)		
North-to-South Trend	0.046 ***	0.046 ***	0.019 ***	20%	5.9%
	(0.002)	(0.004)	(0.001)		
South-to-North Trend	0.032 ***	0.034 ***	0.018 ***	27%	4.9%
	(0.003)	(0.003)	(0.001)		
South-to-South Trend	0.052 ***	0.054 ***	0.015 ***	9%	8.5%
	(0.002)	(0.003)	(0.000)		
Wald Tests on Trend Coefficients:					
1. South-to-South — North-to-North	0.038 ***	0.041 ***			
2. South Destination — North Destination	0.026 ***	0.026 ***			
3. South Source — North Source	0.012 ***	0.014 ***			
Fixed Effects	R-R	C-R, R-C	R-R		
R-R Fixed Effects x Post-2008 Dummy	Yes	Yes	Yes		
Number of Observations	72	11,673	291,604		

This table reports results for Table 8 when controlling for the change in FDI coverage when CDIS data replaces UNCTAD data. The estimation methods are Poisson and logit. For the Poisson regressions, the dependent variable is the number of active links counting the investment positions with positive value from one country/region to another. For the logit regressions, the dependent variable is an indicator variable that takes the value one whenever bilateral investment is positive and zero 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 (when 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). Country-to-region regressions include both country-to-region (C-R) and region-to-country (R-C) investments. Regressions include R-R or, C-R and R-C fixed effects. Regressions also include the interaction between R-R dummies and a dummy that equals one after 2008. The Wald tests show whether the differences between sets of coefficients are significantly different from zero. 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.

Online Appendix Table 5. International Investment Positions/World GDP, by Region

		Bank Loans and Deposits			Portfolio Investment			Foreign Direct Investment		
Source	**Destination**	**2001**	**2018**	**Log Changes**	**2001**	**2018**	**Log Changes**	**2001**	**2018**	**Log Changes**
North	North	20.4%	19.6%	-0.02	26.8%	40.5%	0.18	19.8%	31.9%	0.21
North	South	2.7%	3.4%	0.09	1.9%	5.4%	0.45	4.1%	6.5%	0.20
North	China	0.1%	0.3%	0.69	0.03%	0.5%	1.24	0.26%	0.6%	0.38
North	Asia (excl. China)	1.4%	1.5%	0.06	0.86%	2.5%	0.45	0.9%	2.1%	0.34
North	Latin America and the Caribbean	0.5%	0.4%	-0.06	0.61%	1.2%	0.28	0.92%	1.7%	0.26
North	Eastern Europe and Central Asia	0.3%	0.4%	0.17	0.20%	0.59%	0.47	0.31%	1.1%	0.57
North	Africa	0.1%	0.1%	0.02	0.07%	0.35%	0.72	1.25%	0.3%	-0.66
North	Middle East	0.3%	0.4%	0.10	0.10%	0.32%	0.50	0.2%	0.5%	0.32
South	North	4.1%	3.4%	-0.09	0.88%	2.98%	0.53	2.42%	6.38%	0.42
China	North	0.1%	0.4%	0.56	N/A	0.26%	N/A	0.07%	0.6%	0.91
Asia (excl. China)	North	2.1%	1.4%	-0.18	0.64%	1.7%	0.43	0.5%	2.2%	0.63
Latin America and the Caribbean	North	0.6%	0.4%	-0.21	0.07%	0.31%	0.65	0.57%	1.6%	0.44
Eastern Europe and Central Asia	North	0.3%	0.4%	0.13	0.02%	0.20%	0.91	0.84%	1.4%	0.21
Africa	North	0.2%	0.2%	-0.05	0.08%	0.17%	0.32	0.24%	0.4%	0.26
Middle East	North	0.9%	0.6%	-0.12	0.06%	0.31%	0.73	0.17%	0.2%	0.00
South	South	1.6%	3.5%	0.35	0.18%	1.57%	0.95	1.50%	5.55%	0.57
South	China	0.1%	0.8%	1.05	0.03%	0.57%	1.27	0.52%	1.27%	0.39
South	Asia (excl. China)	1.2%	2.0%	0.22	0.12%	0.80%	0.82	0.85%	3.14%	0.57
South	Latin America and the Caribbean	0.02%	0.1%	0.52	0.01%	0.06%	0.75	0.05%	0.26%	0.67
South	Eastern Europe and Central Asia	0.02%	0.2%	0.87	0.003%	0.03%	1.00	0.03%	0.24%	0.91
South	Africa	0.02%	0.1%	0.85	0.001%	0.02%	1.39	0.03%	0.42%	1.14
South	Middle East	0.2%	0.3%	0.17	0.006%	0.08%	1.11	0.01%	0.20%	1.55
China	South	0.2%	0.9%	0.62	N/A	0.22%	N/A	0.62%	2.08%	0.53
Asia (excl. China)	South	1.1%	2.0%	0.28	0.15%	1.02%	0.82	0.75%	2.22%	0.47
Latin America and the Caribbean	South	0.01%	0.03%	0.55	0.01%	0.03%	0.60	0.07%	0.24%	0.55
Eastern Europe and Central Asia	South	0.0%	0.1%	0.66	0.00%	0.03%	0.95	0.04%	0.31%	0.95
Africa	South	0.01%	0.05%	0.74	0.00%	0.15%	1.96	0.02%	0.59%	1.41
Middle East	South	0.3%	0.4%	0.20	0.01%	0.14%	1.09	0.00%	0.11%	1.37

This table shows the year-end value of international investment positions as a ratio of world GDP for alternative groupings of countries (see Appendix Table 1 for countries in each South region). Bilateral investment positions 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 investment data are available for that year (all source countries with data for a given year also have data as destination countries). We exclude OFCs.