Unraveling the Cobweb of Global Imbalances: *Drivers, Vulnerabilities, and Adjustment Scenarios*[*]

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Abstract: This paper analyzes the evolution and drivers of the cobweb of global imbalances in order to diagnose the associated financial vulnerabilities and examine potential adjustment scenarios. Global imbalances have recently increased sharply, with a deterioration in the US net international investment position (NIIP) mirrored by NIIP improvements in most other major economies. We decompose these changes into their proximate drivers for a sample of 28 economies. Although trade plays a significant role (especially at long horizons), the importance of financial factors (valuation changes and investment income flows) has increased considerably as larger NIIP stocks generate more persistent income flows and larger valuation effects. Changes in international exposures since 2010 have generated an underappreciated wealth effect boosting growth in many countries, while also increasing their vulnerability to adjustments in financial markets. To assess the risks, we simulate the direct effects and spillovers through this cobweb of imbalances of several shocks: a sharp dollar depreciation, a repricing of global equity markets, an increase in global interest rates, and a halving in trade imbalances. These scenarios highlight the large magnitude of each shock required to meaningfully reduce (or even slow the growth in) imbalances, as well how different rebalancing mechanisms could have much more benign (or severe) effects on individual countries and the global economy.

Key words: global imbalances, net international investment position, spillovers, current account, trade deficit, trade surplus, exorbitant privilege, international debt, dollar depreciation

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I. Introduction

Global imbalances have recently increased significantly and reached historical highs by many measures. These imbalances have been used to justify various policy actions (e.g. sharp increases in tariffs and other trade restrictions) and have generated concerns about potential financial vulnerabilities and broader systemic risks. This confluence of developments has elevated global imbalances to the forefront of G-7 and G-20 priorities for 2026 and has triggered a surge of new research and reports on the topic.[1] This paper contributes to that literature by unraveling the web of international interlinkages and vulnerabilities associated with these growing imbalances. We provide a framework to decompose the drivers across countries and time and then use this to assess the potential impact of various shocks and potential adjustment paths. The analysis highlights the increased role of financial channels (compared to trade), the underlying persistence of global imbalances, the potential for large international spillovers through sharp adjustments in international financial positions, and the very heterogenous impact of different adjustment mechanisms on country-specific and global outcomes.

Global imbalances initially gained attention in the 2000's as the current account balances for China and the United States reached record highs. Research began to focus more on the financial flows corresponding to imbalances, such as the "global savings glut" (Bernanke, 2005), and the role of financial markets and relative returns, such as the US "exorbitant privilege" (Gourinchas and Rey, 2007).[2] Work also highlighted the importance of understanding the gross stocks and flows behind imbalances (Lane and Milesi-Ferretti, 2007; Forbes and Warnock, 2012). After the 2008 Global Financial Crisis (GFC), annual current account imbalances moderated, although the underlying stock of imbalances continued to increase. After the 2020 pandemic, however, current account imbalances began to increase sharply, prompting another surge of research on the topic. Much of this research focuses on the United States, as its net international investment position (NIIP) has deteriorated further to reach unprecedented (negative) levels (Obstfeld, 2024; Atkeson et al., 2025; Bayoumi and Gagnon, 2025; Chari and Milesi-Ferretti, 2025).

What has received less attention, however, are the meaningful improvements in the NIIPs of most other countries around the world—the flip side of the sharp deterioration in the US NIIP. This positive wealth effect (outside the United States) has provided an underappreciated boost to economic growth in many countries, but also increased vulnerabilities to adjustments in financial markets, including sharp moves in equity valuations, interest rates, and exchange rates. These external exposures—including through gross asset holdings in addition to the gross liabilities which generally receive more attention—could increase the risks to financial stability and economic growth associated with a range of shocks, including those which shrink overall imbalances. The spillovers through imbalances have likely grown not only due to their larger size, but also their interactions with the "rewiring" of the global financial system away from bank-based international capital flows towards more price-sensitive, market-based investors (Hernández de Cos, 2025; Bruno et al., 2026; Shin, 2026). This paper provides a framework to better understand the drivers

[1] Prominent examples from just the first four months of 2026 include: Bai, Gopinath, Rey and Weber (2026), Bayoumi and Gagnon (2026), Bruno, Kamin, Ubide and Tille (2026), Cesa-Bianchi et al. (2026), International Monetary Fund (2026), and Rey, Weder di Mauro and Zettelmeyer (2026).

[2] A vein of this literature also highlighted the importance of the depth and liquidity of US financial markets, including Caballero, Farhi, and Gourinchas (2008) and Forbes (2010).

and evolution of this web of (global imbalances-related) cross-country linkages in order to assess the corresponding vulnerabilities to different shocks and potential adjustment paths.

To understand these spillovers, our analysis focuses on the most comprehensive measure of external exposures—net international investment positions (NIIPs) —while also incorporating information on gross international investment positions (IIPs) and current account balances (including trade and investment income flows).[3] Focusing on NIIPs has a number of advantages. First, they capture a country's aggregate exposure, including not only of governments (the focus in most research on debt sustainability), but also of households, companies, and financial institutions. Including all of these sectors is crucial for any analysis of financial stability risks, especially as non-sovereign entities hold a growing share of international investments in many economies. Second, NIIPs allow us to analyze the stocks of imbalances that have accumulated over time, rather than the imbalances in a given year (as measured by the current account or trade balances). This focus is necessary to understand vulnerabilities to specific shocks, similar to how an analysis of fiscal sustainability needs to incorporate information on the structure of underlying debt positions as well as annual deficits. Understanding these positions is also increasingly important to analyze current account balances, as the investment income component of these balances has increased and links directly to the underlying stock of international investments. Third, these measures allow us to analyze imbalances over different horizons, as the drivers of short-term changes in imbalances may be different and less persistent than for the level of international exposures. Finally, these measures allow us to assess the vulnerabilities that arise through the size and structure of international asset exposures, in addition to the international liability positions (the side of country balance sheets that generally receives more attention). Shocks that affect the value of international assets could generate wealth effects that spill over to the domestic economy—a vulnerability that has increased since 2010 as international asset exposures have not only grown, but their composition has shifted towards riskier exposures. Financing shocks from abroad may generate—through both assets and liabilities—different transfers and welfare costs, which require more difficult policy responses than from domestic financing shocks (Atkeson et al., 2025).

This paper begins by constructing a detailed data set on international investment positions, trade flows, capital flows, and their various components by asset category from 1980 through 2024. We also incorporate information on financial market movements and returns for individual countries and global indices, including for equity markets, interest rates and exchange rates. We focus on a sample of 28 countries (17 advanced economies and 11 emerging markets) covering about 85% of global GDP.[4] Then we use this data set to analyze the current landscape of international investment positions and how they have evolved since 1980.

Global imbalances have been increasing over most of the last 45 years — with the absolute value of NIIPs in our sample increasing from 10% of global GDP in 1980 to 46% in 2024. This increase primarily reflects trends in the advanced economies, which in turn largely reflects the sharp

[3] Bruno et al. (2026) provides an excellent summary of how global imbalances have changed using a range of different measures—including annual flows as well as stocks.

[4] Our primary criterion for including countries in our benchmark sample is based on whether they have the detailed data necessary for the subsequent decompositions. We do not include financial centers in much of the analysis, due to data challenges discussed in Section II.D, but do include them for parts of the analysis on spillovers and the scenario analysis (in Section VI).

deterioration in the US NIIP from roughly balanced in 1980 to 24% of global GDP in 2024 (over half of global imbalances in our sample). A structural shift appears to have occurred around 2010—as the US NIIP began to consistently deteriorate, resulting in regular net wealth transfers to much of the rest of the world.[5] Any reduction in global imbalances is likely to include some unwinding in the US international debtor position and correspond to some reversal in the (often substantial) NIIP improvements of other economies that have mirrored the US NIIP deterioration.

In order to understand this evolution in global imbalances and the potential risks from any gradual adjustments or sudden shocks in the future, Section III builds on the framework in Forbes, Hjortsoe and Nenova (2017) for decomposing the changes and levels in NIIPs into contributions from four main components: (i) trade flows; (ii) investment income flows; (iii) other income flows; and (iv) valuation effects (arising from changes in the market values of existing positions). This approach has several advantages relative to decompositions of current accounts and international investment positions used in recent work. Instead of focusing on the current account in aggregate, we decompose it into a trade component, investment income flows, and other income flows—thereby better isolating the importance of each of these channels. In addition, instead of focusing solely on the "flow" component of imbalances through current accounts, we incorporate changes in the "stock" of imbalances. This highlights the importance of financial factors working through the valuation of these stocks, as well as the persistent effect of these stocks on annual investment income flows. These high-level decompositions allow us to highlight the role of trade versus financial factors in driving imbalances. Equally important, this framework can then be extended to provide more detailed decompositions of the financial factors (i.e., investment income flows and valuation effects) into the role of: (i) exchange rate movements; (ii) relative returns; (ii) the initial net stock of assets and liabilities; and (iv) the relative composition of these assets and liabilities (e.g., between equity, debt, FDI, bank loans, and other exposures). These more detailed decompositions are necessary to understand the heterogeneity across countries and trace potential spillovers through the web of global imbalances from hypothetical shocks to specific asset prices.

Section IV applies this methodology to estimate a series of decompositions explaining the changes in international investment positions across our sample over 1980-2024. We first summarize the relative magnitudes of the drivers by calculating the absolute value of the contributions of the relevant components across all countries, over each decade. The drivers of imbalances have changed over time, with a greater footprint of financial factors and a relatively smaller role for trade. While between 1980 and 2010 trade explained roughly half of the global variation in NIIPs, from 2010 through 2024 financial factors drove almost two thirds (63%) of the changes (including 26% due to valuation effects and 28% due to investment income flows). Most notable is the increased importance of valuation effects, which made minimal contribution to changes in NIIPs in the 1980s. The results also highlight how some drivers of imbalances are more persistent than others. For example, estimates of the partial sum of squares attributable to each component show that valuation effects (which tend to be more volatile and reverse quickly) are the dominant driver of short-term changes in NIIPs, while investment income flows and trade (both of which tend to be more persistent) are the dominant drivers of NIIP levels.

[5] This structural shift is distinct from the sharp (but short-lived) adjustments in imbalances around the 2008 Global Financial Crisis that corresponded to a wealth transfer from the United States through global imbalances when the US NIIP acted as an "insurer of last resort" (Gourinchas, Rey and Truempler, 2012).

Next, to better understand the drivers of these financial factors, we shift to more detailed decompositions of valuation effects and investment income flows. In our benchmark set of decompositions, we focus on understanding the drivers of global imbalances over 10-year windows—a medium-tern horizon over which policy could have an impact. The estimates suggest that relative returns (for each asset and liability category relative to that in other countries) are the dominant factor explaining the financial effects (on average across countries); mismatches in the composition of assets versus liabilities also play a meaningful role. Large exchange rate movements contribute substantially to valuation effects, particularly for specific countries and periods. "Stock" effects (i.e., the initial level of total assets relative to total liabilities) are the primary determinant of investment income flows. This series of results has two important implications. First, imbalances are increasingly susceptible to swings in asset prices and other movements in financial markets (including exchange rates). Second, as the size of imbalances (as well as any mismatches across asset classes) grows, many of these financial effects also grow—not only through these larger valuation effects, but also through larger income flows on existing positions. In turn, larger investment income flows generate more persistence in the flow measures of imbalances (i.e., current accounts) and make it harder to unwind existing positions.

We also explore how the drivers of imbalances (and their components) vary over different horizons via estimates of variance decompositions explaining the levels and short-run (annual) changes in NIIPs. This exercise shows that the divergence in NIIP *levels* across countries is primarily explained by persistent imbalances in trade and investment income flows (driven by return, composition and stock effects). In contrast, the variance in annual NIIP *changes* is primarily driven by valuation changes (driven by return, composition and exchange rate effects). In fact, the importance of valuation effects has grown steadily over time to recently account for almost all of the variance in annual NIIP changes. Therefore, financial components—and not just trade flows—are key to understand not only the drivers of the latest widening in global imbalances, but also how they could increase individual country vulnerability to changes in asset prices and other shocks.

Many of these patterns, however, vary across countries and reflect the size and composition of their balance sheets, macroeconomic structure and policies (including those affecting national savings and investment), as well as the history of country-specific shocks. Section V explores this considerable heterogeneity by providing decompositions by country to assess the relative importance of trade and financial channels, as well as of the underlying financial mechanisms. Although trade explains a large share of NIIP movements in some countries (such as France and Germany), accumulated trade flows are only weakly correlated with changes in NIIPs for most countries over 2010-2024. In some countries (such as in the United States and Canada), this reflects the larger role of financial effects in driving changes in NIIPs, while in other countries financial effects unwind much of the accumulated gains from trade flows. For example, some countries with large trade surpluses (such as China, Russia, Saudi Arabia and Switzerland) would have NIIP creditor positions more than twice as large today if these reflected solely accumulated trade balances; instead, nearly half the value of these accumulated trade surpluses has been transferred abroad through financial channels. A closer look at these financial channels shows a prominent role for valuation effects driving the largest shifts in NIIPs for advanced economies, while for emerging markets investment income flows (which include interest payments on international borrowing) play a larger role on average.

To better understand the substantial differences in these financial channels across countries, Section V also highlights countries with contrasting patterns for valuation effects (the United States

versus the United Kingdom) and investment income flows (Japan versus Brazil). Both the United States and the United Kingdom enjoyed a form of "exorbitant privilege" before 2010, in the sense that higher relative returns and valuation gains on their investment portfolios more than offset accumulated trade deficits.[6] The United Kingdom has maintained this "privilege", partly through exchange rate adjustments and weak returns on UK liabilities, while the United States appears to have lost this privilege since 2010 and transitioned to providing a "generous giveaway", driven primarily by the stronger relative performance of US equities and recent dollar appreciation. Japan and Brazil currently have large current account imbalances (a surplus and deficit, respectively), despite having roughly balanced net trade flows. Their large current account imbalances are primarily driven by investment income flows, which mainly result from large stocks of imbalances (with some additional role for interest rate differentials). This demonstrates how the increased size of imbalances is generating more persistence in current account flows and, thereby, a buildup of an even larger stock of imbalances—that could continue to grow even if trade surpluses and deficits are reduced. These case studies highlight the importance of understanding each country's exposures by asset class to understand their specific vulnerabilities, as well as how any shocks could spill over through imbalances to other economies.

The final section of the paper develops several scenarios to assess the impact of different shocks on the NIIPs of each economy in the sample and how these shocks could spread through the web of global imbalances. We use the framework and data developed above to perform back-of-the-envelope, partial equilibrium calculations of several hypothetical events: a 20% depreciation of the US dollar, a sharp correction in US equity markets (potentially related to a repricing of AI and technology related companies), a large increase in interest rates on outstanding debt obligations (potentially reflecting increases in term premia or expected inflation), and a reduction in trade imbalances by half (potentially related to increased trade restrictions). The analysis identifies which economies are most vulnerable to the resulting NIIP changes, highlighting that many economies which have benefited from positive international wealth effects (primarily generated by the sharp deterioration in the US position) since 2010 are more vulnerable than in the past. The scenarios also underscore how a given reduction in global imbalances could occur through more benign or more severe outcomes for the global economy, as well as for individual countries.

Potentially most important, these scenarios also highlight the persistence of global imbalances. If trade and investment income flows remain around current levels and there are no relative valuation changes, imbalances will continue to increase. The scenarios involving a sharp dollar depreciation, rising global interest rates, or halving of trade imbalances would only generate small reductions in global imbalances. The scenario which generates the largest reduction in global imbalances is a sharp correction in US equity markets—an adjustment which would be painful for both the United States (despite the large reduction in its international debtor position) and the rest of the world. Although these scenarios are only very rough calculations of the immediate effects of certain

[6] The term "exorbitant privilege" has been used to define several (related) patterns. Some papers use this term when a country pays a higher return on foreign assets within each asset category than paid on foreign liabilities in the same category, while others do not differentiate by asset class or only focus on relative returns in fixed income. Some incorporate valuation changes as well as relative returns. We use a broad definition, corresponding to situations when a country is a NIIP debtor, but still has positive relative returns and valuation gains on their international portfolios that offset trade deficits to stabilize the NIIP.

shocks, they suggest that some policies promoted as part of the solution to imbalances are likely to have only a minimal effect.

Granted, some degree of global imbalances is part of a well-functioning global economy, and there is no optimal level for imbalances or fixed amount by which they should necessarily fall. Moreover, as international exposures have increased and the share of exposures through equities and FDI have increased, adjustments that occur through valuation changes in these large international portfolios could take place more smoothly than other types of adjustments. Nonetheless, it is still important to understand the specific channels through which these types of shocks could spread globally in order to assess if vulnerabilities exist in specific sectors—even if the aggregate economic impact appears to be more muted.

The analysis and results in this paper provide several useful policy insights. First, for countries concerned about large trade imbalances, changes in factors other than trade (such as valuation effects and investment income flows) should be central to the discussion, as they can largely offset—and even outweigh—the impact of trade on current account balances and NIIPs. Second, as the size of imbalances has grown, countries should be aware of and evaluate the spillovers they could face as a consequence of financial market shocks working through global imbalances. Most economies have benefited from an unprecedented net transfer of resources through their international investment positions since 2010. These transfers could not only suddenly stop, but reverse. Understanding exactly which sectors of the economy are affected by these types of spillovers, including if they are well positioned to absorb a potential large and sudden decline in international net worth (and not just a shock to international liabilities), is critically important to properly assess potential risks to financial stability.

Finally, the results also highlight the persistence of these imbalances and resulting challenges to reduce them. Most of our hypothetical scenarios that involve large shocks to financial markets would only generate modest reductions in imbalances, and the shock we assess which generates the largest reduction in imbalances (i.e., a sharp fall in US equity markets) would generate large negative wealth effects globally. This underlying persistence in the structure of imbalances suggests that even if trade restrictions or geopolitical events lead to a sharp reduction in trade flows, vulnerabilities related to international financial exposures would still persist. In other words, reducing imbalances will be a challenge and mechanisms to reduce imbalances quickly (particularly the US debtor position) could be costly for the global economy. Therefore, policymakers should prioritize identifying and understanding the vulnerabilities that exist today through global imbalances and ensuring that different sectors are resilient to a range of shocks and their corresponding spillovers. This cobweb of imbalances and the corresponding vulnerabilities are unlikely to disappear soon.

Related Literature

This analysis contributes to several extensive strands of literature—including on global imbalances, capital flows, the sustainability of current account deficits and international debt, and micro-based analysis of international portfolio exposures. A key focus in our analysis, which distinguishes it from much (albeit not all) of this research is a focus on these issues from a global perspective. We highlight the "web" of international connections and spillovers such that gains (or losses) in some parts of the world correspond to losses (or gains) elsewhere. Another key focus of our analysis is the aggregate exposures for the entire economy, including exposures by companies and

households (in contrast to most work on debt sustainability which focuses on sovereign exposures) as well as across all asset categories (in contrast to some work which focuses on just portfolio exposures or debt). The resulting network of international exposures in our analysis therefore has numerous threads, but this mapping is necessary to understand how various shocks propagate across the cobweb.

The closest vein of literature to our analysis is a series of papers analyzing global imbalances through international financial positions and the underlying financial exposures. Early and influential papers focused on how valuation changes and relative returns within asset categories affect these positions, including: Lane and Milesi-Ferretti (2007, 2012), Gourinchas and Rey (2007), Forbes (2010) and Gourinchas, Rey and Truempler (2012). A closely related series of papers highlighted the role of exchange rate movements and correctly measuring the corresponding financial exposures when assessing NIIPs, such as Lane and Shambaugh (2010) and Benetrix, Lane and Shambaugh (2015). Forbes, Hjortsoe and Nenova (2017) merged the above approaches to simultaneously analyze how valuation effects, investment income flows, relative returns and exchange rate movements all affect NIIPs, with these decompositions providing the starting point for parts of the analysis in this paper.

Much of the recent work on global imbalances has focused primarily on the United States, prompted by increased attention to US trade deficits and the deterioration in the US NIIP, as well as concerns about the future of the US dollar, and US debt sustainability. For example, Obstfeld (2024), Bayoumi and Gagnon (2025), and Chari and Milesi-Ferretti (2025) provide in-depth analyses of the US current account deficit and corresponding capital flows, with some analysis of changes in the US NIIP position. Tabova and Warnock (2025) analyzes recent changes in the US exorbitant privilege, and Atkeson et al. (2025) models how this reflects fluctuations in the market valuations of US corporations, generating a large welfare loss for US households. While some of these papers also examine developments outside of the United States, they do so in a targeted manner, focusing on non-US factors only to the extent that they can be used to explain certain US developments.

Several very recent papers have taken a more international approach to understanding global imbalances.[7] In the most thorough analysis to date, Bruno, Kamin, Ubide and Tille (2026) provides a detailed analysis of the recent evolution of global imbalances (measured by current accounts and NIIPs), as well as how this could interact with potential changes in US dollar dominance, sovereign bond markets and liquidity in global financial markets. Bayoumi and Gagnon (2026) highlights the growth in China's trade surplus and the international ramifications, and Chari et al. (2025) includes a chapter examining how geopolitical tensions have affected the bilateral, external financial exposures since 2019 for China, Russia the euro area and the United States. A collection of papers have been written for policymakers in response to the recent focus on global imbalances in the G-7 and G-20, including Rey, Weder di Mauro and Zettelmeyer (2026), Bai, Gopinath, Rey and Weber (2026), Cesa-Bianchi et al. (2026), and International Monetary Fund (2026). Much (albeit not all) of the focus in these papers and the corresponding policy discussion is on current account imbalances (i.e., the annual flows), rather than the stock of international positions.

In addition to the literature on global imbalances, this paper is also loosely connected to several other large bodies of literature. One is the extensive literature is on capital flows, which highlights

[7] The IMF's annual *External Sector Report* has provided regular updates on global imbalances and the net international positions of the largest economies since 2012.

the greater stability of certain types of flows (such as FDI) and the importance of focusing on gross positions rather than on net positions (Lane and Milesi-Ferretti, 2007; Gourinchas and Rey, 2007; Forbes and Warnock, 2012 and 2021; Avdjiev, McCauley and Shin, 2016). A second vein of literature focuses on the sustainability of current account imbalances, including Avdjiev, Everett, Lane and Shin (2018) and Forbes, Hjortsoe and Nenova (2017), which both document the growing "financialization" of the current account (i.e., the increased importance of income flows relative to trade flows). A third branch of research links foreign exposures to risks around debt sustainability and crisis vulnerability (Eaton and Gersovitz, 1981; Arellano, 2008; Arellano and Ramanarayanan, 2012; Mendoza and Yue, 2012; Cruces and Trebesch, 2013; and Arellano Bai and Mihalache, 2024). A more recent strand of literature has highlighted how many of the relationships documented in earlier work may have changed around the global financial crisis (Avdjiev, Gambacorta, Goldberg and Schiaffi, 2020; Forbes and Warnock, 2021).

Finally, a series of papers has taken advantage of the greater availability of micro data on portfolio holdings and firm ownership structures to better understand cross-country exposures. For example, Coppola et al. (2021), Beck et al. (2024), Chan et al. (2025) and Aldasoro et al. (2026) look through the growing role of offshore centers to draw a more accurate map of external exposures via portfolio debt and equity investment. These exercises highlight the limits of using data on official bilateral exposures between large, developed economies (e.g., vis-à-vis the US), as these miss important capital re-routing via financial centers. These data issues are discussed in more detail in Section II.D, and is why we focus on aggregate positions in our analysis (i.e., vis-à-vis the rest of the world, instead of bilateral positions between individual countries).

Some of this literature using more micro data goes beyond documenting exposures and uses a demand system approach to asset pricing (introduced by Koijen and Yogo, 2019) in order to analyze domestic and international financial markets (Koijen and Yogo, 2020; Bretscher et al., 2025; Brunnermeier et al., 2021; and Nenova, 2025).[8] For example, Rey and Stavrakeva (2025) links foreign investor holdings in equity and debt to episodes of market turbulence. While these micro studies are useful to understand details of market structure, spillovers, and vulnerabilities in an important asset class (portfolio flows), we focus on all categories of investment—including FDI and bank flows —in order to understand the broader landscape of international exposures.

II. International Investment Positions: The Data, Situation Today and Changes over Time

This section describes our main database on international investment positions (IIPs) around the world and provides an initial analysis of this data. It begins by discussing the definitions and construction of key variables, as well as data sources and the resulting sample used throughout the paper. Then it provides information on the status of global imbalances at the end of our sample in 2024, as well as how these imbalances and IIPs have evolved since 1980. The section closes with a

[8] A subset of this research focuses on sovereign debt and highlights the weight given to liquidity versus other purposes, which in turn determines the demand by different investor groups (such as banks versus the official sector). Examples include: Krishnamurthy and Vissing-Jorgensen (2012), Liu, Schmid, and Yaron (2021), Jiang, Krishnamurthy, and Lustig (2021) and Jiang et al. (2024).

brief discussion of several caveats and limitations with the international statistics on global imbalances.

A. The Data: Definitions, Sources and Sample

To assess the evolution of global imbalances, we focus on the most comprehensive measure of cross-country exposures: net international investment positions (NIIPs). The NIIP is calculated as the difference between a country's aggregate international assets less its international liabilities, thereby including exposures for households, financial and non-financial companies, and government entities (including any local or quasi-government bodies as well as the sovereign). This focus on a country's total exposure (and not just the sovereign) is necessary in order to assess the financial stability risks around imbalances, especially as non-sovereign entities hold a larger share of international investments.[9] Parts of the analysis also utilize information on gross (instead of net) international assets and liabilities[10] and on annual cross-border flows (including the current account as well as its trade and income components). For our initial description of global imbalances, however, we focus on the stocks of net international exposures, as these measures are central for the analysis of spillovers and potential vulnerabilities, not only through the impact of shocks on a country's net worth through its NIIP, but also as they can determine the effectiveness of different policy responses.[11]

To compile our data set to analyze and decompose IIPs around the world, we utilize data from several sources. Our primary sources are the International Monetary Fund's Balance of Payments and International Investment Position Statistics (BOP/IIP) for information on BOP balances, income flows, financial account flows, and IIP positions. When data on a specific country is not available, we supplement with information from *The External Wealth of Nations* database, originally developed in Lane and Milesi-Ferretti (2007, 2018) and now updated through the Brookings Institution.[12] For currency weights for the IIP data, we use Bénétrix et al (2019) and Allen et al. (2023). Information on bilateral and trade-weighted exchange rates is from the BIS and Datastream, and information on nominal GDP from the IMF's World Economic Outlook (WEO) database. This combination of variables allows us to perform a rich set of analyses to understand the various financial components driving changes in investment positions, including detailed decompositions of exactly which types of financial variables are driving changes in specific asset categories by country over time.

Much of our data starts in 1980. Therefore, in order to be consistent across countries, we begin by setting the trade balance equal to the reported NIIP in 1980 for each economy. Then positions in future years are calculated based on the accumulated change in positions from 1980 or from the

[9] For example, a government with modest sovereign debt, but large liabilities in the private sector, might need to assume these liabilities in a crisis and thereby constrain the policy options of the sovereign.
[10] Gross (instead of net) international exposures can be particularly important when assessing the impact of shocks, including shocks to liquidity or that affect the valuation of international exposures. For more discussion of the role of gross exposures and flows, see Lane and Milesi-Ferretti (2007, 2012, 2018), Gourinchas and Rey (2007), Forbes and Warnock (2012, 2021), and Avdjiev, McCauley and Shin (2016).
[11] For example, Atkeson et al. (2025) shows how countries with debtor NIIPs often require more difficult policy responses to global financial shocks than domestic financial shocks.
[12] The full dataset, updated in Jan. 2025, is available at: The external wealth of nations database | Brookings

first year with available data.[13] This approach will misallocate to trade any international holdings accumulated from non-trade sources before 1980, but the initial positions were generally very small relative to GDP—particularly when compared to the subsequent changes in positions.

For our baseline analysis, we focus on 28 economies—17 advanced economies (AEs) and 11 emerging markets (EMs) — from 1980 through 2024. This baseline sample is listed in **Appendix Table 1** (along with codes used for the graphs) and divided into "advanced" or "emerging market" based on 2024 IMF WEO classifications. We chose these economies based on whether they have sufficient time series for key data (particularly for the decompositions in Section III), as well as to focus on large economies in each region which could have a meaningful impact on imbalances. This sample only has limited data on countries in the Middle East and Africa, largely due to incomplete data on IIPs and the underlying flows. We include six countries from the euro area as separate entities for most of the analysis, but report some results for the euro area as one economy (which nets out euro area exposures between member countries).[14] We exclude small economies that are major financial centers from our baseline analysis—including Luxembourg and Ireland — due to concerns about data reliability and because their outsized financial positions relative to GDP can distort some of the statistics reported below.[15]

Although our sample of 28 countries only covers a subset of the world, it represents 85 percent of global GDP over 1980-2024. In addition, the time series of aggregate NIIPs for our sample closely follows that from datasets with broader coverage (but without the details necessary for the decompositions and analysis below).[16] For example, **Appendix Figure 1** graphs three key variables for our sample of 28 countries and for a sample of more than 200 countries based on the External Wealth of Nations[17] database ("World"): the aggregate NIIP (the sum of NIIPs for each country), the creditor NIIP (the sum for each country with a positive NIIP), and the debtor NIIP (the sum for each country with a negative NIIP). Each statistic is scaled by global GDP (from the IMF and including an even larger set of economies). The aggregate NIIPs and changes over time for our sample closely mirror that of the larger group of countries. The slightly smaller aggregate positive and negative positions for our baseline sample are due to the smaller number of countries.

B. Net International Investment Positions Today

As a first look at the landscape of global imbalances today, **Figure 1** shows NIIPs as of end-2024 (the end of the sample) for each country in our sample. Each position is scaled by the domestic GDP of the respective economy (in the top panel) and by global GDP (in the bottom panel). For comparison, we also include the euro area as a single entity, netting out exposures between euro

[13] A few countries have a shorter history of BOP statistics, such as Russia and the Czech Republic.
[14] We do not focus on the aggregated euro area for our baseline as some data is only available for a shorter period, and key statistics for some of the detailed decompositions (particularly the currency composition of different categories of assets and liabilities over a long period) are not available for all members.
[15] More specifically, we exclude Luxembourg and Ireland as their NIIPs exceed 3000% of GDP, both more than double that of the next largest country in the sample. We also check key results for robustness to excluding other financial centers, such as Switzerland, the Netherlands, the United Kingdom and Belgium.
[16] Our sample covers 83% to 88% of global GDP in each year, based on IMF data for global GDP.
[17] Data through 2023 (as of Dec. 2025) is available at: The external wealth of nations database | Brookings.

area members (including those not in our baseline sample). There is an equal number of individual countries with creditor and debtor positions (14 of each) in 2024.

When international exposures are scaled relative to domestic GDP in 2024, there is a fairly smooth distribution in each group (**Figure 1**, top panel). Nevertheless, there are notable tails on both sides of the distribution – the largest creditor position (Norway) and the largest debtor position (United States) are each more than twice as large as the next largest creditor and debtor, respectively. Norway, Switzerland and Japan have the largest creditor positions (each exceeding 80% of domestic GDP). The United States, New Zealand, and Spain have the largest debtor positions (all greater than 40% of domestic GDP). The EMs with the largest creditor positions relative to domestic GDP in 2024 are Saudi Arabia (67%), Russia (44%) and South Africa (28%), while the EMs with the largest deficit positions are Brazil (-36%), Hungary (-35%), and Mexico (-32%).

When NIIPs are scaled by global (instead of domestic) GDP, their distribution is much more asymmetric (**Figure 1**, bottom panel). The United States clearly stands out with a NIIP position equal to -24% of global GDP, far overshadowing the positions of any other country (either positive or negative). This highlights the importance of understanding the dynamics of US international exposures in order to analyze imbalances and spillovers from a global perspective. Even modest changes in the US position relative to its own (large) economy could have significant implications for the rest of the world, potentially triggering considerable adjustments outside the United States that are substantially larger relative to the size of the respective economies. It is also notable that emerging markets feature even more prominently when NIIPs are scaled by global GDP; China has the third largest creditor position (3% of global GDP), while Brazil has the second largest debtor position (-0.7% of global GDP) after the United States.

Appendix Figure 2 also shows *gross* international investment positions for our sample of 28 economies (plus the euro area as a single entity), with positions once again scaled by domestic GDP (in the top panel) and global GDP (in the bottom panel). The magnitude of these gross positions is much larger than that of the net positions in Figure 2. These large underlying gross positions play an important role in shaping the dynamics of global imbalances in the decompositions analyzed later in this paper. Modest movements in financial markets (e.g., in exchange rates or in relative asset returns) can have large effects on both gross and net international investment positions.

C. The Evolution of NIIPs over Time

Figure 2 shows the evolution of these global imbalances from 1980 through 2024, aggregated across the sample of 28 economies and differentiating between AEs and EMs (lighter and darker shading, respectively) and creditors and debtors (blue and orange, respectively). The increase in global imbalances has been primarily driven by divergence within AEs, while the changes in EM's positions have been more muted. Particularly striking is the divergence in the net positions (dashed lines) for each group. The AE's aggregate NIIP deteriorated from slightly positive in the 1980s and much of the 1990s, to slightly negative in the late 1990s through 2000s, to sharply negative after 2010, reaching -13.1% of global GDP in 2024. In contrast, the EM's aggregate NIIP was relatively stable across the sample, moving from slightly negative for most years from 1980 through 2014, before turning slightly positive and peaking at 2.2% of global GDP in 2024. This improvement in the NIIP for EMs primarily reflects growth in the positions of EM creditors (with the size of EM debtor

positions relatively steady)—a sharp contrast to deteriorating NIIP for AEs, which primarily reflects growth in the positions of AE debtors (and more stability in the size of AE creditor positions).

Another striking characteristic of this graph is the overall growth in global imbalances over time as captured by the size of the aggregate positions (for creditors, debtors, and their sum). To better capture this aggregate "divergence" (i.e., the size of the fan), **Figure 3** reports the sum of the absolute values of the aggregate creditor and debtor positions for each group of countries (all relative to global GDP). For the sample as a whole, this divergence has increased from 10% of global GDP in 1980 to 46% in 2024. This primarily reflects an increased divergence in NIIPs in advanced economies, which jumped more than fivefold from 7% of global GDP in 1980 to 39% in 2024. In contrast, the divergence in emerging market NIIPs roughly doubled, increasing from only 3% of global GDP in 1980 to 7% in 2024. This divergence also appears to have occurred in several waves: an initial increase starting just before 2000 (around when China joined the WTO), then another larger and more persistent increase starting in 2008 and continuing through 2020 (reflecting the post-Global Financial Crisis landscape), some volatility around the pandemic (which partially reflects sharp volatility in GDP), and then a large jump over 2022-24 (the largest two-year jump in this measures of global imbalances over the entire sample period).

To better understand which individual economies are driving this increase in aggregate divergence, **Figure 4a** shows the evolution of NIIPs relative to global GDP for different countries in the sample and several country groups (with detailed breakdowns for just the AEs or EMs in the sample in **Appendix Figure 3**). The United States and the growth in its debtor position dominates the graph; for most of the 1980s the US NIIP was positive and close to zero, after which it increased modestly in the 1990s to average about -3% of global GDP through the 2000s. After 2010, however, it began to deteriorate sharply, growing from -4% in 2010 to -24% of global GDP in 2024 — a historical record (at least since our data begins in 1980). To better highlight the prominent role of the US position in global imbalances, **Figure 4b** shows the US share of aggregate NIIPs (the absolute value of positive and negative positions in the sample), as well as the share of aggregate debtor positions. In 1990, the US NIIP was only 6% of the global NIIP (11% of global debtor positions), and after some volatility over the next two decades, was only 15% of global positions (28% of debtor positions) in 2010. These measures of imbalances subsequently increased sharply, so that in 2024 the US constituted 52% of global NIIPs (and 84% of global debtor positions) for our sample.

Returning to **Figure 4a**, no single country plays as dominant a role in the creditor NIIPs comparable to that of the US for debtor positions, although China and Japan overshadow that of other economies, as well as Germany (when broken out from the euro area, as shown in **Appendix Figure 3**). More specifically, in 2024 Germany, China and Japan each had an international creditor position close to 3% of global GDP, but these have evolved very differently over time. For example, Japan's contribution to global imbalances has declined—with its share of global NIIPs peaking in 1995. In contrast, China's contribution has increased over time, with its NIIP negative for much of the sample until 1999, before increasing rapidly over the 2000s and remaining over 2% of global GDP since 2008.[18] The NIIPs of other creditor economies have also followed heterogenous patterns over time. For example, Switzerland has had a consistently positive and fairly steady NIIP relative to global GDP for much of the sample, while several commodity exporters have had meaningful

[18] More specifically, China's NIIP shifted from slightly negative or roughly balanced until China entered the WTO, before jumping to 2.2% of global GDP in 2008 and then roughly stabilizing at this level until 2015, before increasing again near the end of the sample to reach 3.0% of global GDP in 2024.

increases. Also noteworthy are several economies that transitioned from being international debtors for much of the sample to creditors since around 2010-2015, including Canada, the euro area (when treated as a single entity), Korea and South Africa.

The outsized role of the United States in driving the recent evolution and divergence in global imbalances is important for understanding a number of patterns and the potential spillovers from any adjustment in these imbalances. The number of international creditor countries and the average size of their NIIPs (relative to their domestic GDP) have both increased over time, while the aggregate NIIP for the full sample is a growing debtor position, driven primarily by the United States. The deterioration in the US position is so large and in such a large economy that it is mirrored by improving NIIPs around much of the rest of the world. **Figure 5** captures the corresponding and important spillovers. It shows the change in NIIP for each economy from 2010-2024 relative to domestic GDP in 2024. The United States has the sharpest deterioration in its NIIP (-82% of 2024 GDP). Five other countries have modest declines (ranging from -4 to -15%), while the remaining 22 countries (plus the euro area as one entity) have improvements in their positions averaging 43% of GDP. In fact, 7 economies (South Africa, Germany, Korea, Sweden, the Netherlands, Canada and Norway) experience an improvement in their NIIP of over 50% of their 2024 GDP. Norway's gain is so large at 277 times GDP that it is truncated on the graph. These comparisons accentuate an important point; any reduction in global imbalance (which is likely to include some reversal in the US debtor position) will correspond to a (potentially large) reversal in the gains that have accrued to other economies.

D. Data Caveats: Reliability of International Balance of Payments Statistics

An important consideration for any analysis of international investment positions is the reliability of the underlying data. In that context, there are several important cautions and caveats associated with the International Balance of Payments (BoP) Statistics used in this paper. We briefly summarize six key considerations in this section, with more information in **Appendix A**. These issues have also been discussed in detail in Avdjiev et al. (2016), Guvenen et al. (2022), Chari and Milesi-Ferretti (2026), Milesi-Ferretti (2023, 2026), Bayoumi and Gagnon (2025, 2026), and Bruno et al. (2026).

There are seven key considerations frequently raised when using the data on international investment positions (with additional issues in Bayoumi and Gagnon, 2025). First, many countries do not have sufficient data required for our NIIP decompositions (particularly for investment income flows and currency exposures), a major factor in our selection of the benchmark sample. Second, the international liability positions of the United States are overstated because the value of these positions is estimated based on U.S. stock prices, which overweight "new economy" equities which have recently had outsized gains. Third, the rate of return on US international equity positions is likely overstated due to mismeasurement from the profit-shifting of multinational corporations.

Fourth, the official data has understated China's trade surplus and primary investment income flows since 2020 (Setser, 2025). Fifth, there is a debate on whether monetary gold should be included in international accounts, with inclusion modestly improving the US NIIP. Sixth, countries have different methods of accounting for the treatment of overseas contract manufacturing, which leads to underreporting of the US trade and current accounts (but has little impact on reported rates of return on cross-border assets). Finally, a well-known limitation of the Balance of Payments (BoP) Statistics is that it is compiled using a residence-based (as opposed to a nationality-based)

methodology.[19] There is now a body of work that attempts to generate nationality-based counterparts, but this does not include breakdowns for the IIP components (i.e., FDI, PIE, PID and OID) necessary for our analysis. The alternative is to focus on one country or a small set of countries with the requisite bilateral data and asset price information, but this approach would not allow us to estimate the "cobweb" of global relationships needed for our analysis of the cross-country spillovers and vulnerabilities through imbalances.

These caveats and the shortcomings of the BoP data are all important to understand and deserve serious consideration. They can affect some of the magnitudes discussed in this paper, but they should not meaningfully affect the key results and relationships that are the focus of this analysis. More specifically, the issue which merits most attention for our analysis of IIPs is the overstatement of the value of US FDI liabilities and corresponding US debtor position. Adjusting for this would reduce some of the magnitudes cited earlier in Section II about the deterioration in the US NIIP (especially since 2020) and it share of global imbalances. For example, Bayoumi and Gagnon (2025) estimates that adjusting for this overstatement (as well as some smaller adjustments around the other issues listed above) would cause the US NIIP to fall from the reported–90 percent of GDP in 2024 to–67 percent of GDP. Adjusting for this would also reduce the magnitude of the improvements in NIIPS and increased international wealth for most other countries around the world—albeit the broader patterns on the direction of these spillovers would remain intact. Estimates of the impact of these data issues on the other statistics used in the analysis below is also worth keeping in mind, albeit the effect are smaller in magnitude (or can even net out in some cases). For example, Bayoumi and Gagnon (2025) reports that for the United States both international investment income and the trade deficit are both overstated by about 1 percent of GDP in 2024, such that the two adjustments roughly balance out to have minimal impact on the US current account balance.[20] **Appendix A** provides more information on these potential data concerns and how they could impact our analysis.

III. Decomposing Changes in the NIIP and its Components: Methodology

This section lays out a methodology for two sets of decompositions that help us understand the drivers of the levels and changes in the NIIPs documented above. The first decomposes the NIIP into contributions from (i) trade flows, (ii) valuation effects, and (iii) income flows (for both investment income and other income). The second delves one level deeper by decomposing these valuation effects and investment income flows into contributions from (i) the initial stock of asset holdings, (ii) exchange rates, (iii) relative returns, and (iv) composition effects. To perform both decompositions, we follow closely the framework developed by Forbes, Hjortsoe and Nenova (2017)—henceforth FHN—with three deviations. First, we incorporate data on official reserve assets in addition to the four categories of private investment captured in FHN—reflecting the broader country sample studied here that includes emerging markets more reliant on official foreign investment. Second, we express all imbalances in a common unit (the US dollar) rather than

[19] The residence-based perspective is based on the "triple coincidence" assumption, which stipulates that (i) the GDP area, (ii) location of decision-making units, and (iii) the currency area coincide.

[20] Bayoumi and Gagnon (2025) calculates that adjusted US investment income flows were -1% of GDP in 2024 (versus a reported level of just above 0% of GDP) and the adjusted US trade balance was about -2% of GDP in 2024 (versus a reported -3% of GDP).

national currencies to allow us to sum imbalances across countries and describe global dynamics.[21] Third, when it comes to income flows that contribute to the current account (in the first set of high-level NIIP decompositions), we separate investment income flows from other sources of income, rather than rely on the broader primary income entry in balance of payments statistics as a proxy thereof.

A. Decomposition of Changes in the NIIP: Trade, Valuations and Income

First we analyze the evolution of global imbalances—as captured by countries' NIIPs—by separating the contributions of trade, investment and other income flows as well as valuation effects. This approach has several advantages relative to recent work on global imbalances. First, instead of focusing on the current account in aggregate, it decomposes this measure into three very distinct types of flows—thereby better isolating different channels and mechanisms affecting imbalances.[22] Second, instead of focusing solely on the "flow" component of imbalances through current accounts, it focuses on the change in the stock of imbalances—thereby allowing us to incorporate all financial channels—including those working through international valuation effects, and not just income flows (as well as feedback effects from the stocks into the annual flows). Finally, this framework can easily be extended to provide more detailed decomposition of the drivers of valuation effects and income flows (for example, the role of exchange rate movements, relative returns, portfolio composition, and stock effects)—as done in the next sub-section.

We begin with standard balance-of-payments accounting to decompose a country *i*'s net international investment position (NIIP) at time *t* –defined as its holdings of foreign assets (*A*) net of foreign liabilities (*L*), for all asset/liability classes (c), including FDI, portfolio equity (PIE), portfolio debt (PID), other investment (OI, which includes bank lending), and foreign exchange reserves (FX)[23]. As highlighted earlier, all variables are expressed in US dollars:

$$NIIP_{i,t} = \sum_c \left(A_{i,t}^c - L_{i,t}^c \right). \quad (1)$$

Changes in *NIIP* can come from three broad sources: the current account balance (*CA*) over the relevant window; changes in the valuation of existing investment positions (ΔVAL); and any other adjustments to the value of international assets or liabilities (*OAdj*), including the (usually small) capital account, net errors and omissions, data revisions, and adjustments related to the relocation of headquarters:

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[21] Milesi-Ferretti (2023) discusses the circumstances under which NIIP returns expressed in different currencies can diverge and also reports these in a common unit (the US dollar), for comparability across countries. From a single country's perspective (unless the domestic economy is highly dollarized, with salaries and prices *de facto* quoted in dollars), expressing returns in the domestic currency is more natural when evaluating the welfare implications of external transfers. For most of this paper, however, we take a global view of imbalances and underlying returns, such that a common unit of accounting is more suitable.

[22] For example, Atkeson et al. (2025) does not decompose the current account into trade and investment income. This aggregation could be justified for their analysis of the United States, as the investment income component is relatively small, but this disaggregation is important for many other countries where the investment income flows can be volatile, significant, and in some cases even larger than trade flows.

[23] Since FX reserves only appear as an asset in BOP / IIP statistics (in other words, debt liabilities vis-à-vis the foreign official sector are not reported separately), there are five classes of assets but only four classes of liabilities.

$$\Delta NIIP_{i,t} = CA_{i,t} + \Delta VAL_{i,t} + OAdj_{i,t}\,. \quad (2)$$

As flagged above, the current account itself is a function of trade and non-trade net flows—namely, the trade balance (*TB*) and a financial component, the latter of which can be decomposed into net primary investment income (*INVINC*) and other income (*OTHINC*):[24]

$$CA_{i,t} = TB_{i,t} + INVINC_{i,t} + OTHINC_{i,t}\,. \quad (3)$$

Combining equations (2) and (3) yields a more detailed accounting decomposition of NIIP changes:

$$\Delta NIIP_{i,t} = TB_{i,t} + INVINC_{i,t} + OTHINC_{i,t} + \Delta VAL_{i,t} + OAdj_{i,t}\,. \quad (4)$$

This shows that analysis of changes in a country's international investment position can be broken into four main components (excluding the smaller components in $OAdj_{i,t}$): (1) the trade balance; (2) international investment income flows; (3) other income flows; and (4) valuation effects on preexisting investment positions. Equation (4) is the focus of our first set of decompositions of changes in the NIIP.

B. Detailed Decompositions of Valuation Effects and Investment Income Flows: Stocks, Exchange Rates, Relative Returns and Composition Effects

To better understand how financial channels can affect the NIIP, it is also possible to provide a more detailed decomposition of the determinants of the valuation changes and investment income flows in equation (4). Valuation changes can be related to underlying stocks and rates of return as follows:

$$\Delta VAL_{i,t} = \sum_c \left[A^c_{i,t-1} \left(\frac{kg^{A,c}_{i,t} ER^{A,c}_{i,t-1}}{ER^{A,c}_{i,t}} - \left(\frac{ER^{A,c}_{i,t} - ER^{A,c}_{i,t-1}}{ER^{A,c}_{i,t}} \right) \right) - L^c_{i,t-1} \left(\frac{kg^{L,c}_{i,t} ER^{L,c}_{i,t-1}}{ER^{L,c}_{i,t}} - \left(\frac{ER^{L,c}_{i,t} - ER^{L,c}_{i,t-1}}{ER^{L,c}_{i,t}} \right) \right) \right]$$

$$= \sum_c \left[\frac{A^c_{i,t-1}}{\Delta ER^{A,c}_{i,t}} \left(kg^{A,c}_{i,t} - \left(\Delta ER^{A,c}_{i,t} - 1 \right) \right) \right] - \sum_c \left[\frac{L^c_{i,t-1}}{\Delta ER^{L,c}_{i,t}} \left(kg^{L,c}_{i,t} - \left(\Delta ER^{L,c}_{i,t} - 1 \right) \right) \right], \quad (5)$$

where $kg^{A,c}_{i,t}$ ($kg^{L,c}_{i,t}$) denotes the capital gain on external assets (liabilities), $ER^{A,c}_{i,t}$ ($ER^{L,c}_{i,t}$) is the exchange rate index, which reflects the currency composition of country *i*'s asset (liability) holdings of class *c* ,and $\Delta ER^{A,c}_{i,t} \equiv \frac{ER^{A,c}_{i,t}}{ER^{A,c}_{i,t-1}}$ and $\Delta ER^{L,c}_{i,t} \equiv \frac{ER^{L,c}_{i,t}}{ER^{L,c}_{i,t-1}}$. For consistency with the previous sub-section, where all NIIP components were expressed in USD terms, the exchange rate is defined as the units of each currency in which assets or liabilities are denominated (foreign or domestic to country *i*) per one US dollar, so that the exchange rate falls (increases) when the US dollar depreciates (appreciates). Equation (5) shows how valuation effects reflect the initial stocks of each type of

[24] The trade balance includes trade in goods and services. Net primary investment income is defined as the return from past investment in financial assets and production processes (largely dividends and interest). Other income is defined to include all other sources of income, such as: employee compensation, personal transfers, international assistance, charities and some inter-government payments. We separate investment income from total primary income (which also includes employee compensation) to isolate the role of financial assets and decompose the sources of relative returns (as explored in more detail below).

asset and liability, as well as capital gains resulting from changes in asset prices (in the asset's currency of denomination), exchange rate movements and the composition of these assets and liabilities. In practice, we impute the capital gain on each category of assets and liabilities using the change in the respective stock, net of any capital flow and exchange rate movements over the given year.

We perform a similar decomposition of the international investment income balance into the initial stocks of each type of asset and liability, exchange rate movements, and the relative returns on assets from abroad (compared to the returns paid on liabilities owed to foreigners):

$$INVINC_{i,t} = \sum_c \left[A^c_{i,t-1} \left(\frac{r^{A,c}_{i,t} ER^{A,c}_{i,t-1}}{ER^{A,c}_{i,t}} \right) - L^c_{i,t-1} \left(\frac{r^{L,c}_{i,t} ER^{L,c}_{i,t-1}}{ER^{L,c}_{i,t}} \right) \right], \quad (6)$$

with $r^{A,c}_{i,t}$ denoting country *i*'s nominal rate of return on last period's stock of *A* (foreign assets) or *L (*foreign liabilities), excluding exchange rate effects. Rates of return on countries' assets and liabilities by asset class can be approximated based on balance of payment statistics by dividing the gross asset-class-specific investment income flow for a given period by the previous period's stock, after correcting for any change in the exchange rate of the currency of these income flows.

Inserting the decompositions in equation (5) for valuation changes and in equation (6) for investment income into the definition of changes in the NIIP in equation (4) provides more detail on the sources of NIIP changes:

$$\Delta NIIP_{i,t} = TB_{i,t} + E_{i,t}$$

$$+ \sum_c \left[\frac{A^c_{i,t-1}}{\Delta ER^{A,c}_{i,t}} \left(r^{A,c}_{i,t} + kg^{A,c}_{i,t} - \left(\Delta ER^{A,c}_{i,t} - 1 \right) \right) \right] - \sum_c \left[\frac{L^c_{i,t-1}}{\Delta ER^{L,c}_{i,t}} \left(r^{L,c}_{i,t} + kg^{L,c}_{i,t} - \left(\Delta ER^{L,c}_{i,t} - 1 \right) \right) \right], \quad (7)$$

where $E_{i,t} = OINC_{i,t} + OAdj_{i,t}$.

This series of equations shows that changes in the NIIP can be decomposed into the trade balance, other small effects (which we will largely ignore in the analysis below), and a term capturing how specific financial variables relate to international financial exposures. In turn, the financial components of a country's NIIP depend on four sets of variables: last period's stock of international assets and liabilities, the nominal rate of return and capital gains on these international assets and liabilities in currency of denomination terms, the composition of these assets and liabilities by asset class, and exchange rate movements interacted with any mismatch in the currency composition of the country's assets and liabilities. Each of these four sets of variables merits brief discussion.

First, the larger the initial net stock of international exposures – measured by the difference between assets and liabilities at the start of the relevant period – the larger the associated changes in NIIP through international investment income and the valuation effects. A larger stock of assets (liabilities) amplifies the impact of any change in the rates of capital gains, rates of return, or exchange rates.

Second, the difference between the nominal rates of return on assets versus liabilities in the respective currencies of denomination, $\left(r_{i,t}^{A,c}\right) - \left(r_{i,t}^{L,c}\right)$ can contribute to net investment income through a so-called "return effect" even if stocks of assets and liabilities were balanced, had a similar asset class and currency composition. Similarly, if capital gains on assets exceed those on liabilities within the same asset class, $\left(kg_{i,t}^{A,c}\right) - \left(kg_{i,t}^{L,c}\right)$, that would generate positive valuation effects (and vice versa when gains on liabilities exceed those on assets).

Third, if assets have a different asset class composition than liabilities (such as holding more risky and high-yielding equity, while owing safer and low-yielding debt), net investment income or valuation effects could change (in this example, improve) the NIIP—even if returns and exchange rates are identical within each asset class, the currency composition of assets and liabilities is symmetric, and the aggregate of assets and liabilities net out to zero. The impact of such an asymmetric composition by asset class on the NIIP is often referred to as a "composition effect".

Finally, exchange rate movements can impact both valuation effects and investment income when the currency composition of a country's assets differs from that of its liabilities. For instance, a common feature of many advanced economies' external balance sheets is that a greater share of their liabilities is denominated in their domestic currency, compared to their assets. A domestic currency depreciation thus shrinks their liabilities relative to their assets, improving the NIIP.

This decomposition of the financial determinants of changes in NIIPs into four components unifies two distinct approaches from the earlier literature: (1) decomposing different countries' net foreign returns into a return effect and a composition effect (both broadly defined to include asset returns expressed in the currencies of denomination, as well as any exchange rate effects); or (2) focusing on the role of exchange rate adjustments and how they can determine valuation changes based on the currency composition of assets and liabilities. Our methodology and analysis follow FHN and provides a more detailed breakdown of the drivers of investment income balances and valuation changes. **Appendix B**[25] provides a more formal exposition of this framework with precise definitions of each of the four components into which we decompose net investment income and valuation changes.

IV. A Bird's Eye View of Global Imbalances: Common Drivers

In order to understand the relative importance of trade and different financial effects in driving changes in global imbalances over time, this section applies the framework decomposing changes in the NIIP explained in Section III to the data and sample discussed in Section II. It begins by estimating decompositions of changes in the NIIP into trade, valuation effects and income flows. Then it estimates the more detailed decompositions of the financial channels, breaking the valuation effects and investment income flows into the role of stocks, relative returns, exchange rate movements, and composition effects. For each set of decompositions, we estimate the

[25] This is mostly borrowed from FHN's Appendix A, with the exception that we need additional assumptions to incorporate official reserve assets (which can only be separated from other asset classes on the asset side of countries' external balance sheets) and that all variables are now expressed in US dollar terms rather than in the respective national currencies.

absolute value of the contributions of the relevant components over each decade.[26] The section closes with a comparison of how the drivers of global imbalances vary across time horizons. Throughout this section, we take a "bird's eye view" by summarizing the common drivers across the full sample of 28 economies, leaving a discussion of the results for individual countries and a "deep dive" into the financial channels for specific economies to Section V.

A. Decomposing Changes in the NIIP: Trade, Valuation Effects and Income Flows

To begin, we use the framework in equation (4) to decompose each country's NIIP (scaled by domestic GDP) per year into the four components: (1) trade; (2) investment income flows; (3) other income flows; and (4) valuation effects.[27] We calculate the absolute value of these annual contributions in order to capture the overall magnitudes, independent of sign. **Figure 6A** shows the resulting medians for the baseline sample of 28 economies over the full period from 1980-2024, as well as by decade (with the underlying results for individual countries discussed in Section V and shown in **Table 1** and **Figures 8-9**).

Trade has made fairly consistent contributions to NIIP changes over most decades, contributing from 1.7pp to 2.5pp to the annual changes relative to GDP over each decade after the 1980s. In contrast, the role of the financial channels has grown, increasing each decade to peak at 4.3pp in the 2010s. More specifically, valuation effects were small in the 1980s (contributing only 0.4 pp to NIIP changes) but increased five-fold to explain over 2 pp of NIIP changes in the 2010s and first half of the 2020s. The role of investment income flows also increased, almost doubling over the same period to also explain just over 2 pp of NIIP changes in the 2010s (before falling back slightly over 2020-24).

In addition to these decompositions of NIIP changes, we also perform a variance analysis by estimating a cross-country regression of the 5-year rolling changes in NIIPs on the contributions of the same four components. The results are similar but show an even sharper increase in the role of the financial components over time—particularly valuation effects. Over the last five years of the sample, the financial components accounted for 79% of the changes in NIIPs, of which 66% reflected valuation effects (a notable increase from less than 20% through the 1980s). In contrast, the role of trade falls even more sharply, accounting for only 20% of the (aggregate) partial sums of squares accumulated over the last five years of our sample (down by over half from the 1980s, as well as relative to 2000-2015).

B. Decomposing the Financial Components of the NIIP: Stocks, Exchange Rates, Relative Returns and Composition Effects

These results from decomposing changes in the NIIP highlight the increased role of financial factors—and particularly valuation effects. This section drills into the drivers of these financial factors in order to understand the implications for international spillovers and individual country vulnerabilities. We use the same methodology as in **Figure 6A**, but now decompose the valuation

[26] Instead of focusing on decades, early drafts used periods delineated by major global economic events that may have impacted imbalances. Results are similar and available in Figure 14 in Forbes (2025).
[27] In addition to trade, income flows and valuation effects, there is also a residual "other" category that reflects changes in the capital account and errors and omissions and can also contribute to NIIP changes. This component is generally small, so we abstract from it in the subsequent analysis and discussions.

effects and investment income flows (as a percent of GDP) into four drivers: (1) a stock effect (generated by the relative size of asset and liability positions); (2) an exchange rate effect; (3) a composition effect (e.g., from holding more high-return assets, such as equities, relative to liabilities); and (4) a return effect (capturing different rates of return on assets versus liabilities with each investment class). These decompositions are based on equations (5) and (6), with additional details in **Appendix B**.[28]

Figure 6B shows the median decompositions of the valuation changes for the sample of 28 economies over the full period and each decade. Valuation changes in NIIPs are primarily driven by relative returns, with contributions larger than those of each of the other three components in each window. The composition of positions plays the second most important role in in each window and exchange rate movements can make a meaningful contribution for some countries (relationships which we explore in more detail in the individual country examples in Section V), but have a more modest impact in the median economy. The stock of existing positions is the least important driver of valuation effects in each window. While the role of exchange rates and stock affects has historically been smaller than that of the other channels for the median economy in our sample, however, these two channels have been gaining relative importance over time; the contribution of exchange rates and stock effects to valuation changes has more than doubled from the 1990s through the 2020s (as compared to more modest increases of less than half for relative returns and composition effects).

Figure 6C shows the corresponding decompositions for investment income flows. While relative returns and the composition of investment positions continue to play an important role, stock effects are now more important in most periods, while exchange rates play almost no role. More specifically, stock effects make the large median contribution to investment income flows in all periods except one (the 2010s), and the absolute contribution of these effects has more than doubled from the 1990s through the 2020s. Relative returns made the second largest contribution over the full period, with their role jumping more than four-fold from 0.2pp in the 1990s to 0.9 pp in the 2020s. The role of composition effects has been steadier and only increased modestly—with its contribution ranging from 0.3pp to 0.4pp in each decade. In contrast to the meaningful role of exchange rates in explaining valuation effects, their impact is negligible and close to zero for explaining investment income flows.

To summarize, relative returns are the most important factor contributing to the financial channels explaining recent changes in NIIPs, and exchange rates can also have a large impact on valuation effects [29] This suggests that global imbalances are increasingly vulnerable to swings in asset prices. Mismatches in the composition of assets versus liabilities also affect the financial channels driving external imbalances, and the existing stock of positions plays the most important role in driving international investment income flows. This important role for the preexisting size and structure of

[28] Results start in 1990 (rather than 1980) due to the shorter historical data on capital and income flows by asset class needed to perform these decompositions.

[29] When these decompositions are estimated separately for just advanced economies or just emerging markets, there are several noteworthy differences. The stock effects for emerging markets are generally smaller, which is not surprising as they were generally later to open their financial accounts to international investment (BIS, 2017). The composition effects are also more important for emerging markets during the period from the GFC to 2019, likely reflecting a greater share of asset holdings in bonds (which tended to yield lower returns during this period).

existing international positions suggests that these positions could be persistent and difficult to adjust. Each of these conclusions, however, is based on medians in our sample and there is substantial heterogeneity in these relationships across countries – a heterogeneity explored in the individual country analysis in Section V.

C. Decomposing Change in the NIIP and Financial Channels at Different Frequencies

The decompositions of changes in NIIPs and the underlying financial channels reported above focused on explaining changes over decades—a window chosen to place less weight on temporary fluctuations and instead highlight a frequency at which most macroeconomic policies could have an impact. The drivers of changes in NIIPs, however, could vary over different horizons—with very different factors explaining short-run changes in NIIPs versus long-run changes in the levels.

To better understand any such differences across horizons, we extend the analysis in **Figure 6** to explore if these effects vary over shorter and longer windows. We estimate the partial sum of squares over different horizons attributable to each of the underlying components from a variance analysis of the determinants of changes in the NIIP, valuation effects, and investment income flows. **Figure 7** reports the results of these variance decompositions from regressions of the shortest and longest windows: on year-on-year changes[30] and on the levels of the respective variables. The results show that the drivers of the annual fluctuations in imbalances and their financial components are very different from the drivers of the respective levels. (Results based on five-year changes generally lie somewhere between.)

More specifically, **Figure 7A** shows that very short-term fluctuations in NIIPs are dominated by valuation effects (particularly in recent years)—the most volatile component of the NIIP and the component which has grown fastest over time. Trade, which accounted for almost 40% of the cross-country variation in annual NIIP changes in the 1980s, has become less important over time such that it explains only 5% of annual changes over 2015-2024 (corresponding to the 2024 data point in **Figure 7A**). Investment income flows play almost no role in explaining annual changes during any window. In sharp contrast, the relative importance of these different components largely reverses when estimating the cumulated effects over a longer time frame—i.e. in terms of *levels* (shown in **Figure 7B**). NIIP levels are primary determined by trade, and investment flows (with the relative importance of each fluctuating across the sample), with only a small role for valuation effects. For example, at the end of our sample (in 2024) valuation effects contributed only 17% to the cross-country variation in NIIP levels, while investment income contributed 35% and trade about 40%. The greater importance of trade and investment income to NIIP levels instead of short-term fluctuations partly reflects the persistence of these components over time. Valuation effects can be large over short windows, but can also reverse or unwind relatively quickly, while trade imbalances and investment income flows tend to be more autocorrelated.

The bottom panels of **Figure 7** provide more information on what drives the two financial components of NIIPs (valuation effects and investment income) over the same two horizons.

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[30] The greater volatility of annual changes in the NIIP results in low-precision estimates if regressions are only performed in the cross-section of countries (as the degrees of freedom is the number of countries in our sample with available data, which is at most 28). To make better use of available data, we estimate rolling regressions over 10-year windows, with all annual change variables demeaned across countries and time—which is essentially a rolling, fixed-effects panel regression.

Valuation effects (in annual changes in **panel C** and in levels in **panel D**) continue to predominantly be driven by return and composition effects (as found for the results based on decades). Exchanges rates also play a meaningful role, with larger effects over the shorter horizons, but a growing role in explaining annual changes as well as levels over time. The more persistent investment income flows show more noticeable (albeit expected) differences across the two horizons, with a larger role for relative returns and composition effects in driving annual changes (**panel E**) and larger role for stock effects in driving levels (**panel F**). Exchange rates continue to play almost no role in explaining investment income flows (albeit a small impact is observable in the graph for annual changes). In other words, relative asset price movements and a country's vulnerability to them through mismatches in the composition of its assets and liabilities drive the volatility in NIIPs and the valuation effects which explain an increasing share of medium-term changes in of global imbalances, while the existing stock of imbalances is more important to the level of investment income flows (and thereby the current account), which makes a persistent and important contribution to the level of NIIPs over longer periods of time.

To summarize, persistent imbalances in trade and investment income flows (driven by return, composition and stock effects) account for the majority of the divergence in NIIP *levels* across countries, while valuation changes (driven by return, composition and exchange rate effects) explain the majority of the variance in annual NIIP *changes*. The latter share has grown steadily over time to recently account for almost all of the variance in NIIPs towards the end of our sample. Therefore, financial components (i.e. income flows and valuation effects) —and not just trade flows—are key to understand the current divergence in global imbalances, as well as whether they present vulnerabilities for individual economies and how they are affected by various shocks. Understanding global imbalances requires studying both the persistent trade and investment income imbalances, while understanding the risks of sudden corrections in these imbalances requires understanding the large and volatile valuation changes. Understanding each of these components requires mapping the web of connections across countries, as changes in trade balances, international income flows, and the valuation of international portfolios that occur in one country will spillover to others.

V. A Closer Look: Decompositions across Countries and Digging Deeper into the Financial Channels

The decompositions identifying the main drivers of the changes and levels of NIIPs at the global level mask substantial heterogeneity in these relationships across individual countries, as well as across time within specific countries. To understand this heterogeneity, , this section uses the same methodology to analyze NIIPs and the factors driving changes in these positions for each country in our sample, focusing on the relative importance of trade versus financial channels, and then the relative contributions of the two financial channels (valuation effects and investment income flows). Then, to better understand the substantial differences across countries in these cross-country comparisons, we provide a more in-depth analysis of countries with contrasting patterns for valuation effects (the United States and United Kingdom) and investment income flows (Japan and Brazil). These comparisons highlight the importance of understanding each country's exposures by asset class in order to understand their specific vulnerabilities. The analysis of the United States—and how its path has diverged from that of the United Kingdom—is useful to understand how shocks reducing global imbalances and affecting the dominant US debtor position

could spill over to the rest of the world (including to countries such as the United Kingdom). The comparison between Japan and Brazil also highlights how the increased size of imbalances generates more persistence in the current account flows linked to these imbalances and the corresponding stocks over time—showing how these imbalances could continue to grow even if trade becomes more balanced.

A. Patterns across Individual Countries

The decompositions estimating the drivers of global imbalances in **Figures 6 and 7** report medians for our sample of 28 countries. They suggest these relationships have changed over time, including a greater role for financial channels. The descriptive analysis of the evolution of imbalances in Section II.C. also suggests a change in these relationships after the Global Financial Crisis, after which the US NIIP began to consistently deteriorate. Therefore, to better understand the web of imbalances for individual countries today, this section focuses on decompositions and relationships from 2010 through the end of our sample (2024).

To begin, **Table 1** reports the decompositions of changes in NIIPs used for **Figure 6a** (and equation 4) for the *per annum* contributions of trade, income flows, valuation effects and "other" for country-specific changes in NIIPs, focusing on the actual (instead of absolute) values averaged over 2010-2024 (instead of decades). The corresponding results for the full sample period from 1980-2024 are in **Appendix Table 2**. Trade makes a meaningful contribution to NIIPs in many countries, with a positive and large median impact for both AEs (2.0 percent of GDP per year) and EMs (1.6 percent per year). Valuation effects can also make large contributions—in both directions—particularly in advanced economies. In contrast, the median contribution of investment income flows to changes in NIIPs is negative, larger (in absolute value) than the respective median contribution of trade, and larger in EMs than for AEs. Other income flows, which include the compensation of cross-border workers and remittances, also makes an important contribution to changes in investment positions for several economies—including Switzerland, Saudi Arabia, Mexico and India.

Much of the discussion around global imbalances focuses on the role of trade, particularly since 2020 as trade imbalances increased and countries more frequently adopted trade restrictions and industrial policies to support domestic production (Bayoumi and Gagnon 2026; Cesa-Bianchi et al. 2026; IMF 2026). Therefore, we begin our closer look at these individual country estimates by focusing on the role of trade surpluses and deficits in driving changes in NIIPs. **Figure 8** shows accumulated trade flows over 2010-24 (as a share of 2024 GDP) for each of the 28 countries in our sample (plus the euro area as one entity) in blue bars, with the corresponding changes in NIIPs (from **Figure 5**) in black squares.

For a few countries (such as Germany and France), changes in NIIPs largely correspond to accumulated trade surpluses or deficits. However, in most cases trade flows are only weakly correlated with these changes in imbalances, suggesting financial effects likely played an important role. For example, in the United States, trade deficits contributed to only about one-third of the deterioration in its NIIP,[31] and in Canada the striking improvement of 73pp in its NIIP (relative

[31] For the United States, the large contribution of trade to changes in the NIIP over 1980-2024 masks substantial shifts over this time frame. Specifically, over 1980-1990, trade contributed a negative 1.8 pp to changes in the NIIP, but since 2000, trade's contribution has been steadily falling in absolute terms,

to 2024 GDP) entirely reflected financial effects, as accumulated trade balances alone would have generated an NIIP deficit. In other countries, accumulated trade flows would have generated much larger changes in imbalances than actually occurred if they were not offset by financial channels working in the opposite direction. For example, in China accumulated trade surpluses would have improved the NIIP by 24% of 2024 GDP, rather than the reported 10% (with the difference primarily explained by financial losses and unexplained errors and omissions). Similarly, for Russia the NIIP only increased by half of what would have occurred from simply the accumulation of trade surpluses over 2010-24. Particularly striking is Saudi Arabia—where trade surpluses would have boosted the NIIP by 117% of GDP, but other effects balanced these gains so that the NIIP only increased by only 15% over 2010-24. It is noteworthy that many countries criticized for large trade surpluses contributing to global imbalances would have much larger creditor positions—corresponding to larger global imbalances—if not for financial channels partially mitigating the accumulated gains from trade surpluses

These comparisons suggest that in order to understand the evolution of imbalances in individual countries, it is necessary to look beyond just trade flows. Therefore, we next calculate the change in NIIPs from the two financial channels highlighted above—international investment income flows and the valuation gains on international positions—continuing to use the decomposition in equation 4. The top panel of **Figure 9** shows the accumulated international investment income over 2010-24 (in aggregate and then just for interest income) as a percentage of 2024 GDP for individual countries.[32] Investment income has made large and meaningful contributions to NIIPs over the last fifteen years for many economies, such as increasing the NIIP of Japan by 75% of GDP (of which 33% is interest income), and by 25% to 35% of GDP in Norway, Germany, Sweden and Switzerland. Working in the other direction, investment income payments have also reduced the NIIPs in 10 countries by more than 20% of GDP, with the largest net payments (relative to domestic GDP) in the Czech Republic and Hungary. Emerging markets experienced net losses in international investment income on average (contributing to an average decline in their NIIPs of 24% of GDP over this period, with 31% from just interest income), while advanced economies experienced net gains on average from international investment income (5% of 2024 GDP), with the majority from interest income.

The middle panel of **Figure 9** shows the other important financial component of changes in NIIPs: international valuation effects. These are measured as the total valuation change on either all international holdings or just for international portfolio equity and FDI exposures from 2010 through 2024 (as a percentage of 2024 GDP). The range and magnitude of these effects on the NIIP is even larger than for international investment income— particularly on the right side of the distribution showing large valuation gains. Starting with the losses, the United States has experienced the largest valuation losses over 2010-24 (of 52% of GDP in total and 56% for just FDI and equities). While these losses are likely overstated (as discussed in Section II.D), they are still important for understanding global imbalances as these numbers are scaled relative to the size of the large US economy. Japan, Switzerland, and Saudi Arabia also experienced large valuation losses—ranging from 34% to 41% of GDP. Balancing these valuation losses, however, about 75% of the sample

accounting for only +0.26 pp over 2020-24. In contrast, the contribution of valuation effects and investment income has increased in absolute terms – to a negative 7.4% of GDP over 2020-24.

[32] More specifically, this is measured as sum of the net IIP flows for all investment income (defined as primary income less employment income) or for just the interest income on portfolio bonds and "other", with the "other" category dominated by bank loans. Each measure nets out the interest income on foreign assets less the interest payments on the corresponding foreign liabilities.

experienced valuation gains—and in many cases these gains were large. For example, 11 countries experienced valuation gains (on their international positions) amounting to over 20% of their respective domestic GDP. Gains for the UK, South Africa, Canada and Norway were 43%, 73%, 84% and 143% of GDP, respectively. Unlike for investment income flows, the mean financial gains over this period were roughly similar for advanced economies and emerging markets (when scaled by each country's GDP).

To put the magnitude of these international investment income flows and valuation effects in the context of aggregate changes in NIIPs over 2010-24, the bottom panel of **Figure 9** shows international investment income flows (from the top panel) and international valuation changes (from the middle panel) compared to the total change in the NIIP for each economy (shown by the black diamond), with all values accumulated over 2010-24 and scaled by 2024 (domestic) GDP. For many countries, accumulated investment income has the opposite sign of accumulated valuation changes—suggesting that these financial effects could partially net out in terms of their combined effect on NIIPs. In many cases, however, the aggregate financial effects on NIIPs are large and explain a meaningful share of changes in NIIPs. In fact, and supporting the discussion of Figure 8, in many cases these financial effects could explain a majority of the changes in imbalances.

For example, in the United States, large valuation losses explain almost two-thirds of the deterioration in its NIIP—even after taking out the small positive contribution from investment income. In contrast, for Canada, the sharp improvement in its NIIP of 73% of GDP is more than explained by valuation gains on its international investment. Moreover, even for countries for which these financial effects through valuation changes and investment flows have largely balanced each other out over 2010-24, it is important to understand these mechanisms when assessing the sensitivity of positions to different shocks. For example, Brazil's NIIP was fairly constant over 2010-24, but this reflected payments in investment income of 39% of 2024 GDP combined with net valuation gains on its international investments of 32%. Changes in relative interest rates (or relative equity returns) could quickly cause one of these contributions to adjust, leading to sharp improvement or deterioration in its NIIP in the future (an example discussed in more detail below).

To conclude, while trade flows have made a meaningful contribution to NIIPs in many countries, this is only part of the story. In many cases, financial effects working through international flows of investment income and valuation effects have contributed to changes in imbalances that are as large—and often larger. In some cases (including countries such as China that are often criticized for large trade surpluses), much of the accumulated gains from these surpluses is offset by losses through financial channels, leading to a smaller increase in imbalances than would have occurred. around the world. The important role of these financial channels in specific countries also highlights the importance of understanding these channels to assess vulnerabilities and financial risks under different scenarios. For example, if interest rates remain higher than in the 2010s, this could generate large international interest payments on outstanding international debt obligations—providing a boost to NIIPs for many creditor economies and deterioration for many debtors. Similarly, any unwinding of the substantial valuation gains in equities and FDI in most non-US economies could generate a sudden deterioration in their NIIPs and negative wealth effects. The scenario analysis in Section VI will explore the impact of these types of shocks and how they work through international investment positions, an analysis necessary to understand the potential spillovers and vulnerabilities in individual countries as well as the global economy.

B. A Closer Look at Valuation Effects: Exorbitant Privilege Lost in the US and Maintained in the UK?

Valuation effects are an important driver of changes in global imbalances—by far the most important factor contributing to annual changes since 1980 (**Figure 7a)**. Valuation effects are also the dominant driver of the largest changes in international investment positions since 2010 (both positive and negative) (**Figure 9 and Table 1**)—including the sharp deterioration in the US debtor position which has, in turn, generated the sharp increase in global imbalances (**Figures 1 and 4**). Therefore, this section examines these valuation effects in more detail. It contrasts the experience of the United States, given its outsized role in explaining global imbalances, with that of the United Kingdom, which has maintained its positive valuation effects throughout the sample period (unlike for the United States).[33]

We begin with the many similarities between the US and UK international investment positions. Both are net debtor countries with large external financial positions structured in a way that had historically insulated them from the cumulative impact of persistent trade deficits. **Figure 10** depicts the evolution of their NIIPs, as well as the four underlying components (trade, investment income, other income, and valuation changes), based on the decomposition in equation (4). For each country, the accumulated trade balances (which have been in deficit for most years) would have generated large negative net external positions (dashed blue lines). For much of the sample, however, positive contributions from the financial components of the NIIP (valuation gains and investment income) largely balanced the negative contributions from trade, helping stabilize the NIIP. This "exorbitant privilege" has continued through 2024 for the UK, with the NIIP remaining remarkable low and stable (-11% of GDP in 2024), primarily due to its accumulated valuation gains of nearly 60% of GDP as of 2024 that more than compensated for the accumulated trade deficits of about –30% of GDP over 1980-2024. For the US, however, this "exorbitant privilege" has reversed, with the NIIP deteriorating even faster since around 2011 than would have occurred from simply accumulating trade deficits. This structural shift has not only erased earlier financial gains in the US NIIP, but caused its international debtor position to become even larger since 2019 than it would have been from simply accumulating trade deficits.

What accounts for the recent divergence in the (financial) fortunes of the two countries? Given the importance of valuation changes, the top of **Figure 11** begins by decomposing these gains into the various drivers based on equation (5)**.** The dollar appreciation that started in 2012 inflated the value of US liabilities relative to assets and contributed to negative valuation effects.[34] However, relative returns (i.e., the returns on US investments abroad relative to what the US pays on its liabilities) were even more important in explaining the change from the US earning large positive valuation effects early in the sample, to earning lower gains, and then experiencing relative valuation losses from 2018 onwards. **Appendix Figure 4** provides further details on the asset composition behind these changes. The relative valuation losses were entirely driven by losses in portfolio equity and

[33] For a detailed analysis of the UK's position, see Mann (2026), and for a detailed analysis of the US position, see Obstfeld (2024), Atkeson et al. (2025), Bayoumi and Gagnon (2025), Chari and Milesi-Ferretti (2025), Tabova and Warnock (2025), and Bruno et al. (2026).

[34] Most US liabilities are denominated in US dollars (and therefore not affected by fluctuations in the US dollar exchange rate), while a large share of US external assets are denominated in other (non-dollar) currencies (so that their USD value declines when the dollar appreciates).

FDI. In other words, the recent boom in US stock prices reduced the relative capital gains on the US external portfolio and drove the loss of its "exorbitant privilege".

In contrast, **Figure 11B** shows how the United Kingdom was able to maintain its "exorbitant privilege" after 2010. The United Kingdom maintained large positive valuation effects—which actually increased since 2008—through two channels. First, sterling depreciated sharply around the GFC (2008-2009) and Brexit referendum (2016-2017)—in contrast to the US dollar appreciation.[35] Second, relative returns were consistently positive (in contrast to the negative relative returns for the United States). **Appendix Figure 4** shows that these stronger relative returns reflected the underperformance of both UK equity investments and portfolio debt (denominated predominantly in pounds)—unlike in the United States where return effects occurred primarily in equities (and FDI). These comparisons highlight the natural risk sharing properties inherent in global imbalances. Stronger US macroeconomic performance (which corresponded to dollar appreciation and stronger relative returns in US markets) led to negative US valuation effects, while weaker UK macroeconomic performance (which translated into sterling depreciation and weaker relative returns in UK markets) led to positive valuation effects supporting the UK economy.

While these valuation effects account for the "exorbitant privilege" (and loss thereof for the United States), as well as the majority of changes in US and UK NIIPs since 2010, the dynamics of their net investment flows are also worth noting. **Figure 11** (bottom panels) performs the same decompositions for the net investment income balances for the US and UK. Despite the steady deterioration of its NIIPs over time (a persistent and growing stock effect), the United States has continued to earn positive investment income, resulting from positive return effects within asset classes (albeit these may be overstated, as discussed in Sectio II.D). This is consistent with US debt payments being dampened by a non-negligible convenience yield (albeit an advantage which may have declined near the end of the sample). In contrast, and despite the smaller negative stock effects from the size of the debtor position, the UK has lost investment income since about 2010, primarily due to negative relative returns within asset classes (and despite having a larger share of assets in categories such as equities and FDI that generally yield higher returns). To summarize, the UK appears to have lost its "exorbitant privilege" in terms of investment income, while the US maintained this benefit, but in each case the impact of investment income flows on the NIIP was overshadowed by the simultaneous valuation effects moving in the opposite direction.

This closer analysis of the financial channels—and particularly the valuation affects—driving the US and UK NIIPs is useful to understand how these imbalances could evolve in the future and generate international spillover effects. For example, the United States could potentially regain its "exorbitant privilege" through valuation effects if there was a steady depreciation of the US dollar or weaker US stock market performance relative to that in other markets. Either of these events, however, would likely correspond to other asset price movements that would also need to be taken into account. In the United States, this would likely correspond to higher long-term bond yields—which could balance out some of the NIIP gains through equities. In other countries, this would correspond to exchange rate depreciations and higher relative returns—which would in turn affect their NIIPs based on the structure of their international asset and liability positions.

[35] The UK, similar to most advanced economies (including the United States), has a currency mismatch in which a larger share of external liabilities are denominated in local currency (British pounds for the United Kingdom) than for overseas assets (with a larger share in foreign currency).

C. A Closer Look at Investment Income Flows: Japan vs Brazil

Investment income flows are another financial channel that can meaningfully affect NIIPs in some countries. Although it has played a less important role than valuation changes in the United States and United Kingdom, it is the dominant driver of changes in international investment positions in many countries, and the role of investment income flows is even larger than that of accumulated trade flows on average in our sample of emerging markets over 2010-2024. Therefore, this section examines these flows in more detail, focusing on Japan and Brazil, two countries with large investment income flows that have moved in opposite directions and been more important in driving current account imbalances and NIIPs than trade and valuation effects.

Japan is a large net creditor, while Brazil is a net debtor, with NIIPs of 87% and -32% of GDP in 2024, respectively. **Figure 12** depicts the evolution of their NIIPs over 1980-2024, as well as of the four underlying components (as done for the United States and United Kingdom in **Figure 10**). In each country, there appears to be little relationship between the accumulated trade balance and the accumulated current account balances or NIIP. More specifically, Japan has run trade surpluses for most years, followed by modest trade deficits starting in 2018, all of which accumulated to +25% of GDP in 2024. These accumulated trade flows therefore account for less than one-third of its creditor position in 2024 and one-fifth of its accumulated current account flows (126% of GDP). Brazil has had a mix of trade deficits and surpluses since 1980, a combination which largely balanced out so that its accumulated trade balance over the same window was only +3% of 2024 GDP. This accounted for less than one-tenth of its international debtor position and only 5% of its accumulated current account balance of -54% of GDP.

What explains these differences between the accumulated trade balances with that of the accumulated current accounts and overall NIIP? For each country, the primary explanation is large international investment income flows—positive for Japan and negative for Brazil. In Japan, accumulated investment income over 1980-2024 accounted for 113% of GDP in 2024—almost all of the accumulated current account balance and even larger than the increase in the NIIP. In Brazil, accumulated investment income equaled -61% of GDP in 2024, also explaining most of the accumulated current account and even larger than the deterioration in the NIIP. In each case, the remaining differential between the accumulated income flows and NIIPs primarily reflected valuation effects (which have been negative for Japan and positive for Brazil since about 2013).

What explains this dominant role of investment income flows in driving current accounts, and more modest impact of valuation effects on NIIPs in Japan and Brazil? **Figure 13** shows the decomposition of these two financial channels (as in **Figure 11**). The bottom panel highlights the prominent role of the stock of outstanding positions in driving investment income flows in each country—with a creditor position for Japan and debtor position for Brazil. In each case, the stock of holdings explains roughly one-half of investment income flows. Over time, relative returns have also played a larger role—also working in opposite directions in the two economies. In Japan, the growing investment income gains reflect the lower interest rates Japan pays on its bonds (partly due to its large asset purchase program) as compared to the higher interest rates on its large holdings of foreign bonds. In Brazil, the growing investment losses reflect the higher interest rates Brazil pays on its bonds (partly due to less well anchored inflation expectations).

This closer analysis of the investment income flows driving Japan's and Brazil's current account balances and international investment positions is useful to understand how these imbalances

could evolve in the future. Even though Japan has a trade deficit (-1.1% of GDP) in 2024, it still has a sizable current account surplus of 4.8% of GDP that will likely persist (as it largely reflects Japan's sizable creditor position) and therefore continue to add to Japan's positive NIIP and contribute to the divergence in global imbalances. Similarly (albeit in the opposite direction), even though Brazil has a trade surplus in 2025 (0.5% of GDP), it still has a sizable current account deficit of -2.7% of GDP that will likely persist as it is largely driven by Brazil's sizable debtor position and higher interest rates on this debt, and therefore continue to add to Brazil's negative NIIP and also contribute to a widening of imbalances. This highlights why global imbalances can be persistent—and hard to reduce without large changes in financial markets. These examples also highlight the limited role of trade restrictions in affecting current account imbalances in some economies.

VI. Shocks and Scenarios for Reducing Global Imbalances: The International Perspective

While some degree of imbalances in international investment positions is part of a well-functioning global economy, the recent growth and record highs of global imbalances (Section II) are hard to justify with macroeconomic fundamentals (IMF 2025). Moreover, as the size of NIIPs has increased, a range of shocks could have a larger and faster impact than in the past via international spillovers through valuation effects and investment flows linked to these imbalances. The dominant role of the US as the largest international debtor in the global financial system, combined with its shift from having an "exorbitant privilege" to providing a "generous giveaway", also increases the risk that any adjustment involving a reduction in global imbalances (which would most likely involve a reduction in the US debtor position) triggers negative wealth effects and financial losses in other countries around the world. Therefore, this section explores how a range of shocks and spillovers from adjustments in international imbalances could affect country-specific NIIPs (including the US net debtor position) and global imbalances in aggregate.

There are a range of shocks that could affect imbalances and generate considerable international spillovers. We evaluate four types of shocks that have been mentioned in policy discussions and are relevant given the analysis above, focusing largely on the financial factors that have recently had considerable effects on NIIPs (i.e., through valuation effects linked to relative returns and exchange rates as well as income effects linked to interest rate differentials). More specifically, we focus on four scenarios: (1) a large depreciation of the US dollar; (2) a sharp correction in equity markets, with the largest adjustment in the United States (possibly reflecting a reassessment of the valuation of AI-related stocks); (3) an increase in interest rates globally; and (4) a considerable reduction in trade imbalances (as a proxy for the potential impact of large tariffs enacted around the world). For each scenario we evaluate the effects on individual economies, as well as on aggregate global imbalances (including the corresponding adjustments for creditors, debtors, and the US position).

In order to assess the impact of each of these four scenarios, we use the framework and data described above to do a "back-of-the-envelope", partial equilibrium calculation of how each of these shocks would affect imbalances and the corresponding financial and/or trade flows. In practice, if any of these scenarios occurred, there would likely be concurrent adjustments in other financial markets (such as in foreign exchange and fixed income), a rebalancing of countries' external portfolios, financial and monetary policy responses, and other effects on the real

economy. As discussed below, some of these concurrent adjustments could even mitigate the initial effects of the shocks on imbalances. We only focus on the immediate impact of the adjustment on the relevant variables, however, and leave an analysis of these second-round effects for future work. Although not capturing all general equilibrium effects, the analysis is useful to identify which economies, which investors, and which borrowers are more vulnerable to certain scenarios, as well as evaluate how different shocks could generate more benign or severe scenarios for a given adjustment in global imbalances.

A. Scenario 1: Depreciation of the US Dollar

We begin by focusing on a scenario that has received heightened attention both during current policy discussions of recent global imbalances and during the previous spike in the US deficit in the mid-2000s—a depreciation of the dollar. Concerns around sharp exchange rate adjustments are frequently raised amid intensifying discussions about the role of the dollar and United States in the international monetary system (Miran, 2024; Obstfeld, 2026). Some type of currency adjustment is usually part of any discussion on how to reduce global imbalances, often with references to the role of exchange rates in reducing imbalances around the 1980's Plaza accord (Bayoumi and Gagnon 2025; Hoshi 2026; Rey et al. 2026). For this scenario, we model a 20% USD depreciation against all other currencies.[36] Our framework assumes linear relationships, so it is straightforward to calculate the impact of smaller or larger dollar depreciations, albeit much larger (or faster) currency adjustments would likely have nonlinear effects that will not be captured in our framework.

To estimate this dollar depreciation scenario, we follow a "back-of-the-envelope" approach and take as fixed the currency composition of countries' external assets and liabilities and assume no change in other asset prices (such as interest rates).[37] Since the US dollar accounts for varying shares of countries' external assets and liabilities, the weighted financial exchange rates of different countries would appreciate to varying degrees.[38] The impact on different countries will depend on these weighted financial exchange rates, as well as the asymmetry in the currency composition of their assets and liabilities, and the magnitudes of these positions.

Figure 14a shows the impact on different countries from this 20% USD depreciation. The United States is the only debtor country to experience a reduction in its NIIP deficit, which is not surprising given the highly asymmetric currency composition of its assets and liabilities. More specifically, US external liabilities are primarily denominated in dollars (such that their USD value would only increase by 2.8% in this scenario), while US external assets are primarily denominated in foreign currencies (such that their USD value would increase by 14%).[39] Even though the US stock of liabilities exceeds that of assets, this differential effect due to currency exposures implies that a

[36] To put this in context, Bayoumi and Gagnon (2025) estimate several scenarios that show that the US dollar would need to depreciate around 15%-29% to stabilize the US NIIP as a share of GDP.
[37] For a comprehensive assessment of the effect of a US dollar depreciation on the NIIP, one would also need to consider the elasticities of countries' trade in goods and services to exchange rate movements given the widespread use of the US dollar as an invoicing currency. This would likely contribute to some additional reduction in imbalances through trade channels, so our exercise focusing on the financial channels only can be seen as a conservative (lower bound) estimate of the effects.
[38] Information on the currency composition of countries' assets and liabilities necessary for this scenario is for 2020—comes the last year with available currency composition data from Allen *et al.* (2023).
[39] About 86% of US external liabilities are denominated in USD and 70% of extern al assets are in foreign currencies as of 2020.

20% USD deprecation would improve the US NIIP by roughly $4 trillion, thereby reducing its NIIP deficit from -91% to -77% of 2024 GDP.

In contrast to the United States, most other countries would experience a deterioration in their NIIPs (i.e., an increase in their debtor positions or reduction in their creditor positions). This occurs primarily because other countries have more USD international assets than USD liabilities, such that a dollar depreciation increases the USD value of their external liabilities by more than the USD value of their external assets.[40] The countries with the most asymmetric currency composition (in terms of being adversely affected by a dollar depreciation) are: Korea (60% USD assets vs 19% USD liabilities), Mexico (79% USD assets vs 38% USD liabilities) and India (52% USD assets vs 17% USD liabilities). Even if these countries had balanced NIIPs, a dollar depreciation would generate net losses in their international positions. Moreover, countries' starting stocks of assets and liabilities are typically not balanced. The size of these imbalances, in conjunction with the currency mismatch on assets and liabilities, determines the sign and size of the resulting effects on the NIIP.

The combination of these effects generates a substantial deterioration in the NIIPs for a number of countries (**Figure 14a**). For example, the countries in our sample with the largest NIIP losses relative to their domestic GDP are: Netherlands (-44pp), Hungary (-28pp), Spain (-18pp), UK (-17pp), Canada (-16pp), and New Zealand (-14pp). In many cases, these FX-driven losses would wipe out a large share of the net wealth accumulated over decades. For example, the Netherlands sizable surplus position of 59% of GDP would quickly fall to only 15% of GDP. In contrast, a few countries with creditor positions would experience an improvement in their NIIPs from a USD depreciation (primarily reflecting the mismatched gross size of their assets and liabilities), including Norway (+36pp),[41] Germany (+9pp), Russia (+6pp), South Africa (+5pp), Belgium (+1pp) and China (+0.2pp).

What do these adjustments imply for global imbalances overall? **Figure 15** shows the historical evolution of NIIPs for broadly defined regions from 2010 through 2024, along with the simulated adjustment in imbalances in 2024 from a 20% USD depreciation in the first bar on the right. Global imbalances are predicted to fall after a USD deprecation, but the magnitude of the reduction is modest. More specifically, global imbalances (measured as the sum of the absolute value of creditor and debtor positions) are projected to only fall from 46% to 44% of global GDP. This reduction would be distributed roughly proportionately across net debtor countries and creditor countries. These relatively modest effects, however, mask a more meaningful improvement in the US NIIP, which reduces the US position from -24% to -20% of global GDP and its share of aggregate imbalances from 52% to 46%.

While the adjustment in global imbalances from a 20% USD depreciation is not trivial and could partially alleviate concerns around the dominant US debtor position, the impact is modest and unlikely to meaningfully change the vulnerabilities around global imbalances highlighted above. This in contrast to policy debates and international macroeconomic theory, which tend to focus on

[40] The only exception is South Africa, which held 30% of its assets versus 32% of its liabilities in USD (as of 2020).

[41] For example, in Norway, a larger share of its assets is denominated in USD, such that the 20% USD depreciation causes a smaller appreciation in the value of its international assets (12%) than liabilities (16%); this effect, however, is outweighed by the 2.7 larger size of its asset holdings relative to that of its liabilities.

exchange rates as central to adjustment and place little emphasis on the role played by fluctuations in risky asset prices.

Also, these estimates suggest that if most of any adjustment in imbalances occurs through exchange rate movements, the exchange rate movement required to shrink imbalances meaningfully would be much larger than our 20% USD depreciation scenario. For example, if the effects are linear, a 60% USD depreciation would triple the effects cited above and only reduce NIIP imbalances from 46% to 40% of global GDP. This is a smaller adjustment than the hypothetical scenario of a correction in US equity markets (next subsection) and would still leave imbalances twice as large as in 2007 (when they were also a prominent concern). Granted, an adjustment this large—especially if it occurs quickly—would likely generate nonlinear effects, increase financial stability risks (especially if the entities with FX exposure are unhedged), and cause movements in other financial markets that would affect imbalances. A much more detailed analysis would be required to assess the effects of this type of scenario than the back-of-the envelope calculations cited above.

B. Scenario 2: A Sharp Repricing in Equity Markets

Next, we consider the immediate consequences of a sharp repricing in equity markets led by an outsized adjustment in US markets (potentially due to a correction of AI and technology-related stocks). More specifically, we consider two alternatives. In Scenario 2.1 the US stock market reverses its outperformance between 2019 and 2024 to fall by roughly 25%.[42] While it is unlikely that all other stock markets would remain stable in the midst of such a major US repricing, this exercise is a useful benchmark. We also consider an alternative (Scenario 2.2) in which all international stock markets unwind any changes (mostly gains) over 2019-2024.[43] This scenario now involves a 45% decline in the US stock market as well as substantial, albeit somewhat smaller, declines in most other countries' equity indices. In each case we assume that the change in stock prices has the same impact on both portfolio equity and FDI liabilities in each country, as these two asset classes are reported at market value and often use stock market indices as a key input.

To calculate the impact of these market adjustments, we calculate the mechanical gains and losses via valuation changes on countries' external portfolios from shifts in asset prices, while keeping the compositions of their assets and liabilities fixed. As discussed above, we ignore any second-round effects through other adjustments in financial markets, portfolio rebalancing, policy responses, or effects on the real economy. In practice, either of these scenarios simulating large adjustments in equity markets would trigger other adjustments—such as lower interest rates to support the economy—which could mitigate the effects on imbalances.[44]

Starting with the simplest hypothetical of a repricing in only the US equity market (Scenario 2.1), since most countries hold some US equity assets, they experience a valuation loss and a

[42] As measured by the relative outperformance of US equities relative to the global benchmark in the MSCI World Index. In this scenario, we assume no change in other equity markets, but the MSCI World index falls 18.6% due to its 75% US weight.
[43] Based on the MSCI US equity and MSCI non-US equity indices. These reflect changes in the price of the equity index and do not include dividends (which are investment income in the NIIP).
[44] This is consistent with the negative correlation between valuation gains and investment income flows in most countries shown in Figure 9 (bottom panel).

deterioration in their NIIP. In contrast, the United States experiences a valuation gain because the value of its liabilities declines while that of its foreign assets remains stable.[45] **Figure 14b** depicts the hypothetical impact on the net equity and FDI positions of each country as a percent of domestic GDP at end-2024 (with actual values in yellow bars and simulated values in red squares). The effect on the equity portion of NIIPs of many countries is quite significant. For example, the US net equity position improves from -45% to -20% of GDP, a net gain of over $7 trillion. In contrast, for almost all other countries the net equity position deteriorates, with the magnitude depending on the country's bilateral exposure to the US stock market. By far, the most severe negative impact is on Norway (shown a separate scale due to its very large NIIP), whose international equity position falls from over 290% to 244% of GDP, erasing over $230 billion of equity wealth. Other countries with large negative valuation losses under this scenario include the Netherlands (-63% of GDP), Canada and Switzerland (-43% of GDP), Sweden (-35% of GDP), Belgium (-23% of GDP) and the United Kingdom (-21% of GDP). In each case, this is meaningful loss of net worth relative to the size of the economy—despite no change in domestic equity markets.

Next, we move to Scenario 2.2 in which all stock markets adjust and unwind any gains or losses from 2019 -2024. The resulting equity and FDI portfolios are shown in the blue diamonds in **Figure 14b**. Most countries continue to experience a deterioration in their net equity position, as the US stock market strongly outperformed most other stock markets over 2019-2024. In some countries (such as Canada and Sweden), the effects are similar to those when only US equities reprice (Scenario 2.1). For several other countries—including Norway, Belgium, Switzerland and the United Kingdom—the valuation losses are significantly greater. For example, in Norway the net international equity position falls to from about 290% to about 190% of GDP (versus 244% in Scenario 2.1) and in Switzerland, the equity position falls from roughly +20% to nearly -70% of GDP (versus -25 % in Scenario 2.1). Conversely, in a few cases, such as the Netherlands, Hungary and the Czech Republic, equity portfolios deteriorate less than when only the US market reprices (because their equity returns were stronger over 2019-24, such that the hypothetical unwinding of those returns generated larger decreases in their external equity liabilities).

The impacts of these simulated equity market adjustments are not only large for the NIIPs of individual countries but also imply a meaningful reduction in aggregate global imbalances. The two bars on the right of **Figure 15** show the impact on 2024 imbalances under these two hypothetical scenarios of a repricing in just US equity and FDI (scenario 2.1) or adjustment in all equity and FDI positions (scenario 2.2). In both cases, global imbalances and the US debtor position contract considerably. In the US-only repricing scenario, global imbalances fall by 10% of global GDP, with the adjustment split roughly evenly between creditor and debtor positions and the US position improving by 7% of global GDP. In the global correction scenario, imbalances fall by 13% of global GDP, with a larger share of the adjustment in the debtor positions, partially due to the improvement of 9% of global GDP in the US position.

To summarize, a sharp correction in equity markets led by a decline in US stock prices could generate a sharp reduction in global imbalances. In our hypothetical scenario in which all equity gains/losses since 2019 are unwound, this corresponds to a reduction in global imbalances of over a quarter (from about 46% to 33% of global GDP). The largest share of this adjustment would occur in countries with negative NIIPs (largely the United States), with net debtor positions shrinking from

[45] While a US stock market correction is a net gain in terms of the US foreign asset position, overall US wealth may well deteriorate since a significant portion of the US stock market is held domestically.

-28% to -21% of global GDP, and the US share of 2024 global imbalances falling from 52% to (a still sizable) 44%. While the reduction in the dominant US debtor position could reduce some risks around imbalances, this would correspond to a meaningful reduction in the holdings of countries with positive NIIPs; the aggregate creditor position would fall from 18% to 12% of global GDP—a substantial loss in international wealth for many countries when assessed relative to the size of their domestic economies. This decline in the value of international asset holdings of creditor countries could generate substantial negative wealth effects that also feed through to the domestic economy—an issue explored at the end of this section—especially when combined with already sizable negative wealth effects from adjustments in their domestic equity markets.

C. Scenario 3: Increases in Global Interest Rates

For a third scenario, we shift from focusing on shocks that only affect NIIPs through immediate valuation effects (i.e., through relative equity returns and exchange rates) to a shock that also generates persistent changes in international investment flows (while still generating one-time valuation effects on impact). More specifically, we consider the impact of a 400 bps increase in interest rates on all external debt positions (i.e., portfolio investment debt, "other investment" exposures, and reserve asset holdings) of all countries. We model a 400 bps increase in interest rates as this is about half the mean adjustment in policy rates during tightening cycles across a large sample of countries over 1970-2024 (Forbes, Ha, and Kose, 2024). This increase in global interest rates could reflect an increase in global term premia reflecting elevated concerns about debt sustainability, inflation, geopolitical risks, the costs of climate change, or any factors that affect the neutral interest rate.

Before assessing the impact of this hypothetical increase in global interest rates, we need a benchmark scenario of how NIIPs would have evolved through 2029 (without any rate change). For this benchmark scenario we make several simplifying assumptions to basically continue relationships from the last year in our sample: (i) non-debt assets and liabilities continue to generate rates of return equal to those in 2024[46]; (ii) there are no additional valuation changes (other than the repricing of debt instruments associated with the rise in interest rates) [47]; (iii) exchange rates are constant at their 2024 levels; (iv) trade balances as a percentage of GDP are constant at their 2024 levels; (v) other income flows (i.e., unrelated to investment income) are zero; (vi) investment income is calculated each year to reflect any changes in the stock of assets and liabilities; (vii) any positive investment income flows are re-invested at the end of each year in the asset class that generated them; and (vii) any positive net trade flows are also re-invested annually, but in this case allocated proportionately to each country's gross asset composition at the end of the previous period. Also, in order to continue expressing NIIPs as a percent of GDP, we use the IMF WEO forecasts[48] for each country's nominal GDP in current US dollar terms.

The results from this baseline forecast for how global imbalances would evolve in individual economies with no major changes from 2024 (and the assumptions outlined above) are shown in

[46] If a country is missing data on returns for a specific asset category, we assume returns are the cross-country average for 2024.
[47] As shown in **Figure 7** and discussed in Section IV.D, valuation effects tend to be volatile and can reverse year-to-year, so we do not assume any valuation changes in 2024 continue over the forecast horizon.
[48] Nominal GDP forecasts from 2025 onwards are sourced from the April 2026 version of the IMF WEO database.

Figure 16 in red squares (with the 2024 values continuing to be in the yellow bars). NIIPs are expected to increase in most of the larger creditor countries (as expected due to the persistent effects of stocks on investment income flows discussed in Section IV.C and V.C). The most notable increases are in Norway (from 357% to 422% of GDP), the Netherlands (doubling from 56% to 102% of GDP) and Switzerland (increasing from 114% to 140% of GDP). It is worth noting that China's NIIP increases under this baseline scenario from 18% to 29% of domestic GDP. While this is less than the mean/median change in the sample (when scaled by domestic GDP), it would correspond to a meaningful increase in global imbalances given the size of China's economy. The impact on the NIIPs of debtor countries is more mixed, but corresponds to a projected decline in the US NIIP from -91% of GDP in 2024 to -112% by 2029. The corresponding aggregate impact on global imbalances is shown the first bar in **Figure 17**. Global imbalances would increase from 46% of global GDP in 2024 to 48% in 2029, driven by an increase in the aggregate creditor position (from 18% to 21% of global GDP) combined with roughly stable debtor position (falling only slightly from -28% to -27% of global GDP). The US position is also modelled to fall slightly (from 24% to 22% of global GDP).

Next, we model the impact of this 400 bps increase in interest rates globally on NIIPs and global imbalances. We assume rates stay at this elevated level for five years (from the end of 2024 through the end of 2029) and that rates of all maturities increase in lockstep, i.e. there is a parallel shift in all countries' yield curves. This hypothetical scenario has two direct effects on NIIPs: (i) the impact on investment income flows from higher interest rates; and (ii) the capital gains resulting from changes in bond prices. To calculate the changes in investment income flows, we calculate the immediate changes from higher interest rates in each year and then assume that any additional income flows associated with this change are re-invested at the end of each year in the asset class that generated them (i.e., changing the stock of assets that could affect income flows in future years). To calculate the capital gains, we assume debt instruments reprice in 2025 and portfolio debt has a longer average maturity (and consequently greater sensitivity to rate changes) than cross-border bank loans (which account for the majority of "other investment" flows), with the maturity of official reserves falls somewhere in between.[49]

The blue diamonds in **Figure 16a** show the impact of this 400 bps increase in interest rates on the NIIPS of individual countries. In most cases, there is little difference in the project NIIP in 2029 in this scenario than in the baseline (red squares)—particularly when assessed relative to the large magnitude of existing imbalances. Countries with creditor NIIPs (particularly for portfolio debt and banking exposures) tend to experience a small increase in their international investment income in each year of the scenario. Countries with debtor NIIPs, on the other hand, experience more mixed effects as the deterioration in their net international income in each year can be offset by the repricing of outstanding international debt—a one-time capital loss (as bond prices fall). Over the full five-years of this scenario, the change in international investment income generally outweighs the immediate capital gain/loss from the debt repricing, especially as the change in investment

[49] The capital gains on debt associated with a 400bps rise in yields are computed using the simplest relationship between the bond price and yield – that of a zero-coupon bond: $\log(P_c) = -m_c * y_c$, where y_c is the annual (continuously compounded) yield or interest rate paid on country *c* debt, and m_c is the residual maturity of country *c* debt, expressed in years. For other investment, we assume a maturity of 3 months such that a 1% rise in the interest rate corresponds to a $-\frac{3}{12} * 4\% = -1\%$ price change, i.e. a capital loss of 1%. For portfolio debt, we assume a maturity of 5 years, implying a -20% price change for the same 400bps increase in the annual yield. For official reserves, we assume a maturity of 2.5 years, in line with the evidence in BCB (2021) and ECB (2023).

income flows accumulate to a larger and continuous change in NIIPs (in absolute dollar terms) over time. Also, since our NIIP statistics are converted into a percent of domestic GDP in each year, the impact varies depending on whether the changes in the NIIP are faster or slower than the forecast for GDP growth in each country. All in all, the countries with the largest (albeit still small) impact on their 2029 NIIPs in this higher rate scenario are Switzerland, Norway and Japan (which experience small reductions in their NIIP creditor positions), and the Netherlands and Canada (which experience modest improvements).

To better understand these effects, it is useful to consider the impact of this hypothetical 400 bps increase in global interest rates on the US NIIP. In the first year of higher rates, the US NIIP shrinks (in absolute value) from -$26.6 trillion to -$25.5 trillion (by almost 4%), due to the gains from price declines in its fixed income liabilities outweighing the losses from its smaller holdings of fixed income assets. In subsequent years, the United States would have larger net payments of international investment income (reflecting higher rates on the large, negative net stock of debt liabilities), which would accumulate to generate a loss of $30.1 trillion in the NIIP by end-2029. In the meantime, however, US nominal GDP is expected to grow at 4.4% per year on average (according to the IMF WEO projections) which outpaces the implied average annual change in the NIIP position (2.6%). Combining these effects, the US NIIP would shrink from 91% of GDP in 2024 to 83% in 2029—a material reduction compared to the baseline scenario of 90% of GDP in 2029. While this is a material change, it still leaves the US NIIP around the same size as today when assessed relative to the projected size of the US economy.

Figure 17 shows the aggregate effect on global imbalances (as a percent of global GDP) from these various effects of a 400 bps increase in interest rates. Aggregate global imbalances contract slightly in 2029 (to 46% of global GDP) from the baseline scenario of 48% of global GDP. This contraction reflects a small reduction in the NIIPs of debtor countries (including the US), with no meaningful effect on the aggregate NIIP of creditor countries. These changes are all small compared to the increase in global imbalances projected to occur from 2024 through 2029 in the baseline scenario and without any major changes to asset prices, trade, or any other factors contributing to the recent increase in global imbalances.

D. Scenario 4: Reduction in Trade Imbalances

In contrast to the above scenarios, which focus on the impact of financial shocks on NIIPs, our final scenario considers adjustments through trade flows, potentially resulting from an increase in tariffs or other trade restrictions. More specifically, we compare the evolution of NIIPs through 2029 under two scenarios: (i) our baseline projection (with details in **Section C**), which assumes all trade balances (surpluses and deficits) remain at their 2024 levels; and (ii) a projection that assumes trade balances as percent of domestic GDP fall by half in each country for five years (from end-2024 through end-2029). Comparing the end-2029 NIIPs under each of these two scenarios allows us to quantify the potential impact of a sharp reduction in trade imbalances, as well as to compare the impact to those of previous scenarios that modelled adjustments in the financial components of NIIPs (in the previous three subsections).

Figure 16b shows the estimated NIIPs for each country in our sample at end-2029 under this reduced trade scenario (in blue diamonds) — while continuing to report the outcomes of the baseline scenario in 2029 (red squares) and actual values for 2024 (yellow bars). This scenario has a substantial impact on the NIIPs of countries where international investment imbalances stem

primarily from trade. For example, many of the countries whose NIIPs have benefited from large and positive accumulated trade flows over 2010-24 (**Figure 8**) are projected to suffer the largest deterioration in their NIIPs. This includes Norway (-36 pp of domestic GDP in 2029), Netherlands (-27 pp) and Switzerland (-24 pp). The countries with the largest projected improvements in their NIIPs are: the United States (+8pp), India (+6 pp) and New Zealand (+6 pp). For most countries, however, the impact on NIIPs from a sharp decline in trade imbalances would be modest relative to the already accumulated stock, a muted effect that is not surprising given the larger impact of financial flows on their NIIPs than trade. Most saliently, the US NIIP would remain deep in negative territory despite contracting from a projected -90% of 2029 GDP to -82% due to its trade balance halving from 3% to 1 ½% of GDP for five years.

The last column of Figure **17** shows the trade scenario's corresponding aggregate effect on global imbalances in percent of global GDP. Global imbalances would decline to 44% of global GDP in 2029, down from 48% of global GDP in the baseline scenario. The adjustment reflects roughly equal and small declines in the NIIPs of creditor and non-US debtor countries, which adjust by an aggregate of 1%-2% of global GDP. The US share of global imbalances remains high at 47% of gross imbalances in 2029 in the reduced trade scenario—only marginally smaller than its 46% share under the baseline projection of unchanged trade balances until 2029.

This scenario modelling the impact of a sharp reduction in trade imbalances on global imbalances has important implications. Even if trade imbalances were reduced by half—a very large adjustment that would require substantial changes in savings and investment across economies—the stock of global imbalances would only decrease modestly over the next five years (assuming no other changes). This highlights the importance of stock effects through financial factors in driving imbalances—and that any meaningful reduction in global imbalances will need to occur at least partly through adjustments in financial asset valuations and investment income flows and not just through trade adjustments.

E. Scenarios: Synopsis, Comparing Magnitudes, and Potential Wealth Effects

The previous sections provided back-of-the-envelope calculations of the impact of different shocks on NIIPs in individual economies and global imbalances in aggregate. This section compares the impact across scenarios in order to assess the relative contributions the different shocks could play in any reduction in imbalances, as well as how the effects of these different adjustment channels would be distributed across countries. For example, a given reduction in aggregate global imbalances could occur primarily through a reduction in creditor economies, or debtor economies, or both simultaneously, and different forms of adjustment could be more benign (or painful) for the global economy. Moreover, if a primary concern is the dominant US debtor position, it is useful to evaluate how different mechanisms for adjusting this outsized imbalance will spill over to other countries—especially as even a modest reduction in the US position could generate proportionately larger adjustments in other countries' NIIPs relative to the size of their own economies.

To begin, **Figure 18a** compares the overall magnitude of global imbalances (as well as the roles of creditors, the United States and other debtors) for the scenarios outlined above: (1) a 20% USD depreciation; (2) a correction in global equity markets reversing any gains/losses since 2019; (3) a 400bps increase in global interest rates over five years; (4) a reduction in trade imbalances by half over five years. For the first two scenarios, which involve an immediate adjustment in the stock of

imbalances (i.e., to exchange rates and equity valuations), we compare the actual stock of imbalances in 2024 against that after the hypothetical shock. For the latter two scenarios, which involve changes in imbalances over five years (i.e., to interest rates and trade flows), we calculate the stock of imbalances that would accumulate after five years and compare this to the baseline (i.e., "no-shock") projections for 2029. Each of these scenarios includes all 28 countries in our sample.

The most striking result in **Figure 18a** is the relative persistence of the existing stock of global imbalances in most scenarios. The hypothetical scenarios are all major shocks, but in most cases there is little impact on aggregated imbalances. Moreover, if there are no major changes to current trade and income flows nor adjustments in assets prices, as modelled in the baseline scenario for 2029, imbalances are unlikely to decline—and more likely to continue to grow. The scenario which generates the largest reduction in global imbalances—and particularly the US debtor position—is a sharp correction in global equity markets led by a decline in US markets; this form of adjustment would be painful for both the US economy and the rest of the world—particularly creditor economies that would experience a sharp decline in their international net worth (as well as any losses in their domestic markets). The scenarios modelling adjustments that are often discussed in policy circles—scenarios involving a sharp USD depreciation or reduction in trade imbalances—-would only generate a small decrease in overall imbalances.

These aggregate effects of each scenario on global imbalances, however, conceal considerable heterogeneity across individual economies. The country-specific effects are shown in **Figures 14** and **16**, but **Figure 18b** consolidates these results to facilitate comparisons and focus on the changes in NIIPs from each scenario (instead of the resulting NIIP level). In each of these radar graphs, the dark black circle indicates no change in the NIIP for the given scenario, such that countries inside the circle are predicted to experience a loss in international net worth (i.e., decline in the NIIP), while countries outside the black circle are forecast to experience a gain. The radar graph on the left shows the change in the NIIP relative to the actual 2024 value of a USD depreciation or global equity market adjustment, with countries ordered by the size of their NIIP in 2024. The chart on the right shows the forecast NIIP in 2029 relative to the actual value in 2024 of the baseline projection, the hypothetical increase in interest rates and decline in trade imbalances, with countries ordered by the level of their NIIP in 2029 in the baseline forecast.

These radar graphs accentuate several key results from the series of analyses above. First, even scenarios that have a modest impact on global imbalances overall would have a considerable impact on many individual economies. Second, the effects of different adjustment mechanisms vary substantially across countries. Third, scenarios that involve a meaningful improvement in the US NIIP correspond to large reductions in net worth in most of the rest of the world. More specifically, the largest reductions in the US NIIP are in the 2024 scenarios (left graph), in which almost all countries are inside the "no change" circle in both cases—and only the United States is outside the circle for both scenarios. Fourth, the different lines for these 2024 scenarios often diverge, showing that the mechanism by which the US NIIP adjusts can have very different distributional effects, with much more benign—or more painful—adjustments to international net worth for specific countries. For example, Switzerland's NIIP (relative to 2024 GDP) falls by 84pp in the equity correction scenario, but only 9pp in the dollar depreciation scenario, while Hungary's NIIP falls by 28pp in the dollar depreciation scenario, but improves by 27pp in the equity adjustment scenario.

Fifth, in the graph with the 2029 scenarios, these radar lines are distributed more evenly both inside and outside the black "no change" circle than in the 2024 graph—indicating gains and losses would be spread around the world (unlike the dollar depreciation and equity adjustment scenarios where most countries outside the United States experience losses). This is not surprising as the US NIIP is barely affected in these 2029 scenarios, such that the there are no large spillovers that need to be absorbed in other economies. Sixth, the scenarios for the 2029 baseline and higher interest rates are basically indistinguishable for most countries, suggesting that simultaneous changes in global interest rates are unlikely to generate major spillovers through imbalances—albeit any effects could be larger when accumulated over longer periods or (potentially most important) work through other channels than NIIPs.[50] Finally, there are two groups of countries forecast to see an improvement in their NIIPs in 2029 under each scenario—captured in two "bulges" in the bottom right and top left. These "bulge' countries mostly had trade surpluses in 2024, so it is not surprising they are more affected by a sharp reduction in trade imbalances. More noteworthy, however, is that many still experience meaningful improvements in their NIIPs in 2029 (i.e., remain outside the circle) even in a reduced trade scenario. This reinforces the persistence of NIIP dynamics, and that these imbalances will likely continue to grow even if trade imbalances were sharply reduced.

What are the potential macroeconomic effects of these types of adjustment in imbalances? And in particular, what are the implications of a decline in most countries' net worth that would be the counterpart of a reduction in the US debtor position (such as in the USD deprecation or equity market correction scenarios)? Starting with the positive, this natural risk sharing through equity markets could be a smoother and more efficient adjustment mechanism than other alternatives (just as equity exposure provides better protection against shocks than debt). More broadly, any adjustment through exchange rates and relative returns that generates valuation effects (across any asset classes) can act as a shock absorber for some countries (such as the US and UK, as discussed in Section V), as wealth is automatically transferred from the country with stronger economic performance to that with weaker performance.

On the other hand, even though these types of adjustments through equities and valuation effects could be smoother and more automatic than other channels, any such adjustments present risks—especially in the magnitudes suggested in the simulations above. When adjustments occur through asset prices (including exchange rates), they are often rapid and nonlinear, giving investors and other institutions little time to adjust. Even if the adjustments appear manageable for the economy as a whole, if any losses accrue to entities that are very price sensitive, in a sector with common exposures, and/or are unable to absorb the adjustment, this could trigger fire sales and other amplification effects that generate risks to broader financial stability. These risks have likely grown as a larger share of international portfolios are held by more price-sensitive investors, including non-bank financial institutions, which are also generally less well regulated.[51] While a number of papers analyze the shift in sovereign bond markets since 2010 away from more bank-based to a

[50] For example, higher interest rates could affect equity market valuations and exchange rates—which could generate large valuation effects that immediately impact imbalances (as shown in the other scenarios).
[51] The IMF portfolio Investment Positions (PIP) data on the cross-border bond holdings of NBFIs suggests that NBFIs accounted for roughly two-thirds of all cross-border bond holdings (excluding official reserves) as of end-2023 (BIS, 2025). See OECD (2026) for information on changes in global debt markets, and Mann (2026) for analysis of how changes in the investors holding UK bonds could impact financial stability.

market-based structure with more price sensitive investors, most do not include a discussion of comparable changes in the structure for non-sovereign liabilities.[52]

Moreover, the size of the wealth effects suggested in the scenarios above could have meaningful effects on the real economy. A number of papers estimate the impact of exogenous shocks to financial wealth (e.g., through equity valuations, housing prices, or lottery winnings) and find that exogenous positive wealth shocks have significant effects on consumption, demand, employment, output, and inflation.The magnitudes of these estimated effects vary substantially, but recent work suggests they can be quite large.[53] Despite this large body of literature quantifying wealth effects in a domestic context, there is much more limited research on the impact of *international* wealth effects.[54] One noteworthy exception is Meyer (2025), which finds that, for most countries, the large international wealth effects from US equity outperformance and a sustained dollar appreciation did not result in large welfare improvements in other countries because portfolios were not rebalanced and the associated gains were not realized. Also noteworthy is Atkeson et al. (2025), which develops an international macro-finance model analyzing wealth effects of valuation changes in US NIIP equity assets and liabilities. It finds a negative welfare impact of rising asset values for US households, but does not analyze international wealth effects directly.

A better understanding of the impact and distribution of these types of spillovers through financial markets and wealth effects is critically important to understand the risks around global imbalances, as well as assess the impact of the different scenarios outlined above. Shocks to international wealth would likely have a lower multiplier effect on domestic demand than comparable shocks to domestic wealth because a considerable share of international equity and FDI exposures would likely initially accrue to companies and non-bank financial institutions (NBFIs) that could absorb any valuation effects and would not fully pass them through to their respective investors. Furthermore, even if a part of those gains is passed through to investors, some portion is likely to be high net worth individuals, who have a lower marginal propensity to consume. On the other hand, the international wealth effects projected in the rough scenarios above are very large—such that even if their multipliers are smaller than for domestic wealth—they could still have a meaningful impact on the broader economy. Moreover, any shocks to these NBFIs and companies (especially if concentrated) could present broader risks to financial stability, particularly if they are not well regulated or if the corresponding adjustments in financial markets are rapid or nonlinear (as discussed above).

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[52] For excellent discussions of this shift in the structure of sovereign bond markets to a global system centered on non-bank financial institutions, US Treasuries, FX derivatives and repo-based leverage, see Bruno, Kamin and Ubide (2026) and Hernández de Cos (2025).

[53] For example, Dynan and Maki (2001) concludes that the marginal propensity to consume out of a surprise wealth gain is 5 -15% per year. Chodorow-Reich, Nenov and Simsek (2019) estimates that an additional dollar of stock market wealth in the United States is associated with a 2.8% increase in consumer spending. Di Maggio, Kermani and Majlesi (2020) estimates an MPC in Sweden of about 13% for the bottom 50% of the wealth distribution and 5% for the rest of the population. Andersen et al. (2024) uses idiosyncratic equity gains in Denmark to document a spending increase of 16% of a wealth gain over three years.

[54] Several other papers document the wealth effects that occur through NIP adjustments, but do not examine their impact on domestic economies. For example, Jiang et al. (2024) uses a portfolio-based framework to examine the drivers of the deterioration in the US NIIP, but does not quantify the international wealth effects. Bertaut et al. (2024) uses confidential granular data to document how excess returns on US external positions affect global wealth allocation, but do not examine the associated wealth effects.

VII. Summary and Conclusions

As international exposures have grown, countries have become more vulnerable to spillovers through the cobweb of global imbalances. Since these exposures are increasingly driven by financial factors—such as relative returns and exchange rates—spillovers are becoming more sensitive to asset price movements. At the same time, as the size of these exposures has grown, they have become more entrenched, partly due to the persistent and growing flows of international investment income on these existing stocks. Countries need to understand the risks around these imbalances as they are likely to persist for an extended period and interact with changes in the structure of financial markets that could magnify the impact of these spillovers.

The scenarios estimated in the last section of this paper provide an example of the types of analysis that individual countries could be doing to better understand their specific (financial stability and macroeconomic) vulnerabilities related to global imbalances. These scenarios are only rough, back-of-the-envelope calculations; a thorough analysis would require much more detailed country information (particularly on which sectors of the economy hold the international assets and liabilities and how they would respond to various shocks). Nevertheless, they provide useful guidance on what types of risks countries should be assessing—and preparing for. For example, a correction in US equity markets (potentially around a repricing of AI and tech-related stocks), could have substantial negative wealth effects in most countries, unwinding gains to net worth that have boosted growth and potentially generating financial stability risks if the entities holding these equity exposures do not have strong balance sheets. A US dollar depreciation could also generate meaningful negative spillovers in a number of countries—albeit with more heterogenous effects based on each country's currency exposures.

These scenarios also highlight the persistence of global imbalances—even in the face of substantial (hypothetical) shocks to asset prices and trade flows. If trade and international return differentials remain at their 2024 levels, and there are no changes in exchange rates or other asset price movements, global imbalances will continue to increase. Even a sharp reduction in trade imbalances (through tariffs or other restrictions) has minimal impact on the stock of imbalances if not combined with changes to the financial components of imbalances (especially, to persistent investment income flows). A considerable US dollar depreciation—which is often discussed as central to reducing these imbalances—would also only generate a modest reduction in global imbalances (albeit a relatively larger reduction in the US debtor position).

Granted, some types of international imbalances are part of a well-functioning global economy, and there is no level of imbalances that necessarily merits an immediate policy response or that countries should seek to achieve. Imbalances in international investment positions may also be less of an immediate concern than trade imbalances—which more directly affect employment and create more tangible challenges for adjustment and politics. Bruno et al. (2026) provides a nuanced discussion of the reasons why policymakers should—and should not—worry about various measures of global imbalances. Wherever one stands in this debate, the analysis above suggests that there are scenarios under which the current structure of imbalances could generate significant adjustments in cross-border financial exposures, international investors' net worth, and domestic economic growth –- albeit with a range of outcomes based on the characteristics of the shock and the country.

Therefore, a top priority for future research should be to understand how the spillovers through imbalances impact individual economies. The analysis in this paper shows that the immediate transmission of shocks varies widely across countries—based on the nature of the shock and characteristics of the country's international exposures. But what happens next? Are the institutions holding international assets able to withstand a sharp decline in the value of their holdings—whether resulting from currency movements or an adjustment in equity or bond prices? Would any such developments trigger fire sales in other asset classes (e.g., if a financial institution needs to meet margin calls or regulatory requirements) or reduction in spending (e.g., if retirement accounts are depleted)? Can the institutions with foreign currency liabilities withstand a liquidity shock or higher payments on these liabilities (e.g., if interest rates increase)?[55] There are many more threads to the cobweb of imbalances that need to be mapped for each economy in order to fully unravel the corresponding vulnerabilities.

[55] Bruno et al. (2026) Mann (2026) are examples of this type of analysis for the United States and United Kingdom, respectively. They show how the ownership of sovereign debt has shifted to more price elastic investors (i.e., non-bank financial institutions), which corresponding to faster adjustments in portfolio holdings in response to various shocks, which can, in turn, amplify movements in yields and trigger deleveraging when funding conditions tighten or risk appetite deteriorates.

Appendix A
Data Caveats: Reliability of International Balance of Payments Statistics

An important consideration for any analysis of international investment positions is the reliability of the underlying data. In that context, there are several important cautions and caveats associated with the International Balance of Payments (BoP) Statistics used in this paper. This appendix provides more information on six of the issues that are most frequently raised in this literature, with additional information in Avdjiev et al (2016), Guvenen et al. (2022), Chari and Milesi-Ferretti (2026), Milesi-Ferretti (2023, 2026), Bayoumi and Gagnon (2025, 2026), and Bruno et al. (2026).

First, and as discussed in the main text, many countries do not have sufficient data on the key series required for our NIIP decompositions. This is a major factor in our selection of the 28 economies that comprise our benchmark sample. The most common issue is the unavailability of data on income flows (which constrains our decompositions of investment income flows) and on the currency composition of external positions (which constrains our decompositions of valuation effects). Also, several countries do not differentiate between debt and equity in their portfolio investment positions.

Second, there are important measurement issues for the international FDI (asset and liability) positions of the United States, as discussed in detail in Milesi-Ferretti (2026), Bayoumi and Gagnon (2026), and Bruno et al. (2026). Of particular concern recently is that the reported series on US FDI liabilities are likely overstated due to the fact that US FDI positions are estimated using inputs based on the evolution of U.S. stock prices. The post-2019 run-up in US stock prices, however, has been mainly driven by tech ("new economy") companies, whereas US FDI liabilities tend to be much more heavily weighted towards more traditional ("old economy") sectors. Milesi-Ferretti (2026) builds on analysis from the Bureau of Economic Analysis (BEA) to calculate that if FDI claims and liabilities are valued based on the current cost of affiliates (without any stock price adjustment), the 2024 US net FDI position (and, consequently, the 2024 US NIIP) would improve by approximately $4 trillion.

Third, the rates of return on US international equity (asset and liability) positions are likely mismeasured because the measurement of income on portfolio equity is distorted by the profit-shifting of multinational corporations (Guvenen et al., 2022). Adjusting for such distortions reduces the rates of return on US FDI assets and liabilities, but the reduction is greater for US FDI assets, resulting in a smaller (but still positive) gap between the two series (Bayoumi and Gagnon, 2025).

Fourth, Setser (2025) shows that the official data understates China's trade surplus and primary investment income flows, both of which correspond to a higher current account surplus. Changes in the statistical method applied by China has increased the gap between trade surplus as reported in their customs data since 2021 as compared to other sources. At the same time, China's reported primary income on its large foreign asset position is much lower than would occur given global returns. Setser calculates that adjusting for these two factors leads to a faster increase in China's current account surplus since 2020, such that it was 5.6% of GDP in 2025 instead of the reported 3.4% of GDP (according to official figures).

Fifth, Lane and Milesi-Ferretti (2001) have argued that monetary gold should not be included in international accounts because it does not constitute a claim on foreigners. According to the latest

estimates, the inclusion of monetary gold improves the 2024 US NIIP by $682 billion (Bayoumi and Gagnon, 2025).

Sixth, countries have different methods of accounting for the treatment of overseas contract manufacturing, which creates an issue comparing components of the current account. This could lead to underreporting of the US trade and current accounts, but has little impact on reported rates of return on cross-border assets.

Last, but certainly not least, a well-known limitation of the classical International Balance of Payments (BoP) Statistics is that it is compiled using a residence-based (as opposed to a nationality-based) methodology.[56] While this assumption is reasonable in some instances, it is often violated in the modern highly interconnected global financial system, in which the activities of multinational corporations stretch across multiple national borders (Avdjiev et al., 2016). For example, when multinational corporations issue bonds through their subsidiaries located in offshore financial centers, this results in an underestimation of the external indebtedness of the countries in which these corporations are headquartered and an overestimation of the external indebtedness of offshore financial centers (Avdjiev et al., 2014; Coppola et al., 2021).

In contrast to the residence-based perspective, the nationality-based perspective allocates economic agents and entities based on the country of their headquarters (as a proxy for the main decision-making unit). There is now a large body of work that attempts to generate nationality-based counterparts to the classical residence-based BoP statistics (Coppola et al., 2021; Beck et al., 2024; Aldasoro et al., 2026; Tabova and Warnock, 2026). Nevertheless, there is still no comprehensive nationality-based counterpart to the BoP residence-based data that includes all major IIP components (FDI, PIE, PID and OID), so that we base our analysis on the classical BoP data. The alternative is to focus on one country or a small set of countries with the requisite bilateral data and asset price information,[57] but this approach would not allow us to estimate the "cobweb" of global relationships needed for our analysis of the cross-country spillovers and vulnerabilities through imbalances.

These caveats and shortcomings with the BoP data are all important to understand and deserve serious consideration. Many of these adjustments will affect the magnitude of our descriptive statistics and some of our estimates. The broader patterns and relationships should remain unchanged ,however, as well as they the key results from the analysis reported below. As discussed in Section II.C, the issue which merits most attention for our descriptive statistics is the overstatement of US FDI liabilities and the corresponding NIIP debtor position. Correcting for these data issues would reduce some of the magnitudes discussed in the text, but the direction and patterns of spillovers would be largely unchanged—as would be the importance of understanding these cobwebs in order to assess country vulnerability and potential risks to financial stability.

[56] The residence-based perspective is based on the "triple coincidence" assumption, which stipulates that (i) the GDP area, (ii) location of decision-making units, and (iii) the currency area coincide.
[57] More specifically, this approach requires good data on bilateral positions and assumptions about which asset price indices, interest rates and dividend payment schedules best represent these bilateral positions' valuation and associated income flows.

Appendix B
Decomposing Investment Income and Valuation Changes

The decomposition of investment income, valuation changes, and overall changes in the NIIP shown in equations (6) through (8) (and based on the framework in Forbes, Hjortsoe and Nenova, 2017) shows that four sets of financial variables are important in understanding vulnerabilities related to current account deficits: the existing stock of international assets and liabilities, the exchange rate indices reflecting the currency composition of the country's assets and liabilities, the composition of each asset and liability class (c), and the nominal rate of return and capital gains on last period's foreign assets and liabilities. Using the framework in equations (5) through (7) to estimate the contribution of each of these variables, however, is not straightforward. Previous academic literature has taken two different directions, which we attempt to unify within the framework used in this paper.

One strand of literature (including Gourinchas and Rey, 2007; Curcuru et al., 2008 and Forbes, 2010) has focused on decomposing different countries' net foreign returns into a return effect and a composition effect, (i.e. focusing on the $\left(r_{i,t}^{A,c}\right) - \left(r_{i,t}^{L,c}\right)$ for each asset/liability and composition c in equation (7)). The return effect captures whether a given country is paying more or less on its foreign liabilities than it receives on its assets of the same type. A positive net return effect has been described as a country's "exorbitant privilege". The composition effect, on the other hand, captures whether a country's international portfolio yields more based on the types of investments in its portfolio (and not the returns for each type). For example, a country could have a higher average yield on its international portfolio because it has a higher share of assets (than liabilities) in equities and FDI, which tend to yield more than bonds and cross-border bank loans and deposits.

The second strand of literature has focused on the role of exchange rate adjustments, and especially how they can determine valuation changes based on the currency composition of assets and liabilities. This literature, led by Lane and Shambaugh (2010) and Benetrix, Lane and Shambaugh (2015), has pointed out that exchange rate movements play a role in valuation changes if a country has a nonzero initial net position or if the currency composition of its assets and liabilities differs. For instance, countries that issue much of their liabilities in their own currency (such as the US), but hold foreign assets denominated in other currencies, can benefit substantially from a depreciation. These exchange rate effects can exacerbate or mitigate the effects of certain shocks on a country's external position. Not explicitly accounting for these exchange rate effects when constructing measures of the composition and return effects can make the latter two very volatile and less informative about the underlying structure of a country's vulnerability.

For our analysis, we unify these different approaches and build more closely on the framework developed in equations (5) through (7). This allows us to provide a decomposition of investment income and valuation changes into all four of the different financial determinants simultaneously (i.e. the existing stock of international assets and liabilities, differences in exchange rates across assets and liabilities, differences in the composition of these portfolios, and differences in returns and capital gains—expressed in the currency of underlying assets' currency of denomination—on these positions.) This more detailed decomposition, however, requires some additional calculations and assumptions.

First, we begin by calculating the effect of the initial international stocks on investment income and on valuations effects, the "stock effect". This effect captures any net income or valuation changes that the previous period net asset positions would have generated stripping out the impact resulting from assets and liabilities yielding different returns (both due to composition and return effects) and from exchange rate movements differing across assets and liabilities. The stock effect is thus computed assuming that rates of return and capital gains as well as exchange rate movements are identical across assets and liabilities. This yields an equation to derive the initial stock effect for the net investment income as:

$$INVINC\_stock_t \equiv (A_{t-1} - L_{t-1}) \left(\frac{r_t^A + r_t^L}{2}\right) \left(\frac{1}{2\Delta ER_{i,t}^A} + \frac{1}{2\Delta ER_{i,t}^L}\right). \quad \text{(B1)}$$

The initial stock effect for valuation changes can, in turn, be written as:

$$\Delta VAL_{stock_t} \equiv (A_{t-1} - L_{t-1}) * \left[\left(\frac{kg_t^A + kg_t^L}{2}\right) \left(\frac{1}{2\Delta ER_{i,t}^A} + \frac{1}{2\Delta ER_{i,t}^L}\right) + \left(\frac{1}{2\Delta ER_{i,t}^A} + \frac{1}{2\Delta ER_{i,t}^L} - 1\right)\right]. \quad \text{(B2)}$$

All the variables are defined as before[58]. The only notable difference is that, to simplify, these calculations we can use aggregated exchange rates and returns on assets and liabilities (which already incorporate any currency mismatch between both debt and equity assets versus liabilities), denoted with subscript *A* or *L*, rather than the asset-class specific *A,c* or *L,c*. ER_0 denotes the base period exchange rate.

Second, the exchange rate effects on net investment income and valuation changes can be expressed as:

$$INVINC\_er_t \equiv \left(\frac{A_{t-1} + L_{t-1}}{2}\right) * \left(\frac{r_t^A + r_t^L}{2}\right) * \left(\frac{1}{\Delta ER_t^A} - \frac{1}{\Delta ER_t^L}\right), \quad \text{(B3)}$$

$$\Delta VAL\_er_t \equiv \left(\frac{A_{t-1} + L_{t-1}}{2}\right) * \left\{\left(\frac{kg_t^A + kg_t^L}{2}\right) * \left(\frac{1}{\Delta ER_t^A} - \frac{1}{\Delta ER_t^L}\right) + \left(\frac{1}{\Delta ER_t^A} - \frac{1}{\Delta ER_t^L}\right)\right\}. \quad \text{(B4)}$$

In line with previous literature, we also compute the effect from the currency-of-denomination excess yield and excess capital gain. These can be decomposed following the "exorbitant privilege" literature into return and composition effects. To do so, define $\alpha_{c,t}$ as the share of a given asset *c* in a country's total assets in period *t,* and $\lambda_{c,t}$ as the share of a given asset *c* in a country's total assets

[58] When applying these decompositions to each country, the foreign currency rates of return on assets are calculated from Balance of Payments and NIIP data as follows: $r_t^S = \frac{F_t^S * ER_t^S}{S_{t-1} * ER_{t-1}^S}$ and $kg_t^S = \frac{S_t * ER_t^S - S_{t-1} * ER_{t-1}^S - CF_t^S * ER_t^S}{S_{t-1} * ER_{t-1}^S}$, with the *S* superscript identifying the specific asset or liability which generate these returns. S_t is the stock of assets or liabilities in US dollars; F_t^S is the corresponding current account income flow and CF_t^S is the associated financial account capital flows. These definitions implicitly assume no hedging, i.e. every exchange rate movement is reflected fully in the stocks of foreign assets and liabilities and the exchange rate impact on different stocks only differs depending on their currency of denomination. In reality, it is likely that some asset holdings are hedged against exchange rate movements and the exchange rate effect is not full, at least in the short run. We are not aware of any data to quantify these hedging effects, but if they are substantive, the decompositions here might be overestimating the effect of the exchange rate and as a result underestimating the effects of the currency-of-denomination excess returns.

in period *t*, holding the exchange rates associated with all asset classes fixed, and starting from a counterfactual balanced net stock position.

The third channel, the composition effect, for net investment income and valuation changes is then:

$$INVINC\_comp_t \equiv \left(\frac{A_{t-1}+L_{t-1}}{2}\right) \sum_c [\left(\alpha_{c,t-1} - \lambda_{c,t-1}\right) * \frac{\left(r^A_{c,t}+r^L_{c,t}\right)}{2} \left(\frac{1}{2\Delta ER^{A,c}_{i,t}} + \frac{1}{2\Delta ER^{L,c}_{i,t}}\right)] \quad \text{(B5)}$$

$$\Delta VAL\_comp_t \equiv \left(\frac{A_{t-1}+L_{t-1}}{2}\right) \sum_c [\left(\alpha_{c,t-1} - \lambda_{c,t-1}\right) * \frac{\left(kg^A_{c,t}+kg^L_{c,t}\right)}{2} \left(\frac{1}{2\Delta ER^{A,c}_{i,t}} + \frac{1}{2\Delta ER^{L,c}_{i,t}}\right)] \quad \text{(B6)}$$

Finally, the return effects for net investment income and valuations changes are then:

$$INVINC\_ret_t \equiv \left(\frac{A_{t-1}+L_{t-1}}{2}\right) \sum_c [\left(r^A_{c,t} - r^L_{c,t}\right) * \frac{\left(\alpha_{c,t-1}+\lambda_{c,t-1}\right)}{2} \left(\frac{1}{2\Delta ER^{A,c}_{i,t}} + \frac{1}{2\Delta ER^{L,c}_{i,t}}\right)] \quad \text{(B7)}$$

$$\Delta VAL\_ret_t \equiv \left(\frac{A_{t-1}+L_{t-1}}{2}\right) \sum_c [\left(kg^A_{c,t} - kg^L_{c,t}\right) * \frac{\left(\alpha_{c,t-1}+\lambda_{c,t-1}\right)}{2} \left(\frac{1}{2\Delta ER^{A,c}_{i,t}} + \frac{1}{2\Delta ER^{L,c}_{i,t}}\right)] . \quad \text{(B8)}$$

Since official reserves are only reported separately for countries' assets and not for liabilities, we have five asset classes on the asset side of the IIP ($A, c \in$ *{FDI, portfolio equity, portfolio debt, other investment, reserves}*) and only four for liabilities IIP ($L, c \in$ *{FDI, portfolio equity, portfolio debt, other investment}*). Since asset-class-specific returns and variables only directly enter the return and composition effects above[59], this asymmetry in the asset classes only affects how we apply equations (B5) – (B8) to the data. We assume that reserve liabilities would have yielded the same returns as reserve assets for each country, but the share of reserves on the liabilities side ($\lambda_{c,t-1}$) is zero. This reflects the scarcity of data on the sectors (official versus private) owning each country's liabilities and would attribute the entire contribution of reserve assets to the excess returns of assets versus liabilities to the composition effects above (equations B5 and B6).

[59] Aggregate assets (A_{t-1}) as well as the exchange rates applied to the total stocks of assets (ΔER^A_t) already incorporate reserve assets, so no additional assumptions are necessary to perform the initial stock and exchange rate effect calculations in (B1) – (B4).

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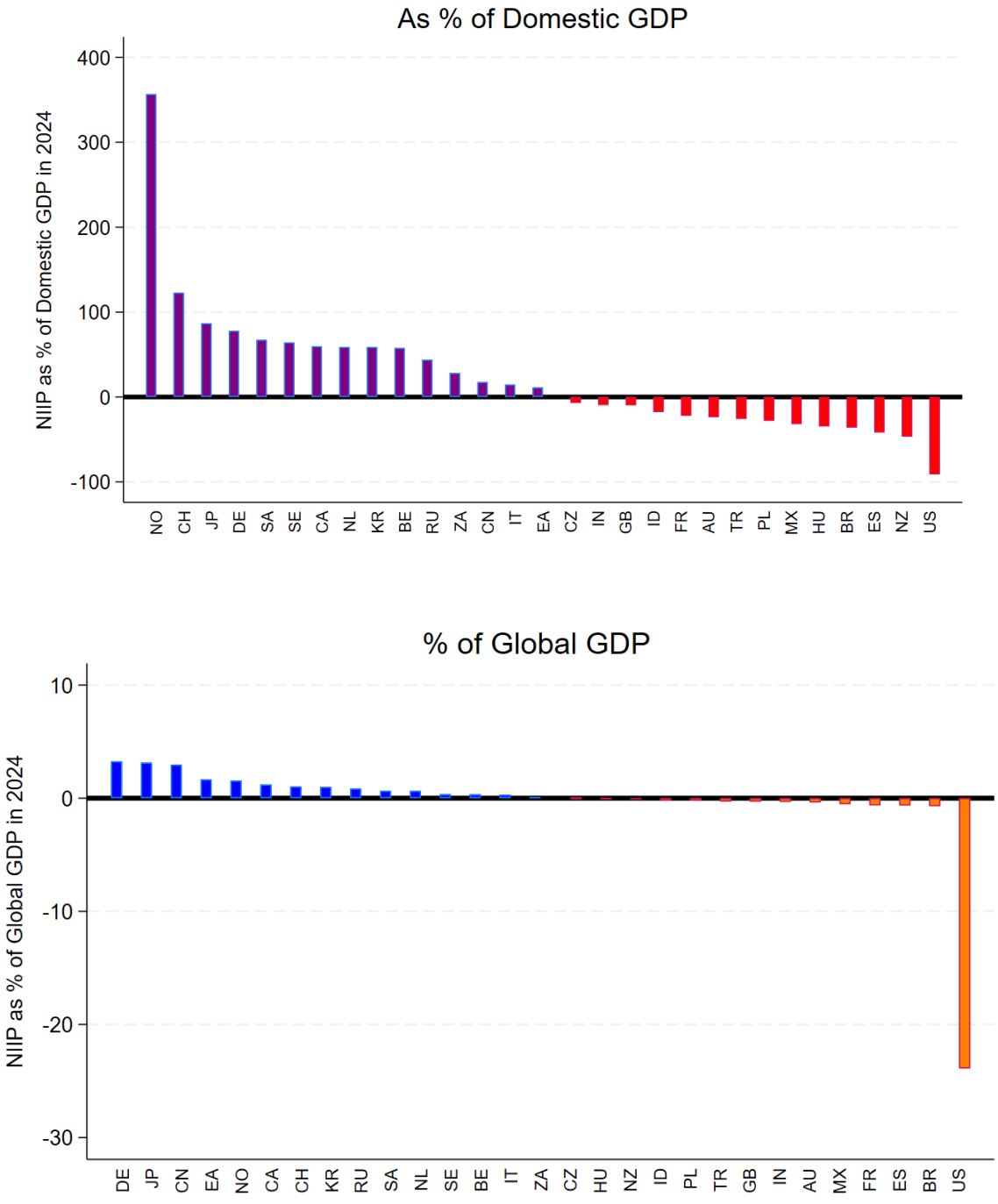
Table 1: Decomposing Changes in the NIIP over 2010-2024: Annualized Contributions of Trade, Income Flows and Valuation Effects by Country

Country	NIIP	Trade	Investment income	Other income	Valuation effects	Other
Australia	0.96	1.04	-2.23	-0.31	2.44	0.02
Belgium	0.94	0.15	0.04	-0.06	0.85	-0.04
Canada	4.62	-0.98	-0.36	-0.33	6.25	0.03
Czech Republic	1.36	3.78	-4.16	0.06	0.90	0.77
France	-0.64	-0.98	1.10	-0.71	0.09	-0.13
Germany	4.09	4.59	2.30	-1.13	-0.86	-0.80
Italy	2.40	1.47	-0.17	-0.53	1.33	0.30
Japan	0.96	-0.95	5.02	-0.48	-2.71	0.07
Korea	4.29	3.20	0.65	-0.32	0.74	0.03
Netherlands	5.17	7.53	0.19	-1.81	-0.86	0.12
New Zealand	-0.24	-0.47	-2.64	-0.20	1.36	1.71
Norway	19.29	10.07	3.14	-1.96	9.51	-1.47
Spain	3.03	1.97	-0.65	-0.38	1.55	0.54
Sweden	4.65	3.27	2.12	-1.32	1.20	-0.62
Switzerland	3.45	7.52	1.74	-4.00	-2.55	0.74
United Kingdom	0.10	-0.96	-0.75	-0.92	2.87	-0.14
United States	-5.46	-2.11	0.62	-0.48	-3.48	-0.01
AE median of absolute values:	***3.03***	***1.97***	***1.10***	***0.48***	***1.36***	***0.14***
Brazil	-0.70	-0.30	-2.58	0.14	2.15	-0.10
China	0.71	1.59	-0.45	0.11	0.03	-0.56
Hungary	2.49	2.86	-4.17	1.31	2.02	0.47
India	-0.41	-2.14	-0.86	1.98	0.62	-0.01
Indonesia	-0.15	0.90	-2.07	0.29	0.82	-0.09
Mexico	-0.91	-0.96	-1.86	2.09	0.20	-0.38
Poland	0.16	1.53	-2.84	0.38	0.71	0.38
Russia	2.60	6.06	-1.95	-0.58	-0.67	-0.25
Saudi Arabia	1.43	7.81	1.31	-3.73	-2.29	-1.66
South Africa	2.84	0.92	-2.16	-0.68	4.86	-0.10
Türkiye	-0.36	-1.64	-0.71	0.06	1.99	-0.06
EM median of absolute values:	***0.71***	***1.59***	***1.95***	***0.58***	***0.82***	***0.25***

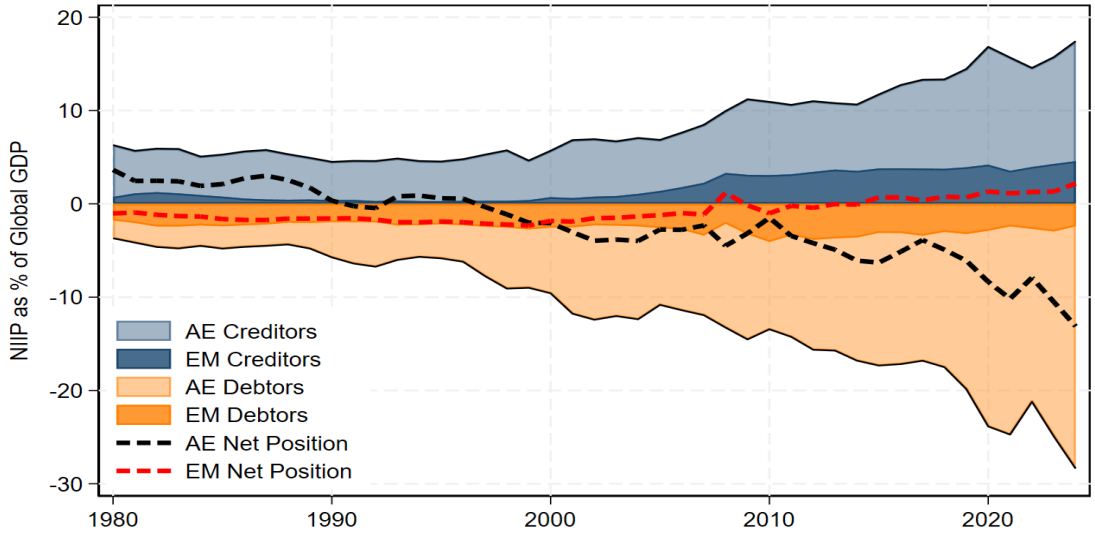
Notes: Table reports annualized changes in the NIIP and the corresponding contributions of its components over 2010-2024, all expressed as a percent of 2024 domestic GDP. ”Other” is the sum of the capital account and errors and omissions. AE and EM medians are calculated based on the absolute values of the contributions for each country.

Figure 1
Net International Investment Positions in 2024



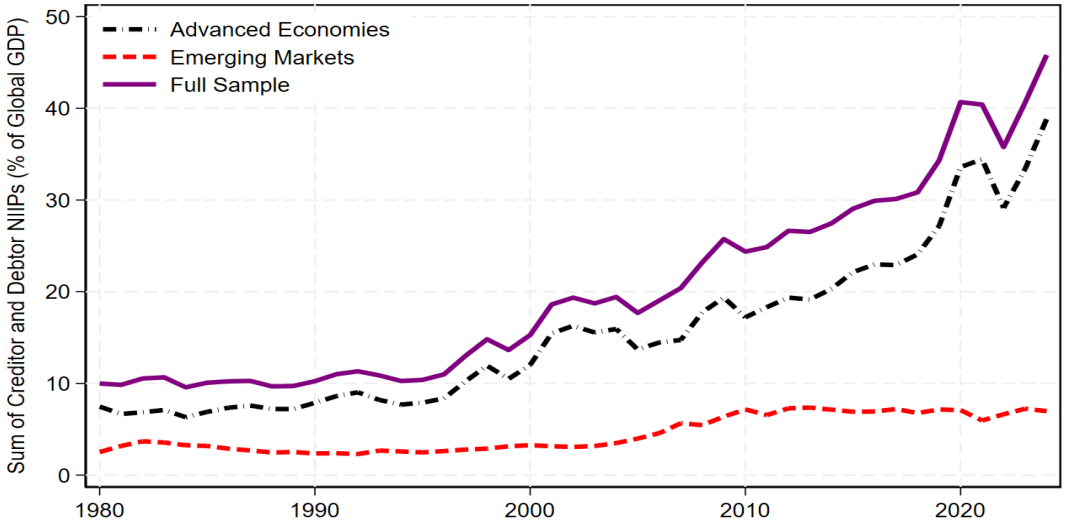
Notes: Graphs show net international investment positions (international assets less international liabilities) relative to domestic GDP for each country in the baseline sample plus the Euro area (EA). Data for the EA as one entity nets out exposures between member countries. See Appendix Table 1 for country codes. Underlying data on NIIP positions from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

Figure 2
Evolution of Stock of Global Imbalances



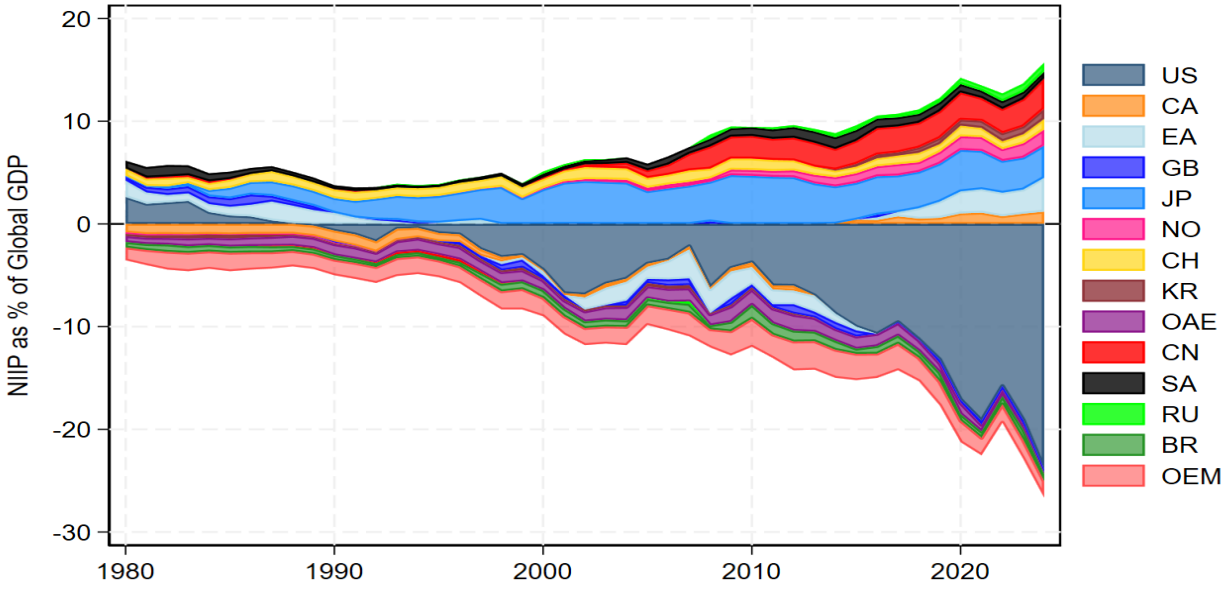
Notes: Figure shows the aggregate net international investment positions (NIIPs) for each group of economies as a percent of global GDP. "EM" is group of 11 emerging markets and "AE" is group of 17 advanced economies, including six members of the euro area (and not netting out exposures between Euro area members). Creditors (debtors) are countries with positive (negative) NIIPs in the given year. The "Net Positions" are aggregated across all EMs or AEs (including creditors and debtors) in the sample. See Appendix Table 1 for countries in the sample. Underlying data on NIIP positions from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

Figure 3
Aggregate Divergence in Net International Investment Positions



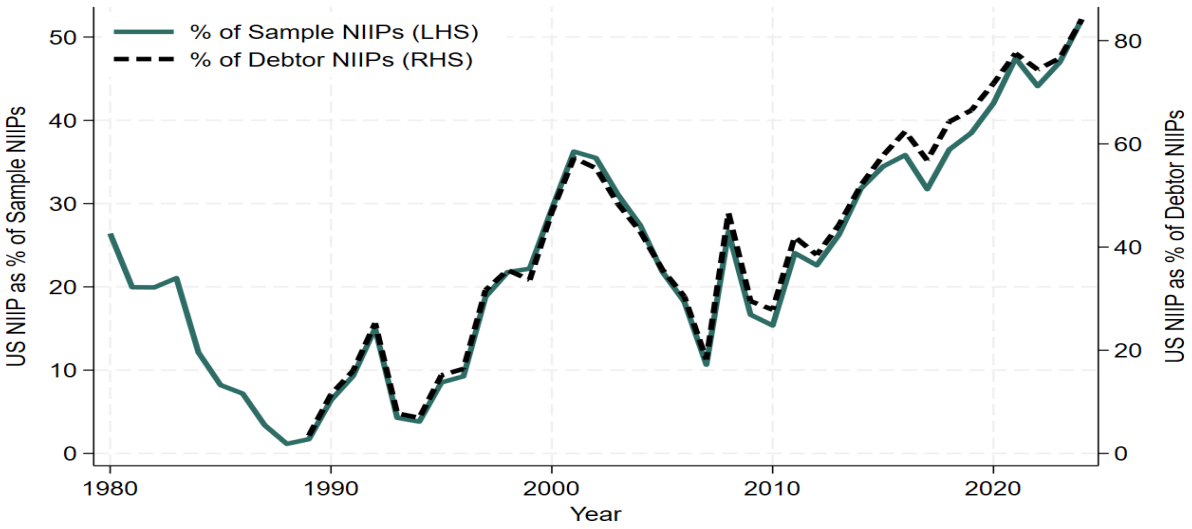
Notes: Figure shows the sum of the aggregate creditor and debtor NIIPs (in absolute value) for each group of economies as a percentage of global GDP. Creditors (debtors) are countries with positive (negative) NIIPs in the given year. See Appendix Table 1 for list of 17 advanced economies and 11 emerging markets in the sample. Underlying data on NIIP positions from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

Figure 4a
Evolution of NIIPs in Individual Economies



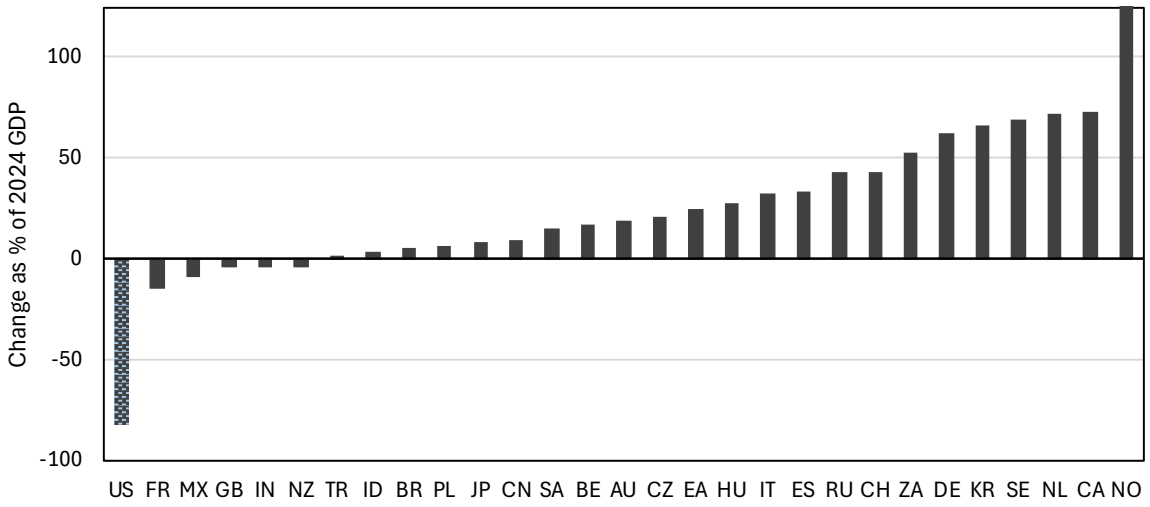
Notes: Graph shows the evolution of NIIPs relative to global GDP from 1980 through 2024 for the baseline sample of 28 countries. See Appendix Table 1 for list of countries and codes. Countries not listed individually in the legend above are included in one of the following groups: EA =six members of Euro area; OAE = other advanced economies; and OEM = Other emerging markets. For these aggregated groups, exposures between the individual countries are aggregated and not netted out. Underlying data on NIIP positions from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

Figure 4b
Role of US in Global Imbalances over Time



Notes: Graph shows US share of aggregate NIIPs (the sum of the absolute value of positive and negative positions) or of debtor NIIPs (just negative positions) for sample of 28 countries listed in Appendix Table 1. The US share of debtor NIIPs is not reported before 1989 as the US was a net creditor.

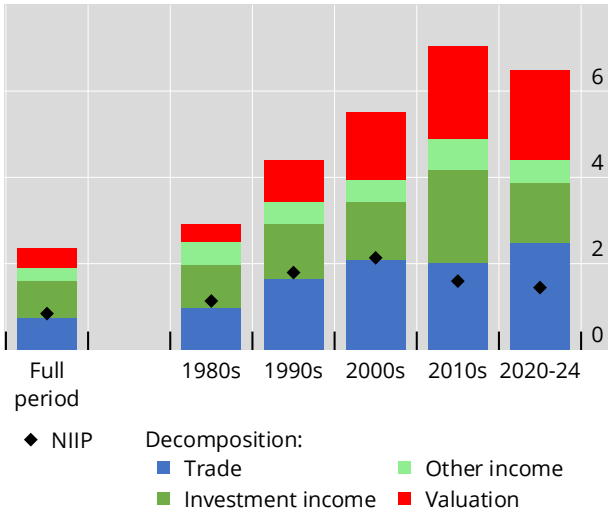
Figure 5
Change in NIIP over 2010-24



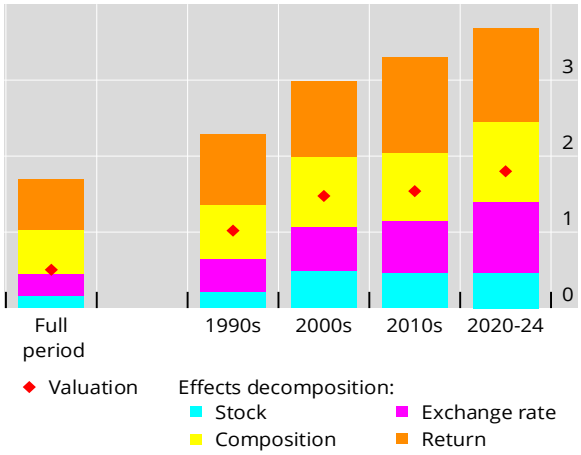
Notes: Graph shows the change in each economy's NIIP over 2010-24 as a percent of 2024 domestic GDP. Appendix Table 1 lists countries and corresponding codes. The Euro area (EA) is also included as one entity. The bar for Norway is parsed, as its value of 277% distorts the scale.

Figure 6
Decomposing Changes in the NIIP, Valuation Effects and Investment Income Flows

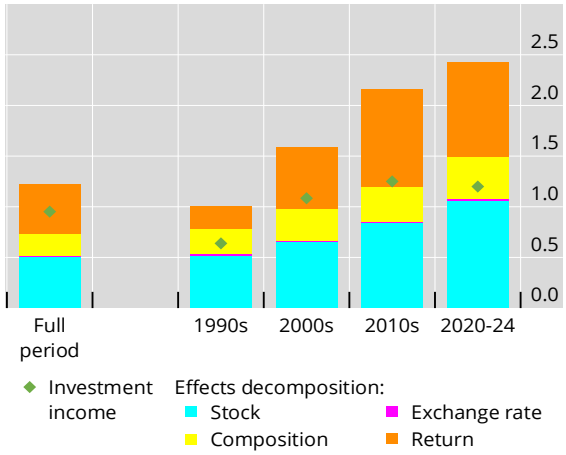
A. Changes in the NIIP: Median absolute value contribution per year



B. Valuation Effects: Median absolute value contribution per year

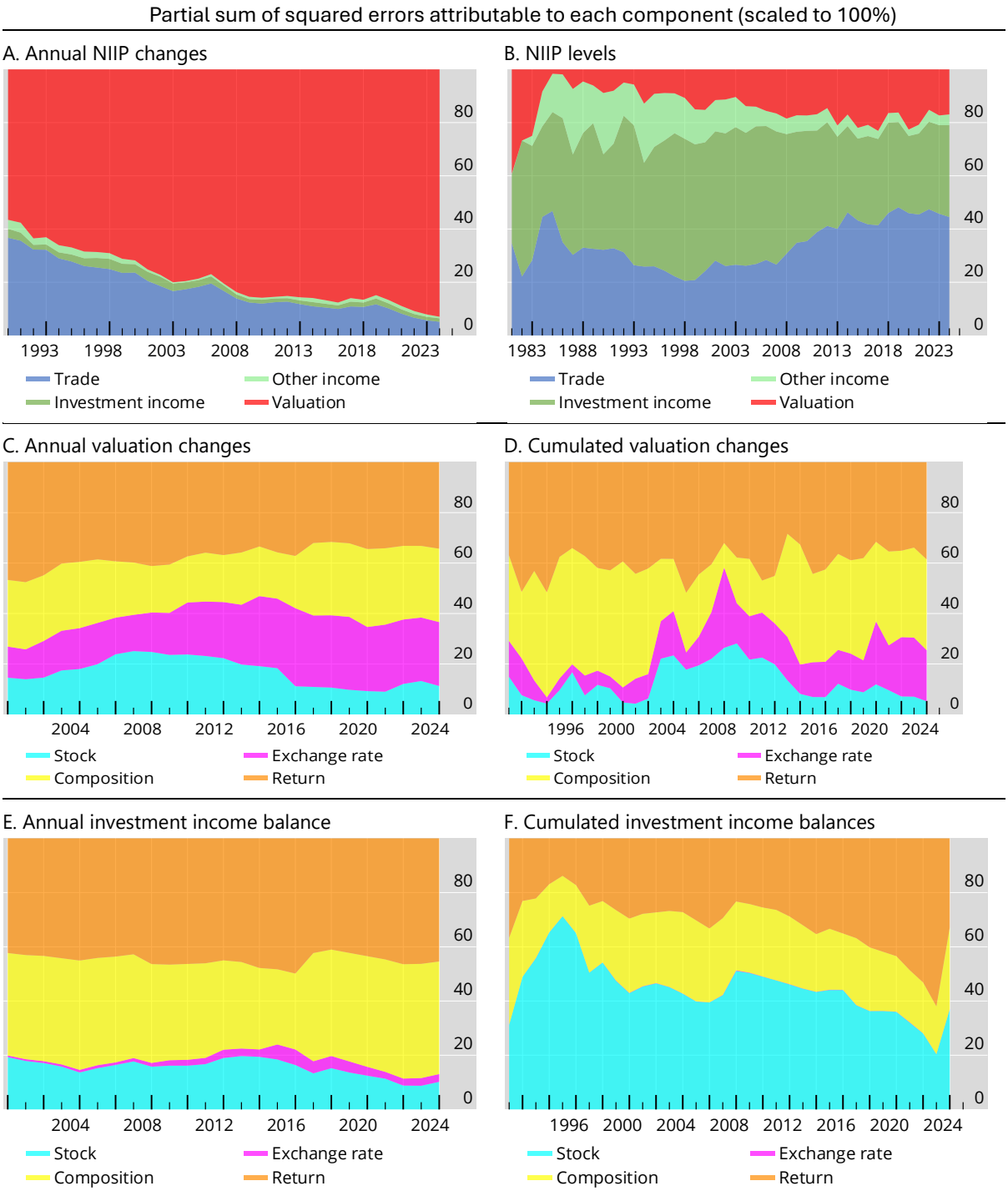


C. Investment Income Flows: Median absolute value contribution per year



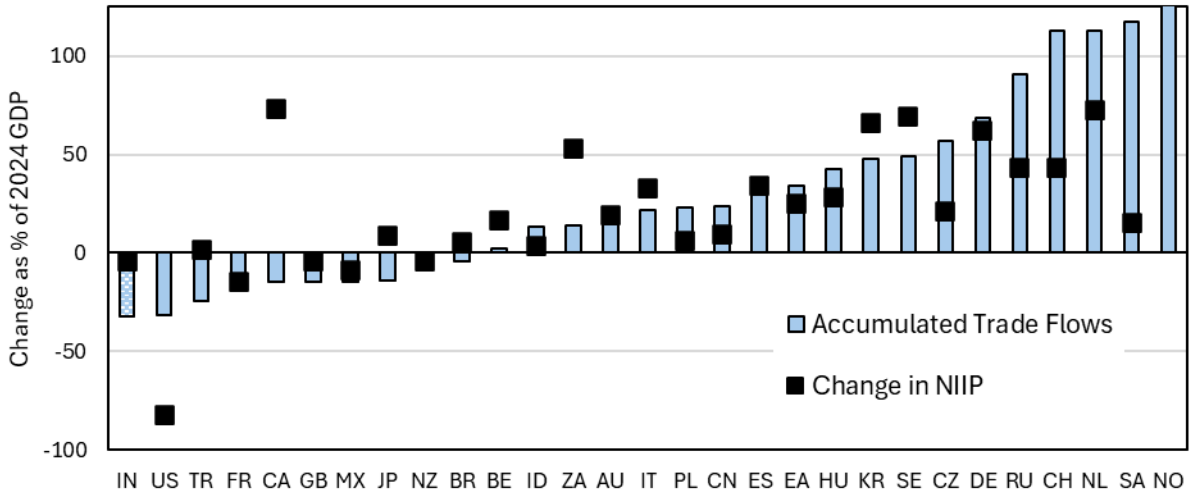
Notes: Each panel shows the sample median changes or flows (marked by a diamond) and the absolute value contribution per year of each of the underlying components (in the colored bars) over the given window. Panel A decomposes changes in the overall NIIP, while panels B and C decompose changes in the two financial components of the NIIP: valuation effects and investment income flows, respectively. Each panel is based on the sample of 28 countries listed in Appendix Table 1, although sample may differ slightly in panels B and C depending on data availability. See Appendix B for details on framework for decompositions.

Figure 7: Short-Run Changes versus Levels:
Sources of Variation in NIIP, Valuation Changes and Investment Income



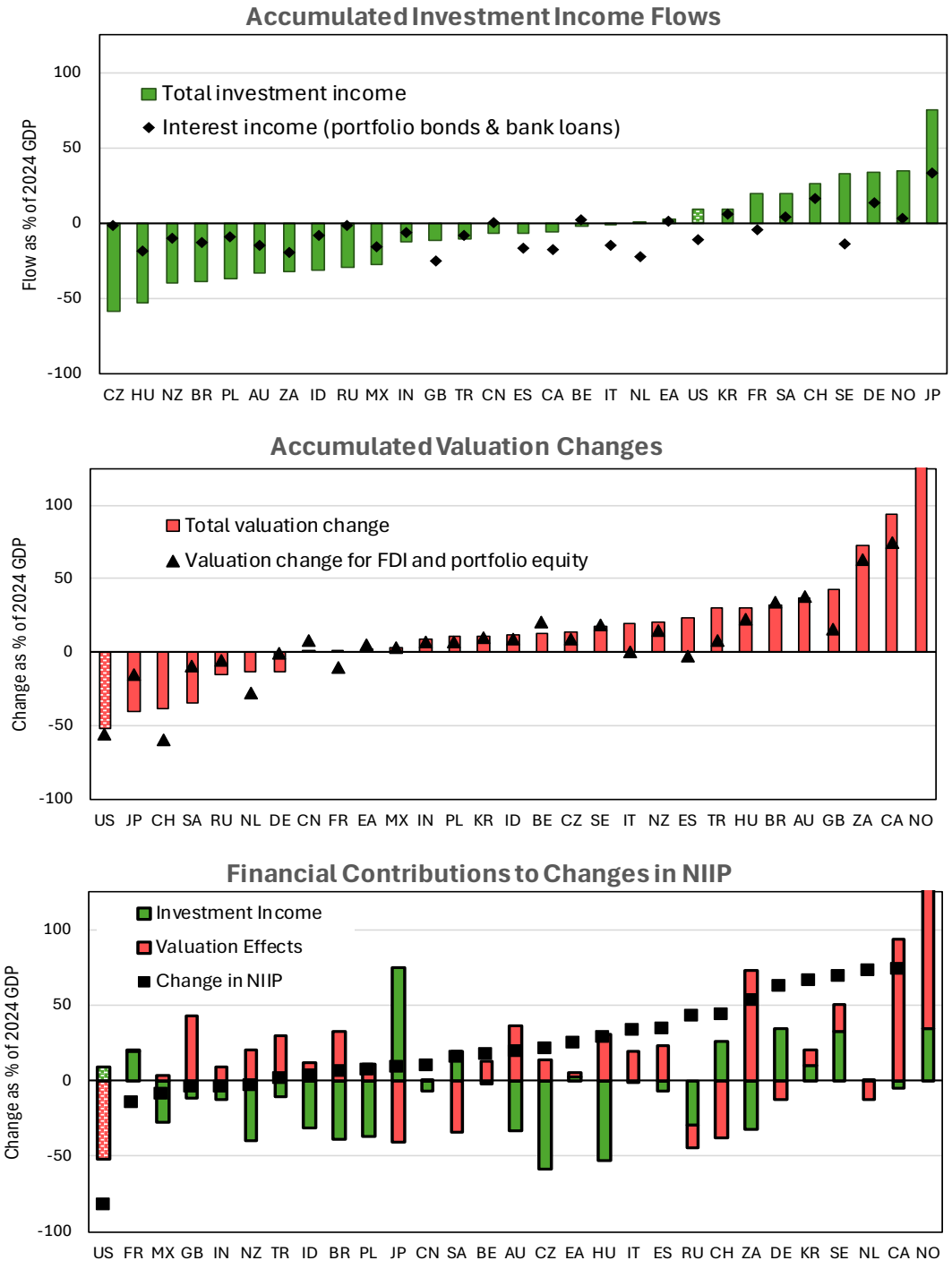
Notes: Graphs based on variance decomposition of annual changes in levels of the NIIP (top row) and its two financial components—valuation changes and investment income flows (middle and bottom row) based on the framework in Appendix B. The variance analysis for annual changes (left column) is based on rolling regressions over 10-year windows on demeaned variables (across all countries and years), with each point corresponding to the trailing partial sum of squares (i.e. for the last year of each 10-year window). The variance analysis for the levels (right column) uses the actual value in each year or cumulated changes/flows since the first year of the sample, with each point corresponding to annual cross-sectional country regressions of the cumulated changes/flows on the components.

Figure 8
Accumulated Trade Flows and Change in NIIP over 2010-24



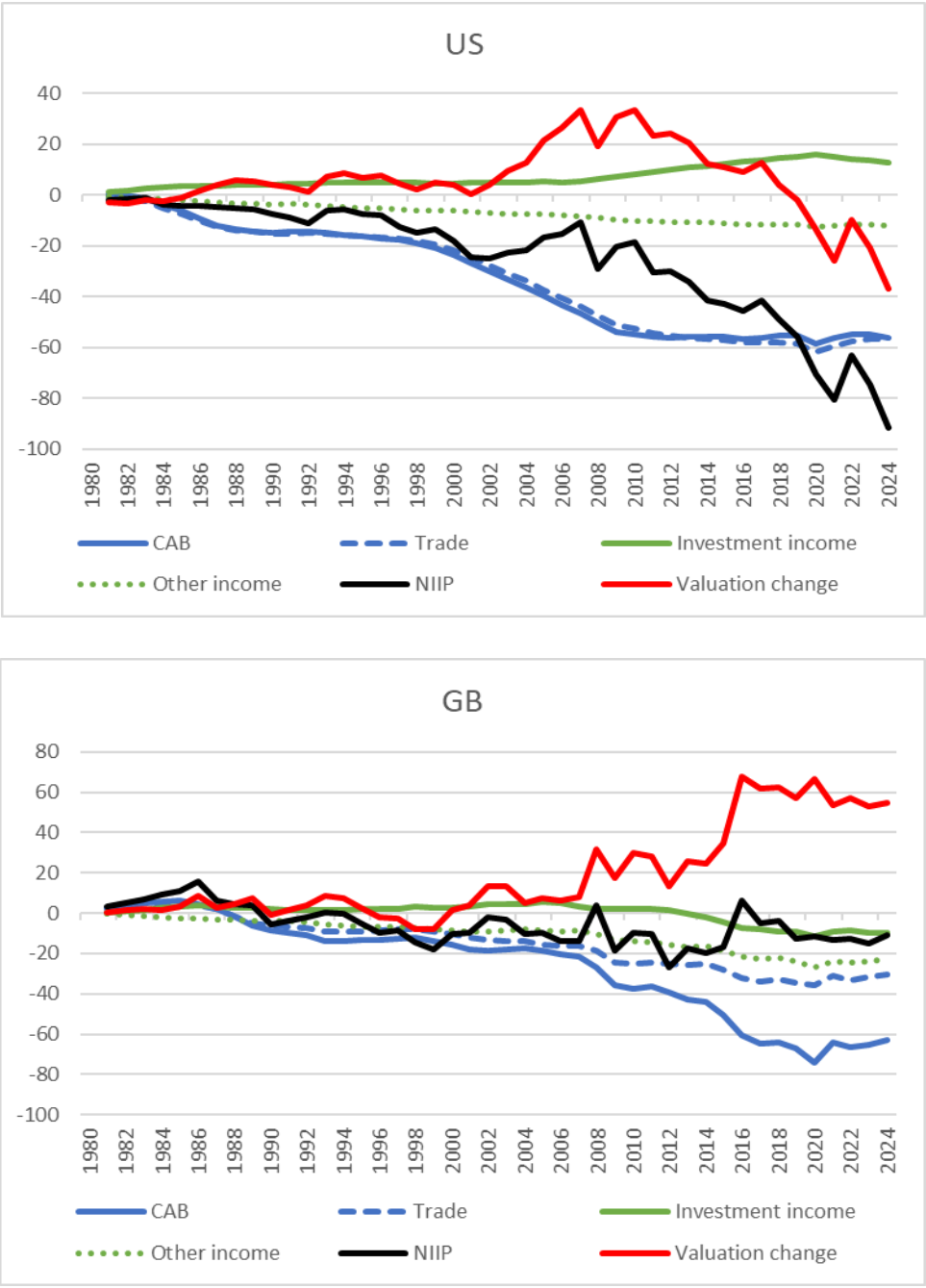
Notes: Graph shows accumulated trade flows and changes in NIIPs over 2010-24, with both measures scaled by 2024 GDP. Countries and codes are listed in Appendix Table 1, with the Euro area added as one entity. The information for Norway is parsed as its values (277% for the NIIP change and 151% for accumulated trade flows) would distort the scale.

Figure 9: Contribution of Financial Components to Changes in NIIP: 2010-24



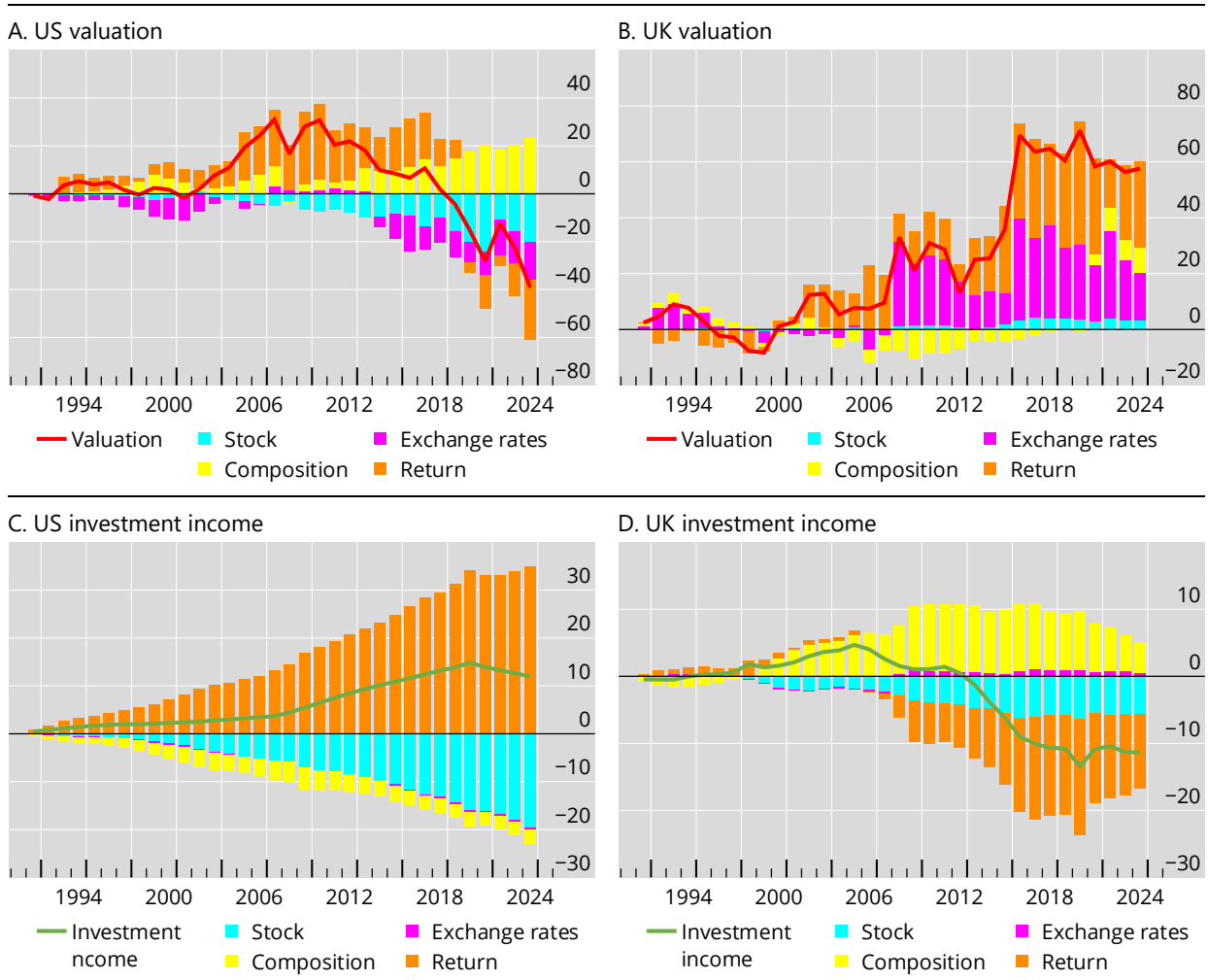
Notes: Panels show the cumulated financial effects on the NIIP over 2010-24 as a percent of 2024 domestic GDP. Panel C includes the accumulated investment income flows and valuation changes from the top two panels, placing them in the context of total changes in the NIIP over the same period. The values for Norway in the bottom two panels are truncated; Norway's change in the NIIP is 277%, including an accumulated valuation change of 143% and change for FDI and portfolio equity of 134%.

Figure 10
Contrasting the Evolution of the NIIP in Two Net Debtors:
United States and United Kingdom



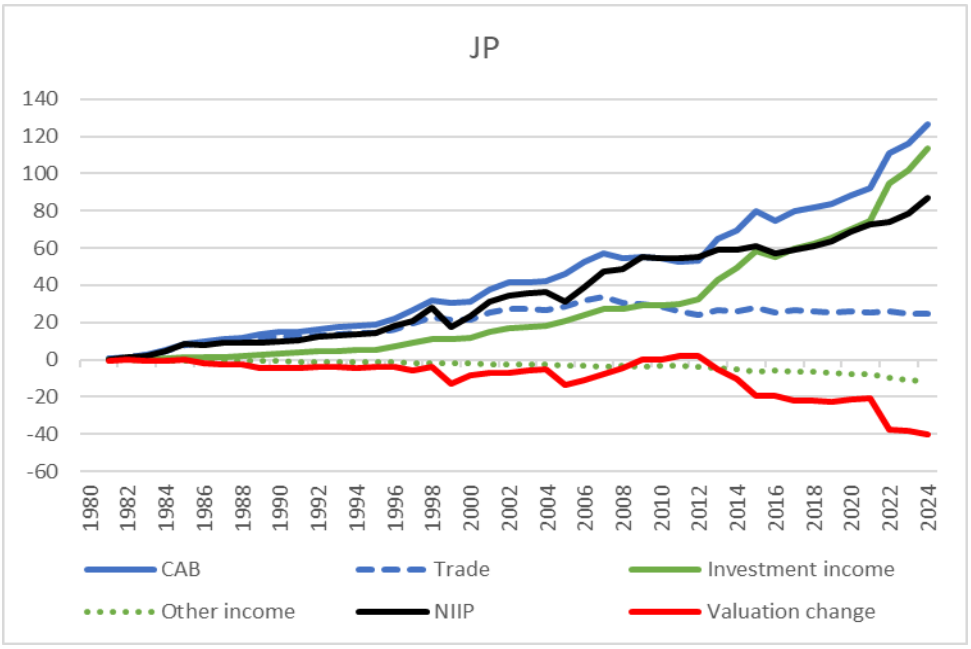
Notes: Graphs show evolution of NIIPs and underlying components. "CAB" is the current account balance, which includes trade balances (for goods and services) as well as investment income flows (primarily interest and dividends) and other income (including employee compensation, personal transfers, international assistance and some inter-government payments). Underlying data from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

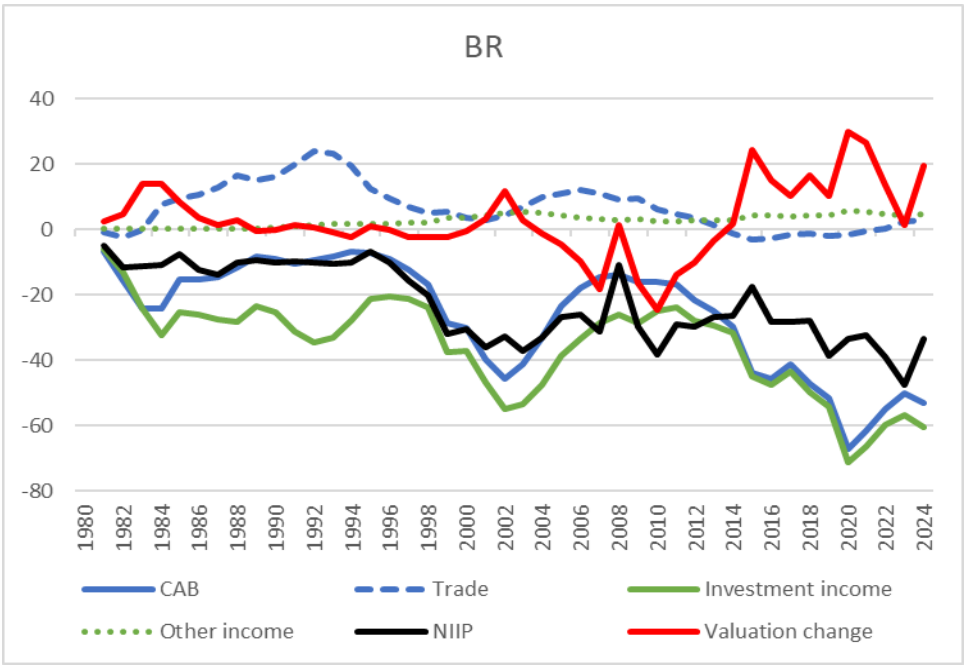
Figure 11
Decomposing Valuation Effects and Investment Income Flows in Two Net Debtors: United States and United Kingdom



Notes: Each panel shows accumulated valuation changes (red lines in top panels) or investment income flows (green lines in bottom panels) and the contribution per year of each of the underlying components (in the colored bars). Calculations are based on framework in Appendix B.

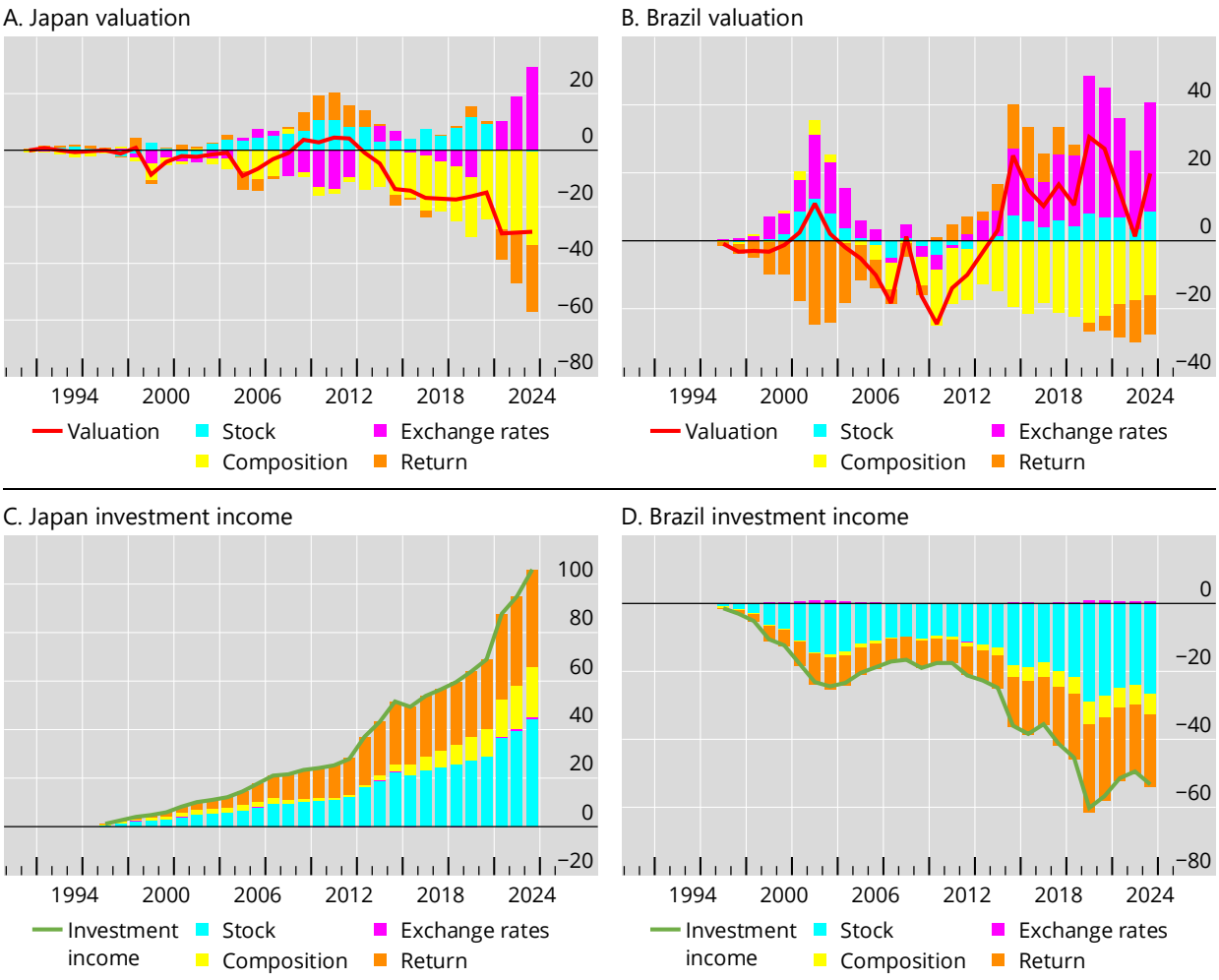
Figure 12
Contrasting the Evolution of the NIIP in Countries with Large Investment Income: Japan and Brazil





Notes: Graphs show evolution of NIIPs and underlying components. "CAB" is the current account balance, which includes trade balances (for goods and services) as well as investment income flows (primarily interest and dividends) and other income (including employee compensation, personal transfers, international assistance and some inter-government payments). Underlying data from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

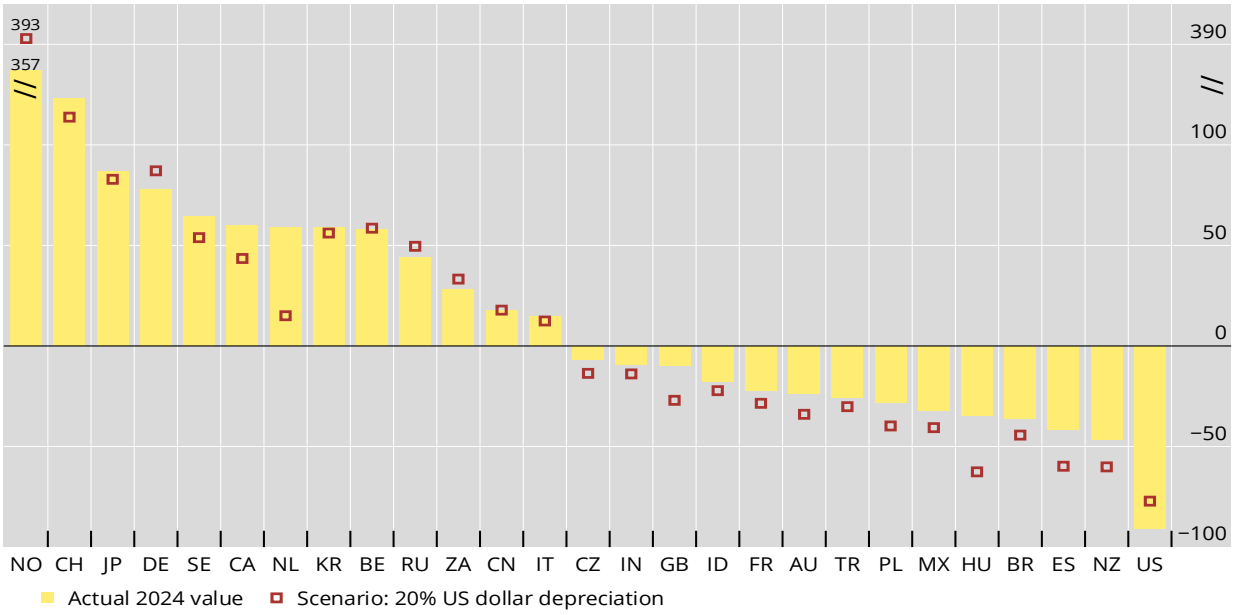
Figure 13
Decomposing Valuation Effects and Investment Income Flows: Japan and Brazil



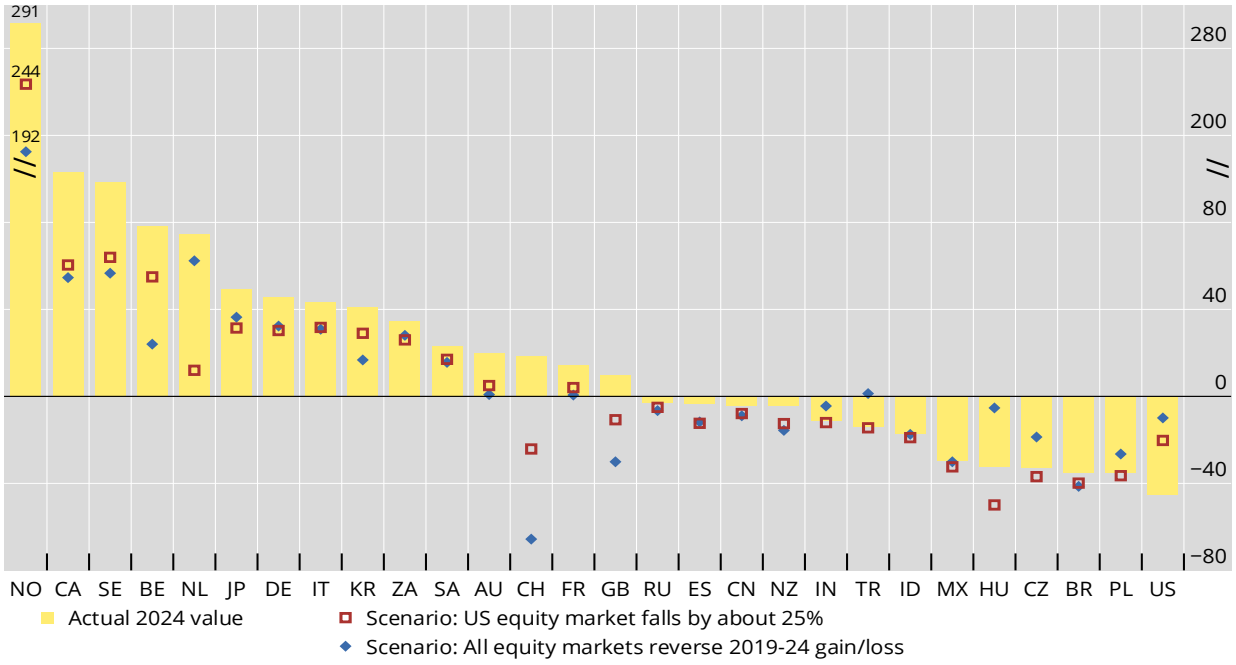
Notes: Each panel shows accumulated valuation changes (red lines in top panels) or investment income flows (green lines in bottom panels) and the contribution per year of each of the underlying components (in the colored bars). Calculations are based on framework in Appendix B.

Figure 14
Impact of 2024 Scenarios on Individual Countries:
US Dollar Depreciation and Equity Adjustments

a. Impact of US Dollar Depreciation on NIIP (as a % of 2024 GDP)

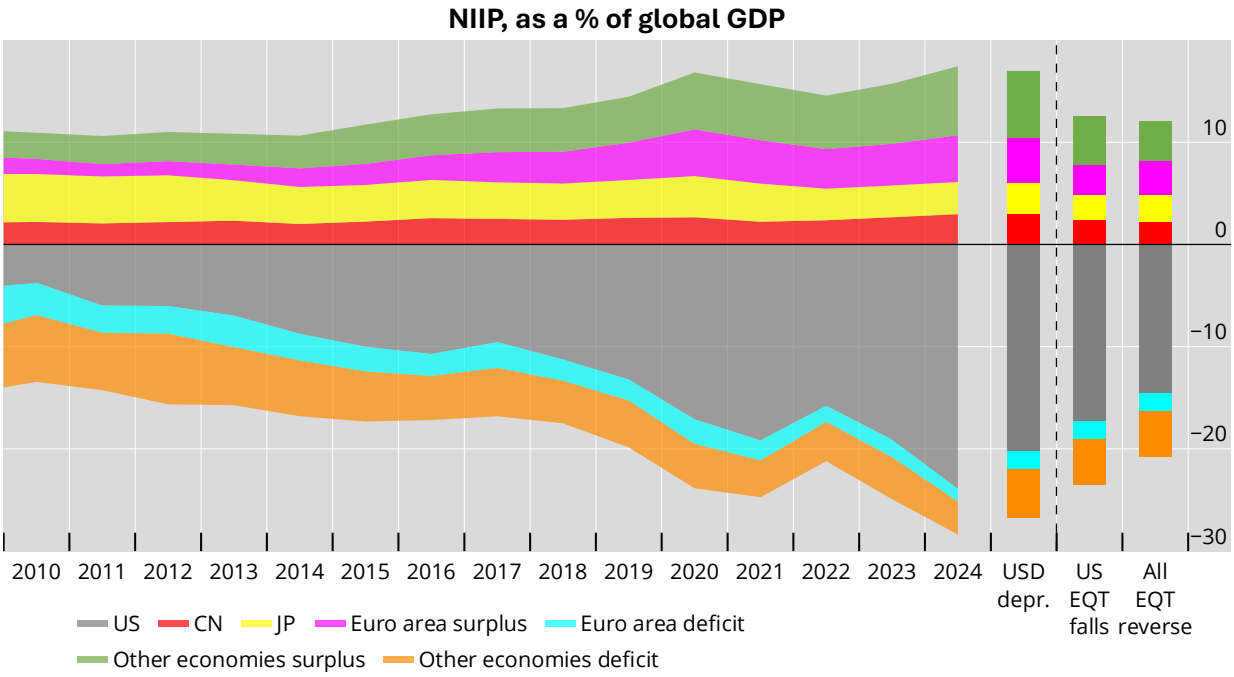


b. Impact of equity market adjustment on portfolio equity and FDI (as % of 2024 GDP)



Notes: Top panel shows the NIIP relative to domestic GDP in 2024, with the reported value in yellow and the hypothetical value in a scenario after a 20% US dollar depreciation (against all other currencies). The bottom panel shows the value of equity and FDI holdings in the NIIP relative to domestic GDP in 2024, with the reported value in yellow and the hypothetical value after either (a) a fall in the US equity market which reverses all of its outperformance over 2019-24 (24.8% decline) and no impact on other equity markets; or (b) an adjustment in all equity markets that reverses their gains/losses over 2019-2024. Currency composition data is not available to estimate the impact of the US dollar depreciation scenario for Saudi Arabia. Each scenario only models the impact through global imbalances, and not any effects on the domestic economy or through other asset prices or spillovers.

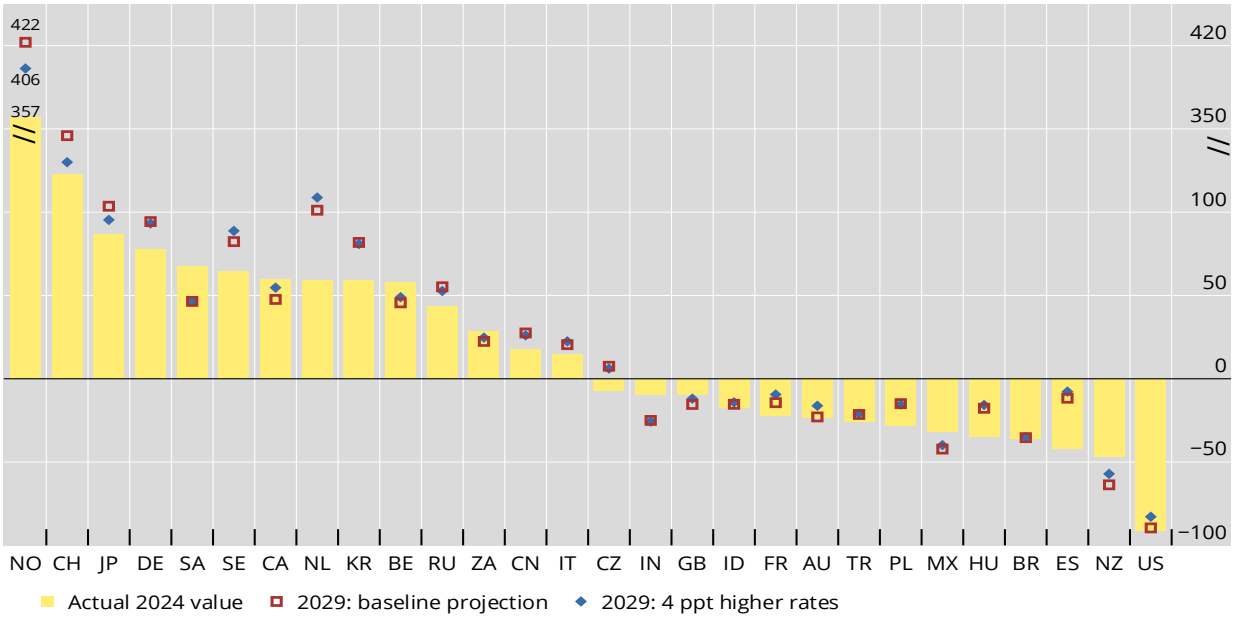
Figure 15
Impact of 2024 Scenarios on Global Imbalances:
US Dollar Depreciation and Equity Adjustment



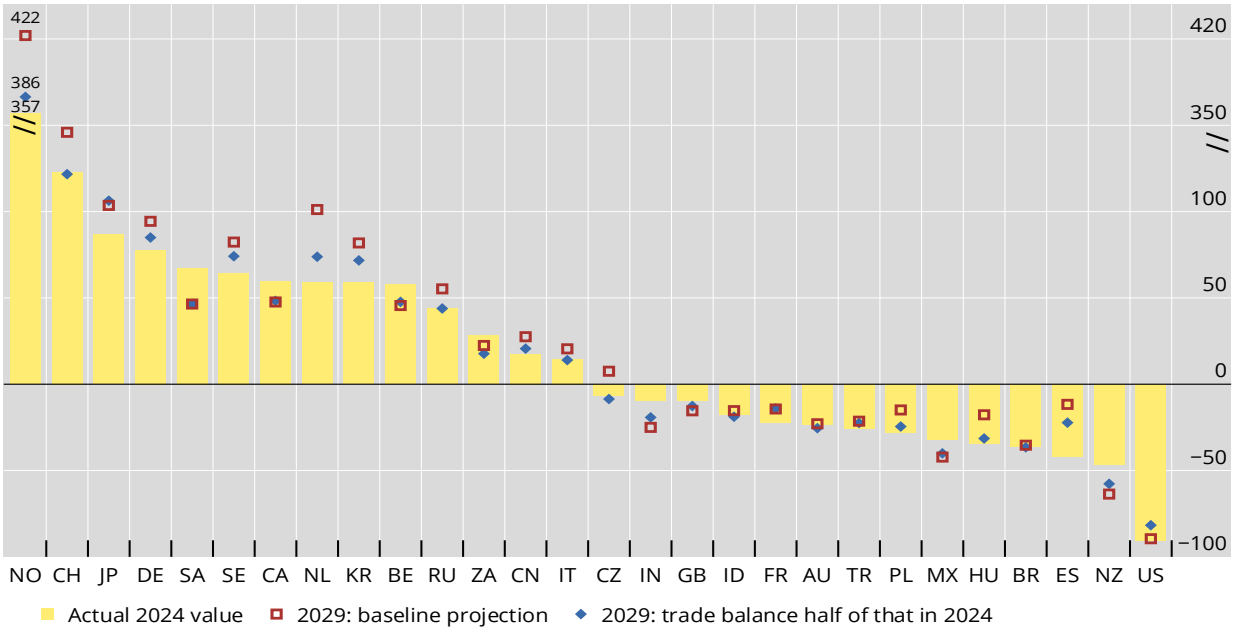
Notes: Graph shows the aggregate NIIPs for different country groups relative to global GDP in each year from 2010-24. The separate bars on the right show the hypothetical aggregate NIIPs relative to 2024 global GDP under three scenarios: (a) a 20% dollar depreciation; (b) repricing in US equities to unwind outperformance since 2019; (c) an adjustment in all equity markets to unwind any gains/losses since 2019. See notes to Figure 14 for more details on these three scenarios. The country groupings are: Euro area = BE, DE, ES, FR, IT, NL and Other economies = GB, CH, NO, AU, CA, CZ, KR, NZ, SE, ID, IN, BR, MX, HU, PL, TR, RU, SA and ZA. See Appendix Table 1 for countries included in the sample and codes. When data is not available to calculate the impact of a scenario on a specific country (i.e., for Saudi Arabia in the US dollar deprecation scenario), we still include it in the graph above in order to maintain a constant sample, but assume no change in the country's NIIP.

Figure 16: Impact of 2029 Scenarios on Individual Countries: Higher Interest Rates and Reduced Trade Imbalances

a. Interest Rates Scenarios: NIIP as a % of domestic GDP



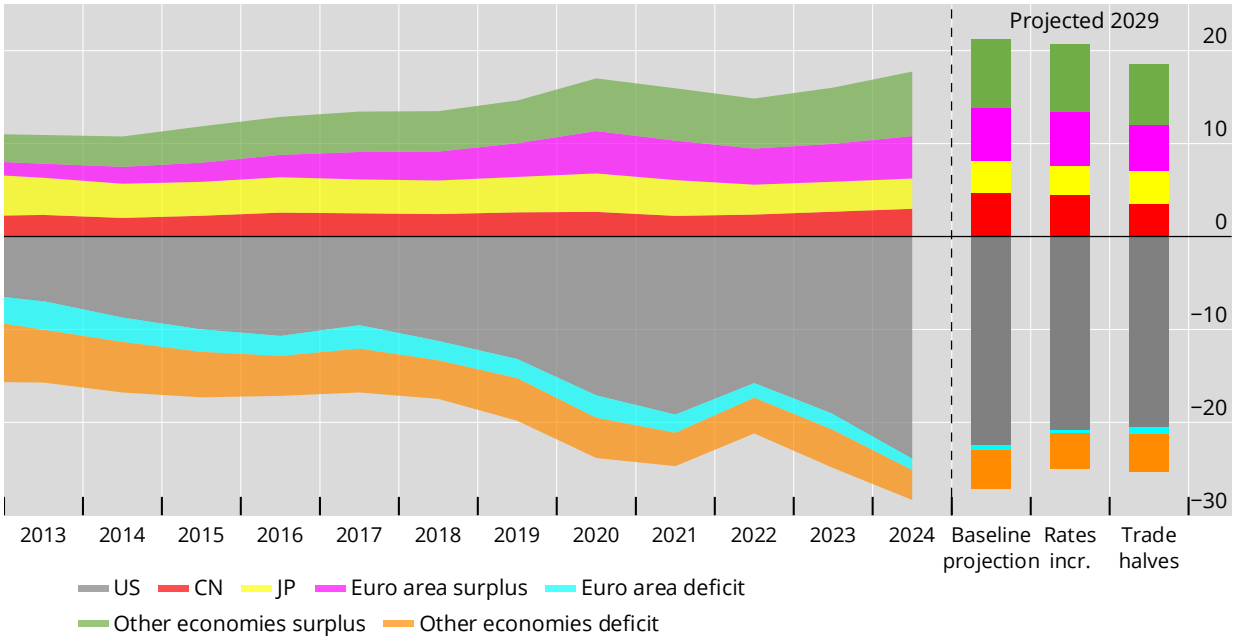
b. Trade Scenarios: NIIP as a % of global GDP



Notes: In each panel, the yellow bar shows the NIIP relative to domestic GDP in 2024 and red square shows the estimated value in 2029 according to the baseline projection, which assumes: (a) a continuation of 2024 trade imbalances; (b) no valuation changes; (c) investment income flows based on 2024 rates of return and adjusted for changes in the stock of assets and liabilities; (d) investment income flows are reallocated to the corresponding asset category and net trade receipts are divided across asset categories based on 2024 exposures. The top panel shows the hypothetical NIIP in 2029 if interest rates increase by 400bps in 2025 on all external debt positions (for portfolio investment debt, "other investment" and reserve holdings) and remain at this elevated level through 2029. The bottom panel shows the hypothetical NIIP in 2029 if trade imbalances fell by half in 2025 (relative to 2024 levels) and remain at this level through 2029. Data is not available to estimate the interest rate scenario for Saudi Arabia, China and Norway. Each scenario only models the impact through global imbalances, and not any effects on the domestic economy or through other asset prices or spillovers.

Figure 17
Impact of 2029 Scenarios on Global Imbalances:
Higher Interest Rates and Reduced Trade Imbalances

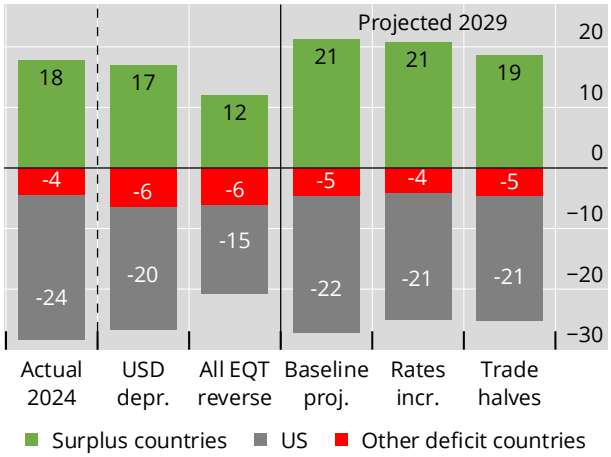
a. NIIP as a % of global GDP



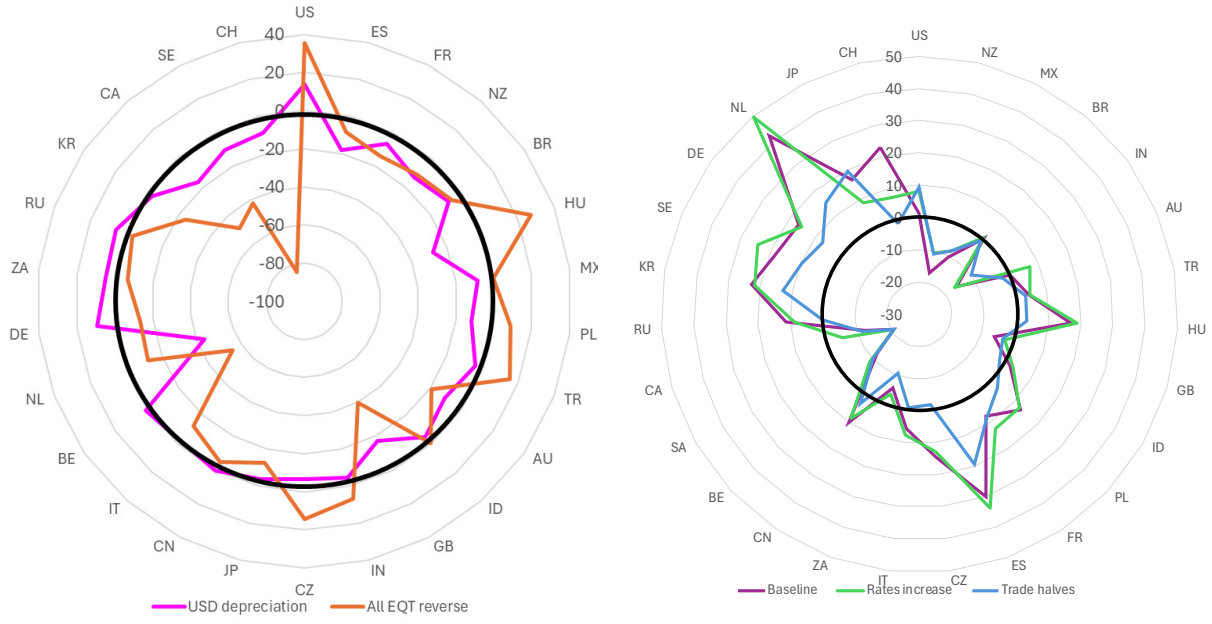
Notes: Graph shows the aggregate NIIPs for different country groups relative to global GDP in each year from 2010-24. The separate bars on the right show the hypothetical aggregate NIIPs relative to 2029 global GDP under three scenarios: (a) a baseline scenario that assumes no changes from 2024 relationships; (b) an 400bps increase in interest rates on all external debt positions that persists through 2029; (c) a halving of 2024 trade imbalances that persists through 2029. See notes to Figure 16 for more details on the assumptions for each of these 2029 scenarios. See notes to Figure 15 for country groupings.

Figure 18
Comparing the Adjustment Scenarios

A. Change in Global Imbalances



B. Change in NIIPs Across Economies (relative to 2024) – excluding Norway



Notes: Figures combine the results of the hypothetical scenarios discussed in Figures 14-17, with details on these scenarios in the corresponding notes. Panel A shows the aggregated NIIP for creditor and debtor countries relative to global GDP in 2024 (left) or 2029 (right), and panel B shows the corresponding changes in NIIPs for individual countries. Norway is not included in panel B as it distorts the scale. The "All EQT reverse" scenario is the scenario in Figures 14 and 15 for an adjustment in all equity markets that reverses their gains/losses over 2019-2024. See Appendix Table 1 for list of countries included in sample and corresponding codes.

Appendix Table 1
Baseline Sample and Country Codes

Group/Country	Code	Group/Country	Code
Advanced Economies	***AE***	***Emerging Markets***	***EM***
Australia	AU	Brazil	BR
Canada	CA	China	CN
Czech Republic	CZ	Hungary	HU
Japan	JP	India	IN
Korea	KR	Indonesia	ID
New Zealand	NZ	Mexico	MX
Norway	NO	Poland	PL
Sweden	SE	Russia	RU
Switzerland	CH	Saudi Arabia	SA
United Kingdom	GB	South Africa	ZA
United States	US	Türkiye	TR
Euro Area	***EA***		
Belgium	BE		
France	FR		
Germany	DE		
Italy	IT		
Netherlands	NL		
Spain	ES		

Notes: Table lists the 28 countries in the baseline sample and corresponding codes used in the graphs and tables. The six members of the euro area are included individually for most of the analysis (in the group of advanced economies), but results for the Euro area as one entity are also reported in some results for comparison.

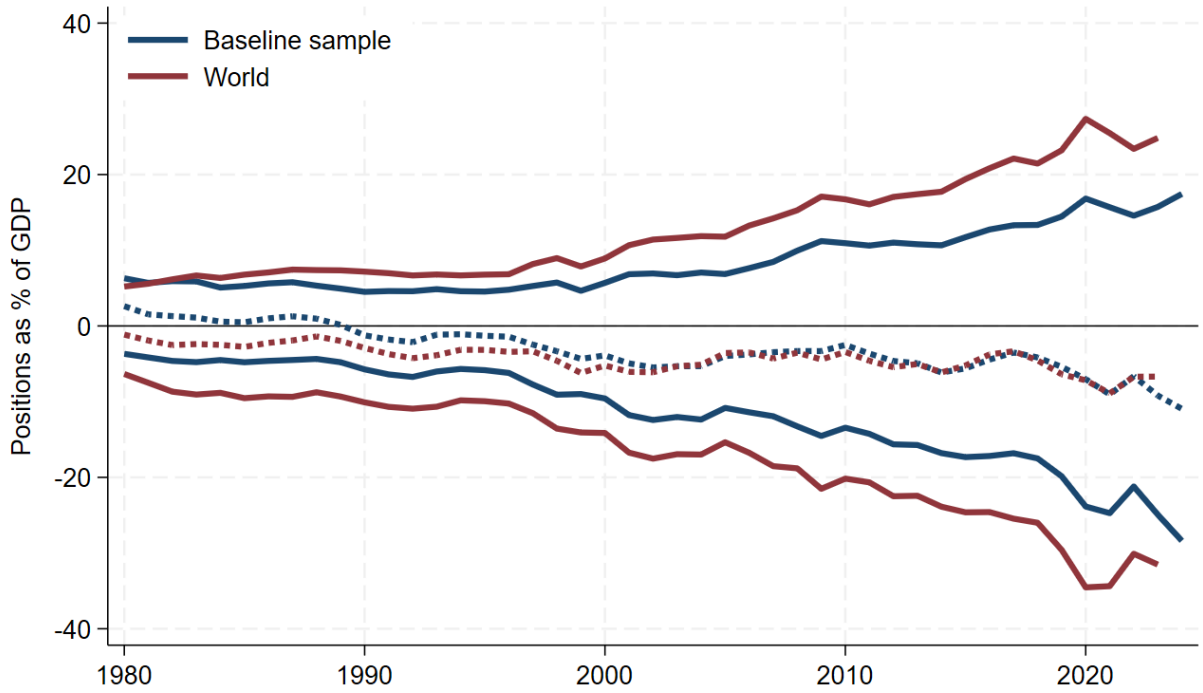
Appendix Table 2
Decomposing Changes in the NIIP over 1980-2024:
Annualized Contributions of Trade, Income Flows and Valuation Effects by Country

Country	NIIP	Trade	Investment income	Other income	Valuation effects	Other
Australia	-0.48	0.13	-1.29	-0.11	0.77	0.01
Belgium	1.30	0.68	0.30	-0.24	0.64	-0.06
Canada	1.45	0.14	-0.68	-0.15	2.15	-0.01
Czech Republic	-0.22	1.86	-2.51	0.01	0.00	0.42
France	-0.57	-0.14	0.48	-0.44	-0.35	-0.13
Germany	1.75	2.38	0.90	-0.71	-0.37	-0.44
Italy	0.30	0.76	-0.32	-0.34	0.25	-0.04
Japan	1.97	0.57	2.58	-0.27	-0.91	0.01
Korea	1.37	1.35	0.11	-0.11	-0.01	0.03
Netherlands	1.28	3.88	0.14	-1.03	-1.52	-0.18
New Zealand	-0.99	-0.01	-1.81	-0.02	0.32	0.54
Norway	8.19	6.01	1.02	-1.01	3.20	-1.03
Spain	-0.93	0.02	-0.66	-0.13	-0.45	0.30
Sweden	1.51	2.43	0.61	-0.72	-0.01	-0.80
Switzerland	2.60	3.49	1.70	-2.01	-1.20	0.62
United Kingdom	-0.25	-0.69	-0.22	-0.51	1.24	-0.06
United States	-2.09	-1.30	0.29	-0.27	-0.84	0.03
AE median of absolute values:	***1.30***	***0.76***	***0.66***	***0.27***	***0.64***	***0.13***
Brazil	-0.76	0.06	-1.38	0.10	0.45	0.01
China	0.40	0.73	-0.17	0.07	-0.03	-0.20
Hungary	-0.81	0.80	-2.40	0.55	0.01	0.24
India	-0.21	-0.98	-0.35	0.89	0.22	0.01
Indonesia	-0.38	0.60	-1.04	0.17	-0.05	-0.06
Mexico	-0.66	-0.55	-1.06	1.04	0.11	-0.21
Poland	-0.57	0.22	-1.35	0.32	0.03	0.21
Russia	1.37	4.19	-1.21	-0.36	-0.92	-0.33
Saudi Arabia	1.35	4.10	0.82	-2.15	-0.68	-0.74
South Africa	0.74	0.73	-1.29	-0.47	1.77	0.00
Türkiye	-0.57	-0.85	-0.43	0.17	0.55	-0.01
EM median of absolute values:	***0.66***	***0.73***	***1.06***	***0.36***	***0.22***	***0.20***

Notes: Table reports annualized changes in the NIIP and the corresponding contributions of its components over the full sample period from 1980-2024, all expressed as a percent of 2024 domestic GDP. "Other" is the sum of the capital account and errors and omissions. AE and EM medians are calculated based on the absolute values of the contributions for each country.

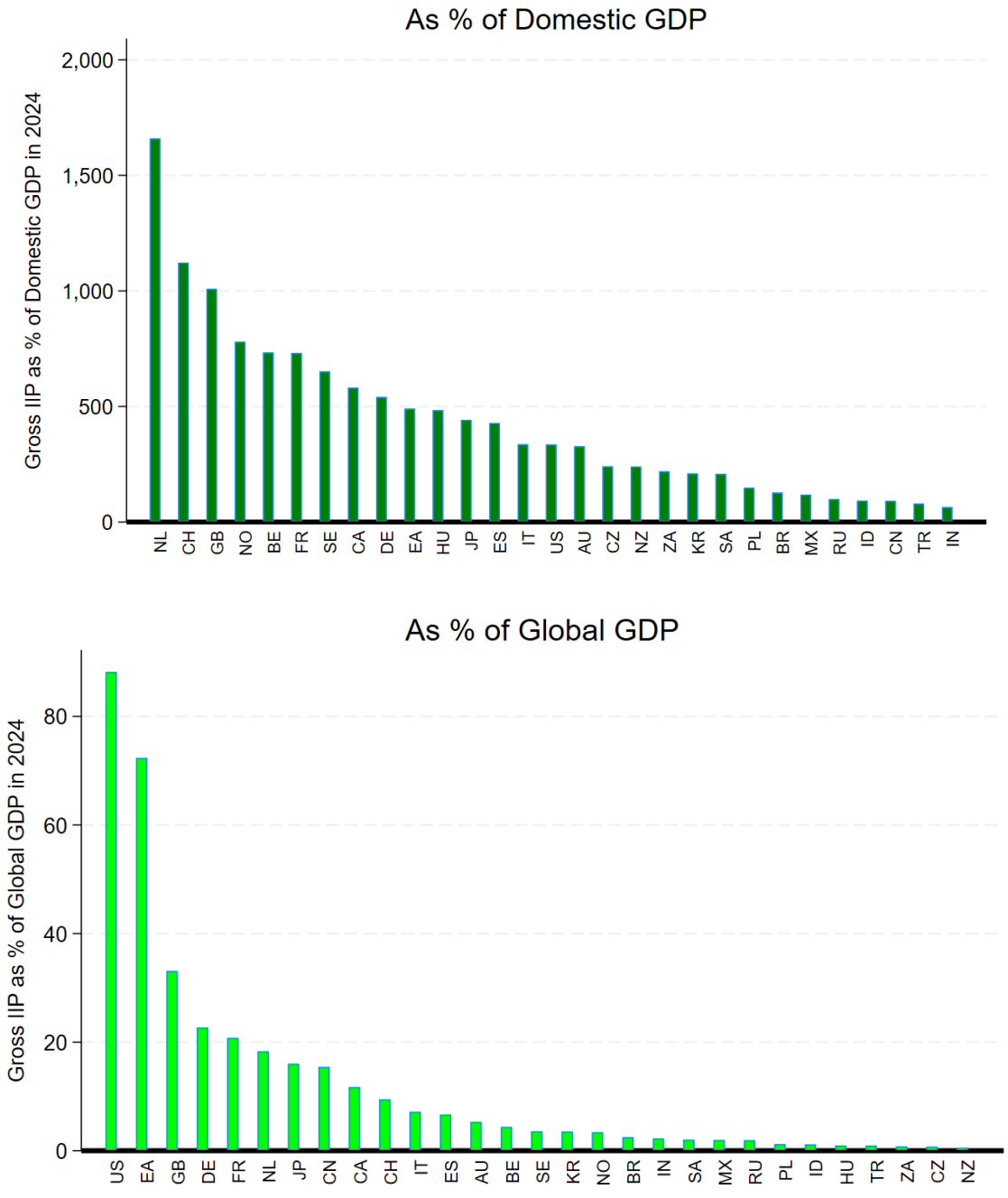
Appendix Figure 1

Aggregate NIIPs for Sample versus World
Creditor, Debtor and Net International Investment Positions



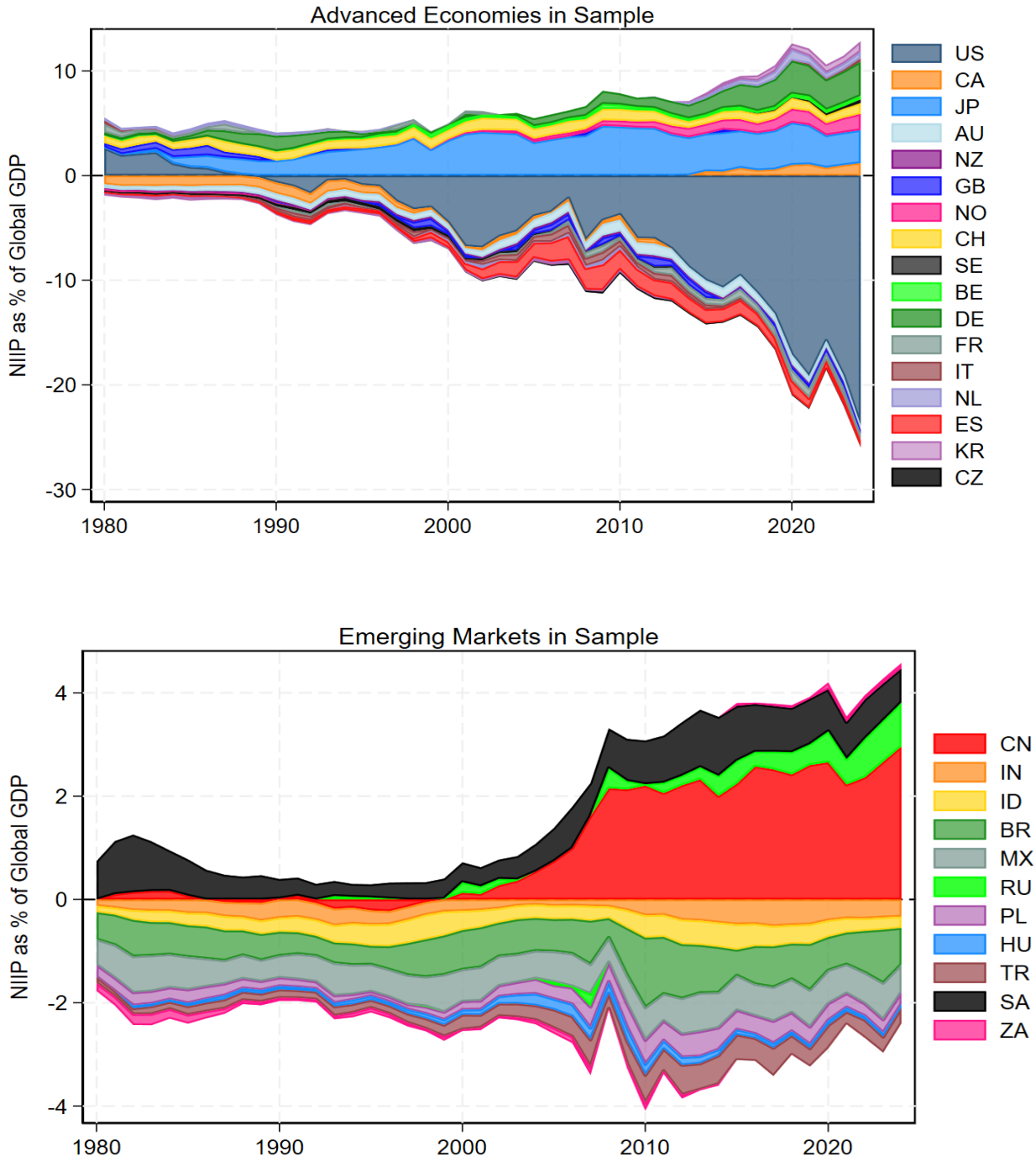
Notes: The "Baseline sample" is the 28 countries listed in Appendix Table 1, with data from the IMF's BOP and IIP database. The "World" is a larger sample of more than 200 countries, with data from the *External Wealth of Nations* dataset**.** The dotted lines show the aggregate of the NIIPs for each sample and the solid lines show the corresponding aggregates calculated only for countries with creditor or debtor NIIPs. Each measure is calculated as percent of global GDP, with data from the IMF's World Economic Outlook database.

Appendix Figure 2
Gross International Investment Positions in 2024



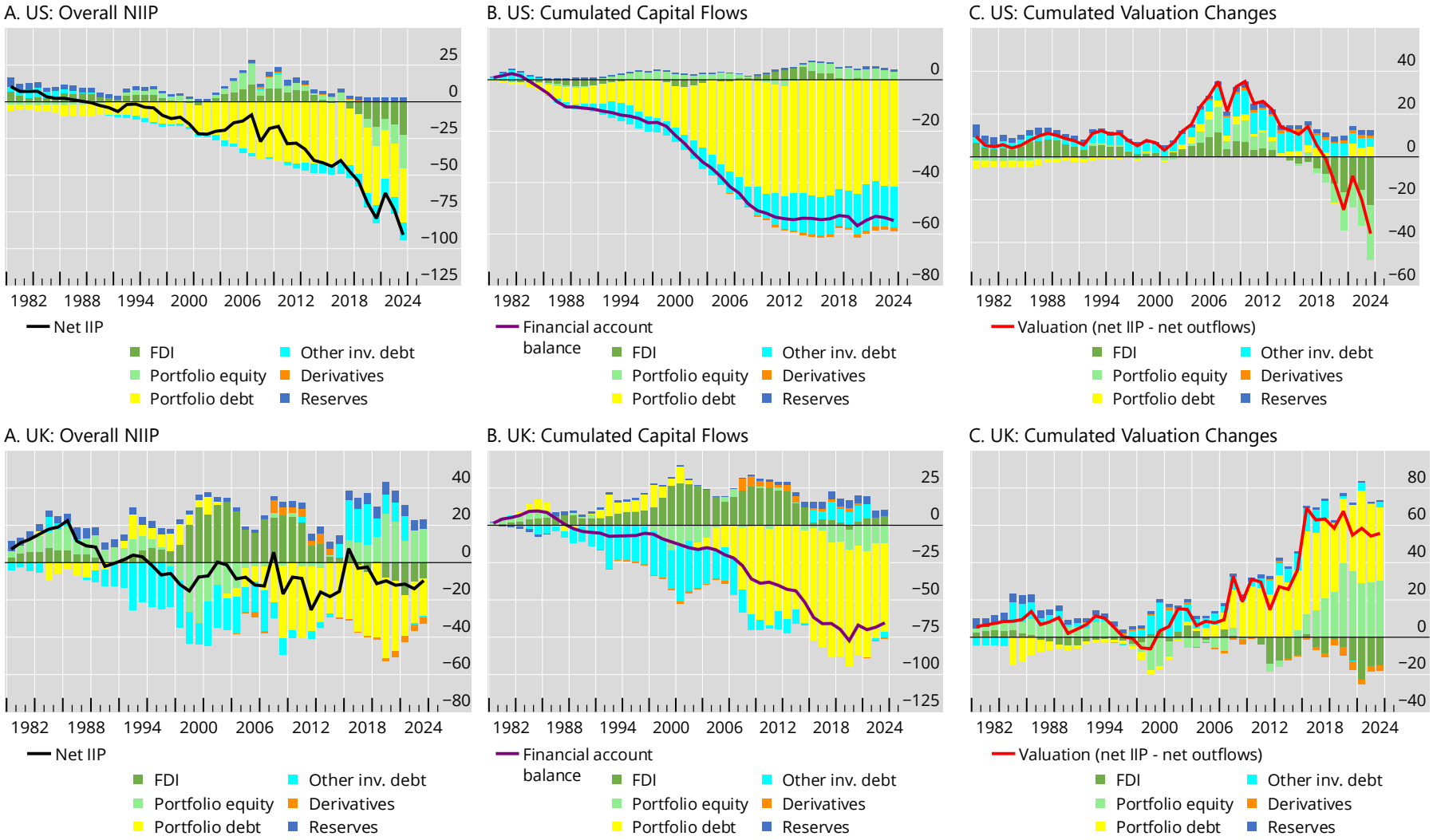
Notes: Graphs show gross international investment positions (IIPs), calculated as the sum of international assets and liabilities relative to domestic GDP (top panel) and global GDP (bottom panel) for each country in the baseline sample plus the Euro area. Sample and country codes are in Appendix Table 1. When the Euro area is reported as one entity, this nets out exposures between member countries. Data on NIIPs from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

Appendix Figure 3
NIIP Positions in Advanced Economies and Emerging Markets Countries Over Time



Notes: Panels show the evolution of individual NIIPs relative to global GDP for the advanced economies (top panel) and emerging markets (bottom panel) in the baseline sample relative to global GDP. See Appendix Table 1 for sample and country codes. Data on NIIP positions from the IMF's BOP and IIP database and for GDP from the IMF's World Economic Outlook database.

Appendix Figure 4
NIIP Composition by Asset Class in Two Net Debtors: US and UK



Notes: Graphs decompose the contribution of individual asset classes to the overall NIIP, cumulated financial account and cumulated valuation changes relative to GDP each year. Underlying data from the IMF's BOP and IIP database. Flows and valuation changes are assumed to be zero in 1980 and accumulated in each subsequent year.