WORKING PAPER | ISSUE 07 | 29 NOVEMBER 2017

Returns on foreign assets and liabilities: exorbitant privileges and stabilising adjustments

ZSOLT DARVAS AND PIA HÜTTL

ABSTRACT

Financial globalisation has led to large increases in foreign assets and liabilities in recent decades, increasing the scope for valuation changes that are potentially greater than trade or financial flows.

We confirm that the United States enjoys an 'exorbitant privilege' on flow income from foreign assets, which is primarily related to foreign direct investment (FDI). The geographical allocation of FDI assets explains only a small part of the US yield advantage. The key reason is that US, and also British and Japanese, investors were able to outperform the average yield earned in the countries of their FDI destinations, while most continental European investors earn the average. Further research should explore if large FDI investment in 'tax optimisation' countries, the improper consideration of intellectual property, or financial sophistication contributed to these high yields.

For several countries, valuation changes were larger than current account and financial transactions, highlighting the importance of such changes. In the European Union, the generally negative international investment positions of a number of central and southern European countries were greatly supported by EU transfers.

Valuation changes on net foreign assets do not look random and played an important role in the sustainability of international investment positions before and after the 2008 crisis. Countries with negative net international investment positions tend to have positive revaluation gains, while countries with large net foreign assets tend to suffer from revaluation losses. Large net foreign asset holders including China, Saudi Arabia, Switzerland, Japan and Germany, suffered significant losses in 2007-16, helping the sustainability of the negative positions of other countries. Risk sharing was also fostered by losses suffered by the US since 2007. There is no uniform tendency in relation to the asset classes from which these losses arose. Future research should aim to better understand the drivers of these valuation changes.

Zsolt Darvas (zsolt.darvas@bruegel.org) is Senior Fellow at Bruegel and at the Corvinus University of Budapest. **Pia Hüttl** (pia.huettl@bruegel.org) is an Affiliate Fellow at Bruegel and a Ph.D. student at Humboldt University Berlin. The authors thank Maria Demertzis, Stavros Zenios, Guntram Wolff and participants in the Project LINK 2017 meeting and in a Bruegel seminar for valuable comments and suggestions.

bruegel

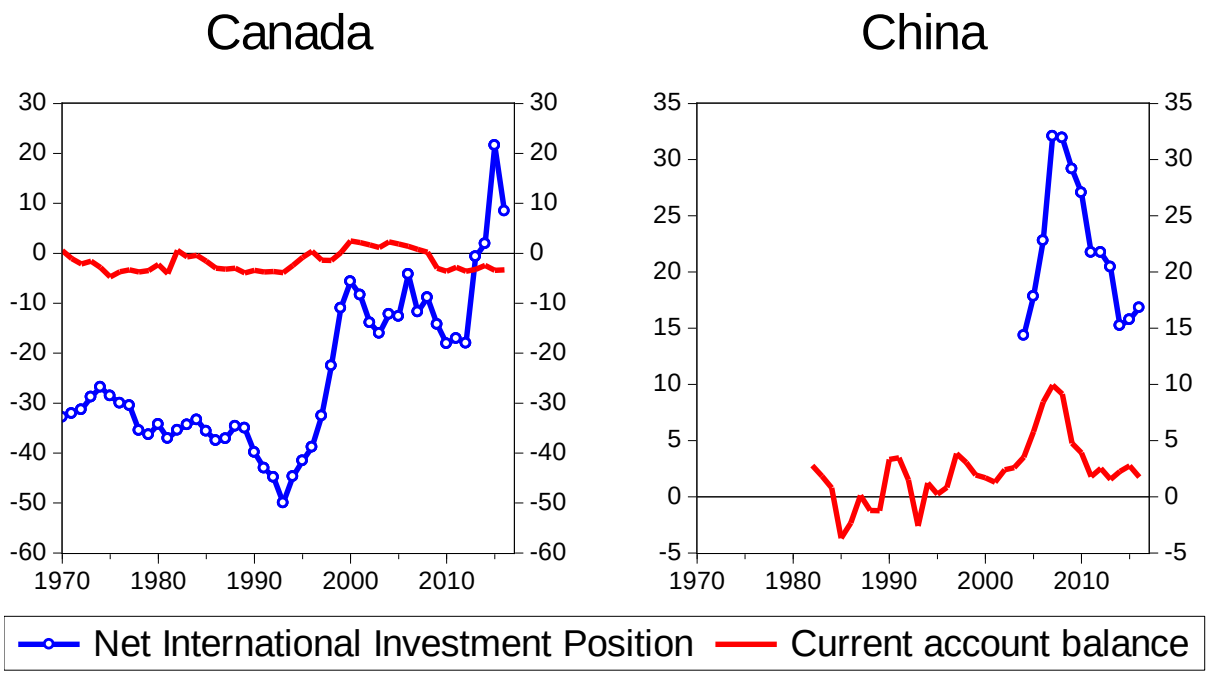
1. Introduction

Financial globalisation has led to large increases in foreign assets and liabilities in recent decades. High levels of gross foreign assets and liabilities could foster international risk diversification, depending on the instrument (eg debt or equity holdings) and currency composition (home or foreign currency). Foreign liabilities, and in particular equity, allow domestic economic risks to be shared with foreign investors (Lane, 2013), which has significant implications for external adjustment. When foreign asset and liability stocks are large, their returns (measured in absolute value, eg in US dollars, or percent of GDP) can potentially be larger than trade or financial flows, highlighting their importance.

The examples of Canada and China illustrate the potentially huge effect that returns on foreign positions could have. Canada has had a negative current account balance in recent years, which means that more capital is flowing into the country (in the form of borrowing from abroad or non-resident investment in domestic equity) than new investment abroad by Canadian residents. These capital flows led to a deterioration of the net international asset position (NIIP). However, because of revaluations of foreign assets and liabilities, Canada recorded an approximately 40 percent of GDP NIIP improvement from 2012-15 (Figure 1). Canada recorded a similarly large improvement in NIIP in the mid-1990s – which proved to be a durable improvement – despite a negative current account balance.

China, meanwhile, had current account surpluses since the mid-1990s, which increased the NIIP. However, between 2008-14 the NIIP deteriorated by almost 20 percent of GDP, despite continued current account surpluses in each year.

Figure 1: Current account and net foreign asset position of Canada and China (% GDP), 1970-2016



Source: Bruegel using IMF Balance of Payments statistics (NIIP and CA balance) and World Economic Outlook (GDP).

The return on foreign assets and liabilities has two main components: the yield (flow income) and valuation changes.

The yield on foreign assets and liabilities, and their balance, is included in the current account balance as income balance. A persistently higher income balance allows a lower trade balance, *ceteris paribus*. For example, the United States was found to earn much higher yields on its foreign assets than the cost of servicing its foreign liabilities. US foreign assets include a significant amount of foreign-currency denominated equities, while a substantial chunk of foreign liabilities are dollar-denominated US Treasury debt, partly reflecting the dominant role of the US dollar in the international monetary system. Thus, the US was called the *"world venture capitalist"* (Gourinchas and Rey, 2007), an increasingly leveraged global financial intermediary, which provides liquidity and maturity transformation. The advantage that the US enjoys on its foreign assets relative to foreign liabilities is frequently called 'exorbitant privilege', an expression first coined by Valéry Giscard d'Estaing in 1965, according to Gourinchas and Rey (2014).

The United States benefitted from a favourable yield differential between foreign assets and liabilities, and also recorded sizeable valuation (and other) gains on foreign assets compared to its foreign liabilities. Thereby, the net international investment position of the US deteriorated much less than

cumulative financial flows. Moreover, the currency composition of US foreign assets and liabilities implies a stabilising role from the perspective of the United States: should the dollar depreciate because of, for example, concerns about the sustainability of the US current account deficit, the dollar value of dollar-denominated liabilities does not change, but the dollar value of foreign claims increases, leading to an improvement in the net external asset position of the US. The historical yield and valuation gains, as well as the stabilising role of the currency composition of the US's external balance sheet, play a significant role in the sustainability of the US's external position.

While there is an intense academic debate about the privileges the US enjoys on its foreign positions, much less attention is paid to the yield and valuation characteristics of the foreign assets and liabilities of other countries[1]. Among EU countries, large and persistent current account deficits before the 2008 global financial crisis resulted in the accumulation by several southern and central-eastern European countries of large stocks of net foreign liabilities, while many western and northern European countries accumulated net foreign assets because of their current account surpluses. Large current account deficits in the south and east of the EU were not sustainable and these countries faced major balance of payments crises after 2008 (Darvas, 2012). The current accounts of these countries moved to either a balanced position or even surplus, boosted by trade balance improvements. But because of the accumulated large stock of foreign liabilities, it might take many years of large current account surpluses to significantly reduce the net foreign liabilities of southern and eastern EU countries.

The purpose of this paper is twofold. First, we check if the US's exorbitant privilege is robust to more recent data, in particular, the post-2008 period, and if other advanced and emerging countries were able to replicate these privileges. For example, if US privileges are at least partly related to the role of the US dollar as the world's main reserve currency, an important question is if the euro, which since its creation in 1999 has become the world's second most important reserve currency, has created similar privileges for euro-area countries. Second, we assess if returns on external positions are random or if they follow a particular tendency, for example, by either fostering or hindering the sustainability of external positions. In order to answer these questions, we analyse data from 56 countries.

In section 2 we describe our methodology and highlight the key difficulties caused by measurement problems, followed by a description of our data. Section 4 focuses on the flow returns (yields) on foreign assets and liabilities. We analyse whether other countries are able to replicate the privileges the US enjoys on its foreign positions and whether changes in the yield spread have had a stabilising impact on external positions. Section 5 examines whether there is a relationship between the

[1] Rogoff and Tashiro (2015) concluded that Japan shares some of the exorbitant privileges of the US.

revaluation of foreign assets and liabilities and the net international investment position (NIIP). This is followed by an analysis in section 6 that decomposes the changes to NIIP into financial flows and valuation changes. Finally, section 7 summarises our key findings. In Annex 1 we highlight problems with Eurostat data on stock-flow adjustment, while Annex 2 reports data for 56 countries.

2. Methodology

The calculation of yields and revaluation effects is not straightforward because of measurement errors. In principle, the change in the stock of a foreign asset (or liability) equals the sum of financial flow and valuation changes. However, for those countries for which more granular data is available, additional 'residual adjustments' or 'other changes' also enter the equation, an item that reconciles the changes in stocks with flows and valuation changes:

$$(1) \qquad A_t^M = A_{t-1}^M + F_t^M + G_t^M + O_t^M$$

where superscript *M* stands for measured value in the data (similarly to the notation of Lane and Milesi-Ferretti, 2009), A_t^M is the end-of-period stock of an asset, F_t^M is the during-period financial flow[2], G_t^M is the capital gain (or loss) from end of the previous period to the end of the current period, and O_t^M denotes all other changes, which ensures that the equation holds. The sum of G_t^M and O_t^M constitutes stock-flow adjustment, that is, change in the stock which is not due to flows. An analogous equation applies to liabilities, which we denote asL_t^M.

Capital gain, G_t^M, is composed of two components: changes in value arising from exchange rate changes and changes in value because of other market price changes (like stock price increases/falls).

A key difficulty comes from the measurement and interpretation of 'other changes', O_t^M. The US Bureau of Economic Analysis calls this category "*Changes in volume and valuation not included elsewhere*" and defines it as: "*Includes changes due to year-to-year shifts in the composition of reporting panels and to the incorporation of more comprehensive survey results. Also includes capital gains and losses of direct investment affiliates and changes in positions that cannot be allocated to financial*

[2] Note that financial flows are registered on a net basis separately for assets and liabilities, that is, net transactions in financial assets show acquisition of assets less reduction in assets, not assets net of liabilities (see IMF, 2014, section 8.100). Therefore, in equation (1), F_t^M , the during-period financial flow stands for the net acquisition of foreign assets, which is therefore different from 'gross financial flow'.

transactions, price changes, or exchange-rate changes" (See the source of this quotation in the note to Table 1).

Lane and Milesi-Ferretti (2009) analysed whether 'other changes' might capture incorrectly measured financial flows, incorrectly measured capital gains or incorrectly measured initial positions in the United States. They concluded that for different types of instruments 'other changes' might refer to different types of mismeasurement: financial flows for portfolio assets and liabilities, capital gains for FDI and incorrectly measured initial positions for non-portfolio positions of banks and non-banks. Allocating these other changes to valuations increases the excess returns on the net foreign asset position, while allocating it to flows decreases it. Gourinchas and Rey (2014) reported three scenarios concerning the sensitivity of the average excess yield on US foreign assets over foreign liabilities in 1952-2011, depending on the assumption about the allocation of other changes. They find that the average excess yield is 1.6 percent if all other changes are allocated to flows, 2.1 percent if allocated to flows with the exception of FDI, and 2.7 percent if allocated to valuations. While this is a non-negligible range, all scenarios point toward a sizeable excess return on US foreign assets compared to foreign liabilities.

The importance of the various factors in the change in the US gross and net external positions can be inferred from Table 1, in which we report our calculations of the total (cumulated) value of the various factors that contributed to the changes in asset, liability and net positions of the US from end-2002 to end-2016. For liabilities, the cumulative value of 'other changes' ("*Changes in volume and valuation not included elsewhere*") in 2003-16 is rather small, $359 billion, which is dwarfed by a $30 trillion liability stock. The impact of exchange rate-related changes on liabilities is even smaller, since the bulk of US foreign liabilities are dominated in US dollars. In contrast, market-price related changes account for almost $5 trillion, which is about one-third of the $15 trillion financial account transactions in 2003-16. Thereby, non-resident investors profited from quite large market price gains in their US FDI and portfolio equity investments over the full period of 2003-16[3].

For assets, other changes totalled about $2.5 trillion in 2003-16, a relatively large value, since it accounts for 30 percent of financial account transactions in this period and 12 percent of end-2016 stocks. Most of these US 'gains' come from other investments ($1.4 trillion) and portfolio equity and investment fund share holdings ($0.7 trillion). Reserve assets (a very well measurable indicator) did not record any 'other change'.

[3] Losses were realised in some years, particularly in 2008, when US FDI and portfolio equity liabilities were reduced by USD 2.5 trillion due to market price changes. But this large loss was more than compensated by gains in earlier and later years.

Therefore, 'other changes' play a very minor role in US liabilities, but a significant role in US assets, possibly because measuring the US asset holdings of non-residents is easier than measuring foreign asset holdings of US residents (except reserve holding).

Table 1: Change in the US gross and net international investment position from 2003-16, $ billions

	Yearend position, 2002	Change in position in 2003-2016 altogether						Yearend position, 2016
			Attributable to:					
				Non-financial account changes in position				
		Total	Financial-account transactions	Total	Price changes	Exchange-rate changes	Changes in volume and valuation n.i.e.	
US Assets (excluding financial derivatives)	7,065	14,575	8,333	6,243	5,711	-1,998	2,530	21,640
Direct investment at market value	2,283	5,092	4,604	488	896	-516	108	7,375
Portfolio investment: equity and investment fund shares	1,374	5,623	1,820	3,803	4,365	-1,272	710	6,997
Portfolio investment: debt securities	903	1,980	1,537	443	240	-111	314	2,882
Other investment	2,347	1,632	324	1,308	.....	-90	1,398	3,979
Reserve assets	159	249	48	201	210	-9	0	407
US Liabilities (excluding financial derivatives)	9,476	20,544	15,286	5,258	4,991	-91	359	30,020
Direct investment at market value	2,282	5,287	3,910	1,377	1,721	.....	-344	7,569
Portfolio investment: equity and investment fund shares	1,336	5,228	1,257	3,971	3,426	0	545	6,564
Portfolio investment: debt securities	3,236	7,553	7,703	-150	-157	-38	44	10,788
Other investment	2,622	2,476	2,416	60	.....	-54	114	5,099
US Net international investment position (excluding financial derivatives)	-2,411	-5,969	-6,953	984	720	-1,907	2,171	-8,380

Source: Bruegel using data from Bureau of Economic Analysis, 'Table 1.3. Change in the Yearend U.S. Net International Investment Position'; Release Date: 28 June 2017, https://bea.gov/iTable/iTable.cfm?reqid=62&step=6&isuri=1&6210=5&6200=145#reqid=62&step=6&isuri=1&6210=5&6200=145. Note: Financial derivatives are excluded, because financial transactions and other changes in financial derivatives positions are available only on a net basis, and only from 2005. Moreover, even for the net derivatives position, data are not separately available for price changes, exchange-rate changes, and changes in volume and valuation not included elsewhere.

Unfortunately, Eurostat data on the decomposition of stock-flow adjustment to revaluation arising from exchange rate changes, revaluation arising from market price changes and 'other changes' is available for only a few European countries and for short periods, and includes a number of data discrepancies; see Annex 1. Therefore, given the data problems, we cannot repeat the analyses of Lane and Milesi-Ferretti (2009) and Gourinchas and Rey (2014) for European data. Instead, we treat capital gains and 'other changes' jointly and will refer to their sum as valuation changes, in line with several other papers

in the literature. If this assumption is incorrect, and 'other changes' reflect (at least partly) either flows or incorrectly measured initial positions, our results will be biased. However, some measurement problems might be similar across countries, for example, a reclassification of an indicator might influence all countries similarly. If that's the case, the possible bias might influence the level of the returns we calculate, but might not alter their cross-country comparability.

When using annual data, a further complication is that valuation changes and yields likely occur in the same year of acquisition of an asset. For example, a bond or equity purchased in March of a given year might pay interest or dividends later in the year, and their value is also likely to change by the end of the year. When calculating annual percent return indicators, we use the approximation adopted by Lane and Milesi-Ferretti (2009), namely by adding half of the flow in a given year to the value of the previous year's stock.

Therefore, we calculate the annual yield on an external asset as:

$$(2) \qquad y_t = \frac{I_t^M}{A_{t-1}^M + 0.5 * F_t^M}$$

where y_t indicates our external annual yield indicator (in percent) and I_t^M denotes the income of the asset in question during year *t*. Similarly, for our annual percent valuation indicator we use the expression:

$$(3) \qquad v_t = \frac{A_t^M - A_{t-1}^M - F_t^M}{A_{t-1}^M + 0.5 * F_t^M}$$

where v_t denotes our annual valuation indicator, that is, the change in stock which is not due to flows, divided by the previous period adjusted stock.

For most countries, v_t varies a lot from one year to the next. In order to access longer-term valuation developments, we calculate two alternative indicators.

We compile one such indicator, an index, by compounding the annual v_t indicator after setting the value of the index to 100 at the starting date:

$$(4) \qquad vi_t = \prod_{i=1}^{t}(1 + v_t) \quad \text{with } vi_0 = 100.$$

A second indicator showing longer-term valuation developments calculates the cumulative value of changes in stocks which are not due to flows, and expresses it as a percent of the stock:

(5) $$cv_t = \frac{\sum_{i=start-year}^{t}\left(A_i^M - A_{i-1}^M - F_i^M\right)}{A_t^M} .$$

The advantage of vi_t indicator in equation (4) is that it is expressed as an index by compounding the annual percentage valuation effects. Thereby, it allows a simple comparison of the cumulative percentage return on foreign assets and liabilities across countries. Using this indicator, we will show the total valuation change from 2007-16 for all countries. Specifically, we define the indicator 'revaluation gain', which compares the total revaluation of assets from 2007-16 relative to the total revaluation of liabilities from 2007-16:

(6) $$\text{revaluation gain} = \frac{vi_{2016}^A / vi_{2007}^A}{vi_{2016}^L / vi_{2007}^L} ,$$

where superscript A to vi_t refers to assets, superscript L refers to liabilities, and vi_t is defined in equation (4).

The advantage of the cv_t indicator is that it expresses the cumulative value of valuation changes as a percent of the current stock of assets. Thereby, this indicator responds to the question: what share of current asset/liability stock is due to valuation changes? A problem, however, is that data is not available for a uniformly long period for all countries, which limits the comparability of our cv_t indicator across countries. For example, data for the US is available from 1976 and thereby we calculate the cumulative revaluation effects from 1976 to 2016 as a percent of the 2016 stock. There were revaluation changes in US assets and liabilities before 1976 too, so we cannot fully capture the total share of revaluation in current stocks. Yet since foreign asset and liability stocks were relatively small in 1976, in our assessment the total revaluation from 1976-2016 only slightly underestimates total revaluation in the current stock. For many countries, data is available for much shorter periods and therefore for these countries this indicator might seriously underestimate the total revaluation effect embodied in the stock of assets. We will therefore report the cv_t indicator only for those countries for which a relatively long sample period is available, ie for those countries for which data is available before 1990.

So far we introduced indicators which are based on the financial flow data from the financial account, which is available for asset and liability flows broken down into various instruments: foreign direct investment, portfolio investment, other investment, reserves and various subcomponents.

A possible problem, however, is that balance of payments statistics also include an item called 'net errors and omissions' (NEO), which is calculated as the balance on the financial account minus the sum of the balances on the current and capital accounts (see Box 1 for the basic definitions of these accounts):

(7) $$NEO_t = FAB_t - CAB_t - KAB_t,$$

where NEO_t is the 'net errors and omissions', FAB_t is the balance of the financial account, CAB_t is current account balance and KAB_t is the balance of the capital account. As the 2014 IMF balance of payments guide explains (see section 8.102 on page 126), a negative figure of net errors and omissions indicates an overall tendency that:

- The value of credits in the current and capital accounts is too high; and/or
- The value of debits in the current and capital accounts is too low; and/or
- The value of net increases in assets in the financial account is too low; and/or
- The value of net increases in liabilities in the financial account is too high.

Therefore, NEO might include current account, capital account and financial account transactions. If NEO includes financial account transactions, then our indicators based on recorded financial account flows are biased. In order to assess the order of magnitude of NEO, the charts in Annex 2 compare the four quantities included in equation (7) (as a share of GDP) for each country. For most countries and years, NEO is relatively small, but there are some exceptions.

If NEO is sizeable and it is suspected that it primarily includes unrecorded financial transactions, then total net financial flows could be approximated by rearranging equation (7) as:

(8) $$FAB_t - NEO_t = CAB_t + KAB_t$$

Such an approximation works only for total net flows, so assets, liabilities and their various components (eg FDI) cannot be separated.

In sections 4 and 5, we use equations (1) to (6) utilising data from the financial account, while in section 6 we use equations (7) and (8) to decompose the change in NIIP to various.

Box 1: Balance of payments basics

The current account shows transactions of goods, services, primary income and secondary income between residents and non-residents; the capital account shows credit and debit entries for non-produced nonfinancial assets and capital transfers between residents and non-residents; and the financial account shows net acquisition and disposal of financial assets and liabilities. The sum of the balances on the current and capital accounts represents the net lending (surplus) or net borrowing (deficit) by the economy with the rest of the world. This is conceptually equal to the net balance of the financial account. The financial account plus the other changes explain the change in the IIP between the beginning- and end-of-periods.

Source: IMF (2014) section 1.24.

---

3. Data

Our main data source is the IMF Balance of Payments Statistics (data collected in June 2017), which includes US dollar values. However, we measure all indicators in the domestic currency unit of each country. For example, we measure the returns on German foreign assets and liabilities in euros, the returns on Chinese foreign assets and liabilities in Chinese renminbi, and so on. We convert the stock variables to domestic currency units using the end-of-period exchange rate against the US dollar, while we convert flow variables using the annual average US dollar exchange rate. A comparison of IMF data (published in US dollars) and Eurostat data (published in euros) confirms that asset/liability stocks should be converted using end-of-period exchange rates, while capital flows and GDP with period-average exchange rates.

The reason for using domestic currency units and not the US dollar is that revaluations measured in domestic currency are more relevant from the perspective of home-country parties, like the government, companies and households. Consider, for example, an emerging country which has liabilities denominated in US dollars and no foreign assets. If foreign liabilities are measured in US dollars, currency depreciation does not lead to a change in the measured value of foreign liabilities. However, since domestic parties service foreign liabilities from their income, which is dominantly generated in domestic currency, currency depreciation increases the value of foreign liabilities relative to income. When all indicators are measured in domestic currency, currency devaluation leads to an

increased value of measured foreign liabilities, which is the right signal given the adverse revaluation of foreign currency liabilities.

In contrast to revaluations, for which the measurement unit matters, we highlight that for the yield (flow income) on foreign assets and liabilities (equation 2) it does not really matter whether we measure our indicators in US dollars or in the domestic currency unit. Also, exchange rate changes hardly influence this ratio. We calculate the ratio of yield (eg the profit which is transferred by a subsidiary abroad to the headquarters of the company in the home country) to the investment stock. We measure all data, that is, both the stock of investment and the profit transfer, in home currency. For example, for a German investment in Thailand, we measure the yield as the ratio of the euro value of the profit transfer from Thailand to Germany to the euro value of German investment in Thailand. The ratio of profit to investment stock would be almost the same if we measured all variables in US dollars or any other foreign currency unit. The reason for the almost and not perfect equality is that we use end-of-period exchange rates to convert stocks and annual average rates to convert the flows. Therefore, when there is a big exchange rate change and thus a large discrepancy between the end-of-previous-year and the average-current-year exchange rates, the ratio is slightly different when it is measured in home and in foreign currencies. However, this a minor issue, eg when the discrepancy between year-end and year-average exchange rates is 5 percent and one measurement shows a 10 percent yield, the other measurement would show a 9.5 percent yield.

Exchange rate changes might have an indirect effect on the yields we calculate, when the change in the exchange rate influences macroeconomic conditions. For example, if currency depreciation boosts corporate profits, then profit transfer from subsidiaries to headquarters might increase. Such indirect effects influence the yield we calculate irrespective of whether we measure the indicators in equation (2) in foreign or domestic currency unit.

In relation to the measurement unit of our indicators, another issue to consider is the possibility of hedging currency risk. For example, when a German manufacturing firm establishes a subsidiary in Thailand, it might hedge against the possible depreciation of the Thai baht. However, an investor cannot hedge against the full stream of future incomes, for two reasons: (1) future incomes are uncertain, and (2) markets offer hedging opportunities for up to a certain duration (typically a few years), but it is rather difficult to hedge an expected return, eg in 10 years from now. Probably, there are a number of companies that hedge expected income flows for a few years ahead (say 2 years), and they might hedge again when the first 2-year period has passed. But if in the first 2-year period the baht depreciated, then the second hedging will just fix this depreciated exchange rate. Therefore, there

are clear limitations to hedging. Furthermore, the depreciated exchange rate might sooner or later lead to inflation in Thailand, including asset prices increases. So at least partly, from the perspective of the German investor, the foreign currency value of both the profit and the value of the investment might follow the exchange rate.

Because of these conceptual issues, but also because of the lack of a comprehensive dataset on hedging, we do not consider the calculation of hedging-adjusted yields.

4. Yields on foreign assets and liabilities

The comparison of yields on foreign assets and liabilities of different countries is subject to a number of difficulties. The composition in terms of destination countries and sectors, and thereby riskiness, might differ. Risk-adjusted yields would be more appropriate for comparison. Unfortunately, data does not allow the calculation of risk-adjusted yields considering all aspects of risk. We can control only for the country composition of foreign assets and liabilities, which however might capture a large part (but not all aspects) of the risk. For example, FDI investment in Germany might be less risky than FDI investment in Thailand and we consider these country-specific aspects of risk. But it is also possible that eg US and Canadian investors invest in markedly different sectors of the French economy, or if they invest in the sector, they might invest in companies within the same sector which have different risk profiles. If that's an important factor, then our cross-country comparison of yields has a major limitation.

With these caveats in mind, in a global comparison of yields on total foreign assets and liabilities, the United States is indeed characterised by special developments: in each year for which data is available (1976-2016), the yield on foreign assets exceeded the yield on foreign liabilities by 1.3 percentage points on average (Figure 2). Only Japan and Switzerland show similar characteristics, but data is available only for shorter periods: 1997-2016 for Japan and 1984-2016 for Switzerland[4]. In the overlapping periods, Japan's yield advantage (1.6 percentage points) was slightly higher than the US's yield advantage, while Switzerland's yield advantage was slightly lower at 0.8 percentage points. And while the US and Japan enjoyed a positive yield advantage in each year for which data is available, there were two years (2009 and 2010) when Swiss liabilities delivered a higher yield than assets.

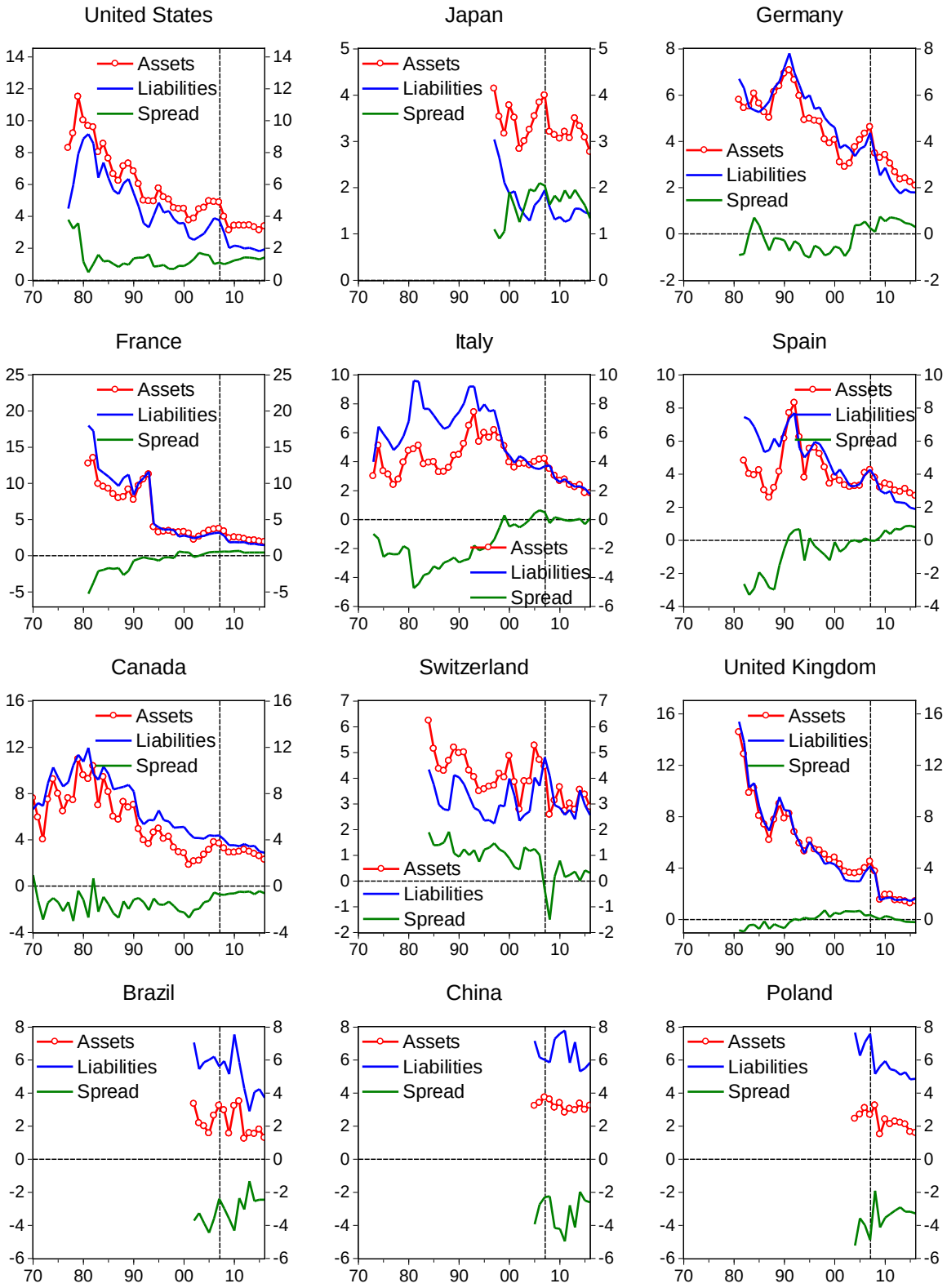
[4] Therefore, our findings for Japan are in line with the findings of Rogoff and Tashiro (2015).

Canada and the five largest EU countries were not able to replicate the yield advantages of US, Japan and Switzerland. In contrast, in most years, for Canada and EU countries, the yield on foreign liabilities was higher than on foreign assets. German and Spanish data show an improvement since the early 2000s, but this development is not reflected in French and Italian data. Therefore, it is not possible to conclude that the euro, the second most internationalised currency, created the external yield advantages for euro-area countries that are observed for the United States. For the United Kingdom, negative spreads in the 1980s turned slightly positive in 1994-2011, but since then the spread has turned negative again.

Therefore, among the main advanced countries, only Japan and Switzerland were able to replicate the US's privileges in terms of yields on net foreign assets.

It is noteworthy that the three emerging countries included in Figure 2, Brazil, China and Poland, recorded significantly negative spreads of between 2 and 4 percent over the whole period for which data is available, ie from the early 2000s to 2016. Similar developments also characterise most other emerging countries (see Annex 2).

Figure 2: The yield (flow return) on total foreign assets and liabilities in selected countries, percent of previous year adjusted stock

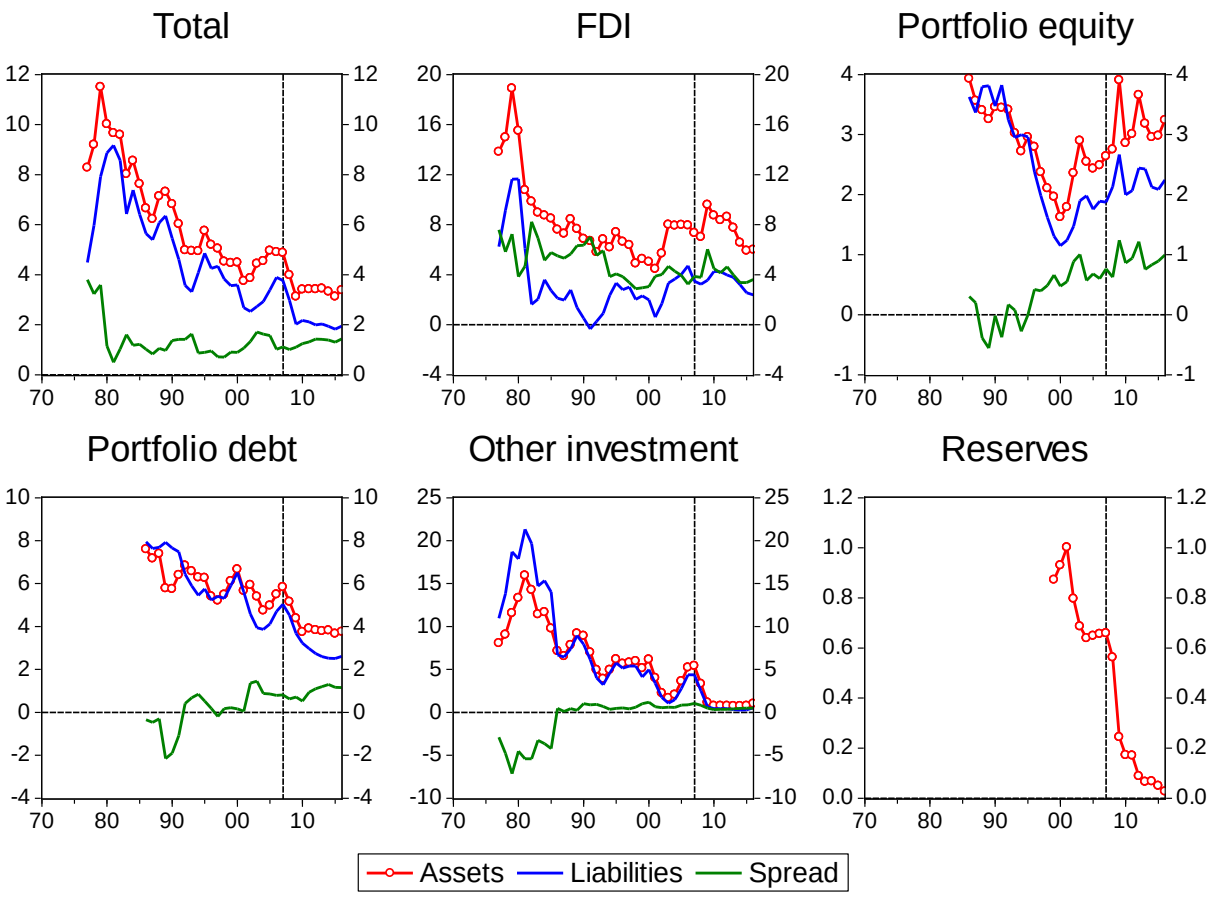


Source: Bruegel using data form the IMF Balance of Payments statistics. Note: See equation (2). Spread=yield on assets minus yield on liabilities. The vertical dashed line indicates 2007.

Curcuru, Thomas and Warnock (2013) concluded that differentials in direct investment yields were the key factor in the US favourable yield differential. Therefore, we look at the yields from the main types of instruments: foreign direct investment (FDI), portfolio equity investment, portfolio debt investment, other investment (which largely includes cross-border loans, currency, deposits and trade credit) and reserve assets, while we leave out financial derivatives.

Figure 3 reveals that US FDI investment abroad delivered much higher returns than foreign FDI investment in the US: the average spread was 5.4 percentage points in 1976-99 and 4.0 percentage points in 2000-16. Thereby, FDI was indeed the main driver of the US yield advantage. It is also notable that both portfolio equity and debt spreads were on the rise since the early 1990s. Other investments delivered a small (0.6 percentage point on average) spread in 1986-2016.

Figure 3: The yield (flow return) on total and main categories of foreign assets and liabilities in the United States, percent of previous year adjusted stock



Source: Bruegel using data form the IMF Balance of Payments statistics. Note: See equation (2). Spread=yield on assets minus yield on liabilities. The vertical dashed line indicates 2007.

Because of the important role of FDI in driving US yield privileges, we compare the FDI returns of selected countries in 2000-16[5]. In a number of advanced countries, the yield on FDI liabilities was between 3 and 5 percent per year (Table 2). France (2.7 percent), the US (3.2 percent) and Germany (3.6 percent) are at the lower end, while the Netherlands (4.8 percent) and the UK (5.2 percent) are at the higher end. A key outlier is Japan, where FDI liabilities had an 8.2 percent yield.

The US made the highest return on FDI assets, 7.2 percent on average. Japanese and UK investors achieved a slightly lower yield on assets. However, continental European investors, such as the French, Spanish, German, Austrian, Italian and Dutch, tend to obtain an approximately 5 percent yield on FDI assets, well below the yield on US, Japanese and UK FDI assets.

It is also noteworthy that central European and emerging countries seemed to offer much higher yields on their FDI liabilities than advanced countries. In the Czech Republic and Poland the average yield on FDI liabilities was around 10 percent on average in 2000-16.

Table 2: Yield (flow return) on FDI assets and liabilities, percent of previous year adjusted stock, average for 2000-16

	FDI assets	FDI liabilities	Spread
United States	7.2	3.2	4.0
France	4.4	2.7	1.7
United Kingdom	6.8	5.2	1.6
Spain	5.2	3.9	1.3
Germany	4.8	3.6	1.2
Austria	5.0	4.4	0.7
Italy	4.5	4.0	0.5
Netherlands	5.2	4.8	0.4
Belgium	3.4	4.0	-0.6
Japan	7.0	8.2	-1.2
Korea	6.0	8.8	-2.7
South Africa	2.9	5.8	-2.8
Brazil	2.3	6.2	-3.9
Czech Republic	6.0	10.7	-4.7
Poland	1.9	9.4	-7.5

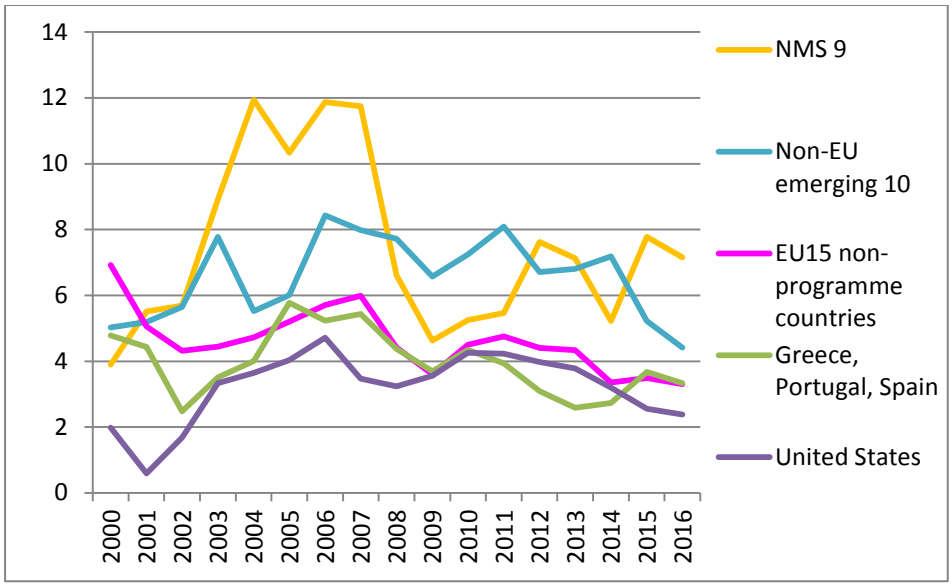
Source: Bruegel. Note: countries are ordered according to the spread.

While Table 2 reports the 2000-16 average yields on FDI assets and liabilities for selected countries, Figure 4 shows annual data on the yields on FDI liabilities for certain country groups and the US. The

[5] Unfortunately we cannot include China, the largest emerging country, because income data of the balance of payments is not available by instrument from the IMF and Chinese statistical sources.

yield foreign investors earned on FDI investments in nine central European countries was especially high in 2004-07, and has continued to remain above the FDI liability returns of advanced countries since then[6]. Other emerging countries also tend to offer higher returns on their FDI liabilities than advanced countries. These higher returns in central European and other emerging countries most likely reflect higher returns to capital in these countries, because of low capital/income ratios and the potential for fast productivity growth.

Figure 4: The yield (flow return) on FDI liabilities, percent of previous year adjusted stock



Source: Bruegel. Note: the median value is reported for the country groups. NMS 9: Czech Republic, Estonia, Hungary, Latvia, Romania, Slovakia, Slovenia, Poland and Romania. Non-EU emerging 10: Brazil, Columbia, Costa Rica, Chile, EL Salvador, Mexico, Morocco, Philippines, Russia and South Africa; EU15 non-programme countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Sweden and United Kingdom.

Are the relatively low yields on FDI assets of major European countries a consequence of the geographical allocation of FDI investments? For example, if German investors invested 'too much' in low-yielding France and 'too little' in high-yielding Poland, yet investments in these countries provided the country-average yields of France and Poland, respectively, than the geographical allocation is the main reason behind the relatively low yield on German FDI assets. For simplicity, we call this effect 'unfavourable geographical allocation'.

Or is the below-average investment performance of European investors or above-average investment performance of US investors the reason for the differences in foreign FDI yields between US and European investors? For example, German FDI assets in France might yield less than the 2.7 percent

[6] Using a shorter sample period and quarterly data, in Darvas *et al* (2015) we reached a similar conclusion.

average yield on all French FDI liabilities and German FDI assets in Poland might yield less than the 9.4 percent average yield on all Polish FDI liabilities. Or US FDI investors might earn higher than the country-average in their destination countries.

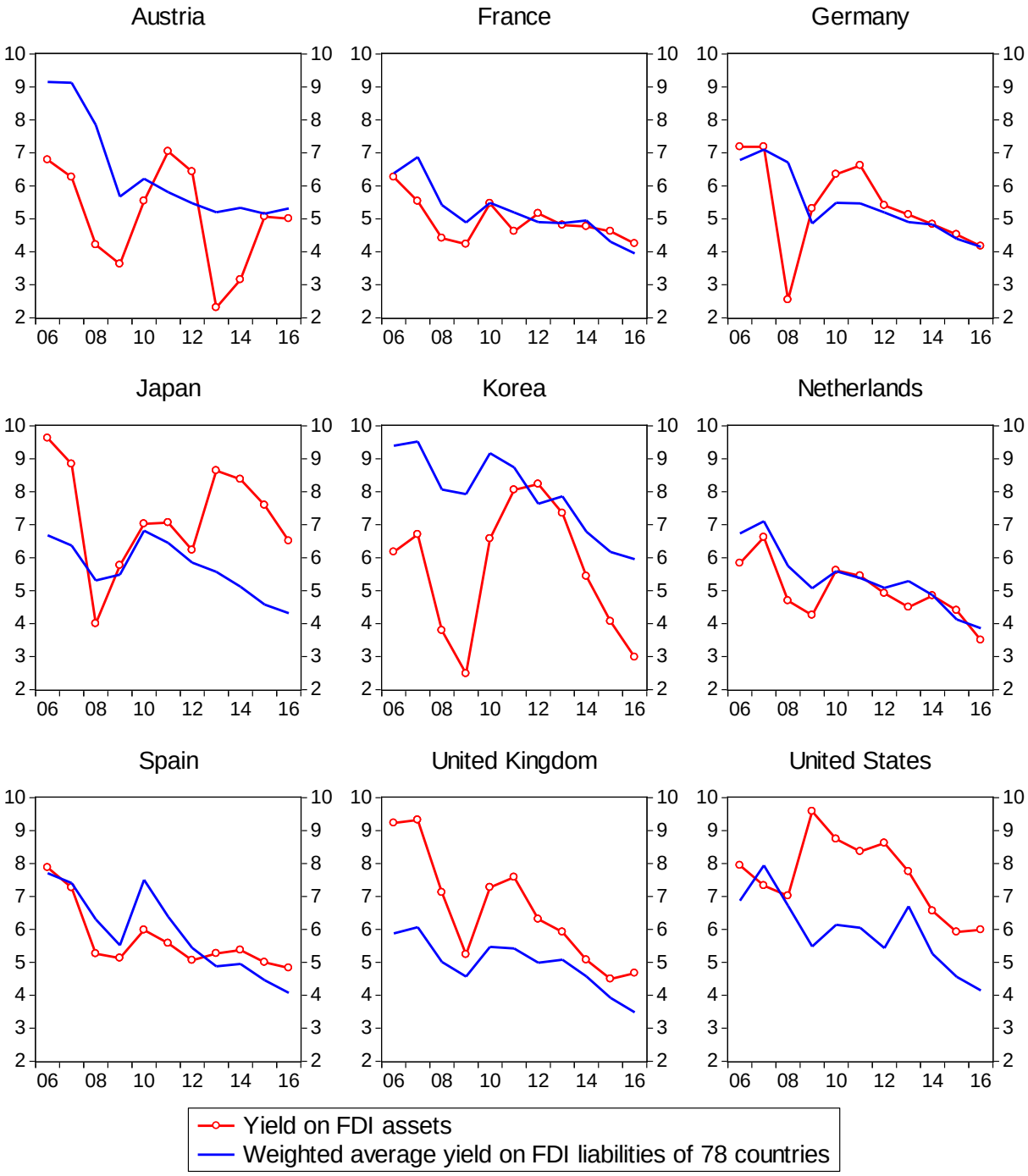
Unfortunately, data on bilateral yields on FDI assets is not available. However, bilateral data on FDI stocks is available and we can calculate the weighted average yield on FDI liabilities of FDI destination countries, by deriving the weights from the FDI assets of the investor country. For example, 4.0 percent of German FDI was in France in 2012, 2.1 percent is in Poland, and so on. We therefore weight the French FDI liability yield with 4.0 percent, the Polish FDI liability yield with 2.1 percent, and so on, and compare this weighted average yield on FDI liabilities of FDI destination countries to the yield on FDI assets of the investor country[7].

Figure 5 shows that there are marked differences in the weighted average of FDI liability yields of FDI destination countries. A very large share, 25 percent, of Korean FDI is invested in China (Figure 6), which is responsible for the highest foreign FDI yields for Korea among the countries we considered. Foreign FDI yield is also rather high in Austria, due to the large share of high-yielding central and eastern European countries in Austria's FDI assets. The weighted average yield of countries where the US invests is similar to yield in Spain's destination countries, and slightly higher than Germany's, France's and the Netherland's. Therefore, the geographical difference in the countries where FDI assets are held explains only a small part of the yield differences between US and continental European FDI assets.

Much more important is the yield relative to the average yield in the countries where FDI assets are held. Most continental European countries, including Germany, France, the Netherlands and Spain, reached a yield on their FDI assets which is more or less the same as the weighted average FDI liability return of partner countries. Austria is underperforming in this regard, mostly because of the higher foreign yield benchmark. Korea is also underperforming. However, Japanese, UK and US investors tend to outperform the weighted average yield of trading partners in most years of our sample period.

[7] In order to include the most important FDI destination countries, we approximated data for China (which is an important FDI destination for many countries) and Bermuda (which hosted 6.8 percent of US FDI assets, 2.8 percent of Dutch FDI assets, 1.6 percent of Korean FDI assets and 1.5 percent of UK FDI assets in 2012). For China, yield on total liabilities is available (which is reported in Figure 2), but not for FDI. We assumed that the yield on Chinese FDI liabilities is larger than the yield on total Chinese liabilities by the average difference between these two yields of the following countries: Hong Kong, India, Indonesia, Korea, Pakistan, Philippines and Thailand. For Bermuda, FDI flows and incomes data is available from 2006, but FDI stock data only from 2013. We approximated the 2005-2012 FDI stock data by assuming that the revaluation of Bermuda's FDI liabilities was the same as the average revaluation of Luxembourg and Switzerland FDI liabilities, because these three countries received large financial FDI and might have faced similar revaluations. Thereby, rearranging equation (3) allows the approximation of the missing stock data, which then allows the calculation of the yield using equation (2).

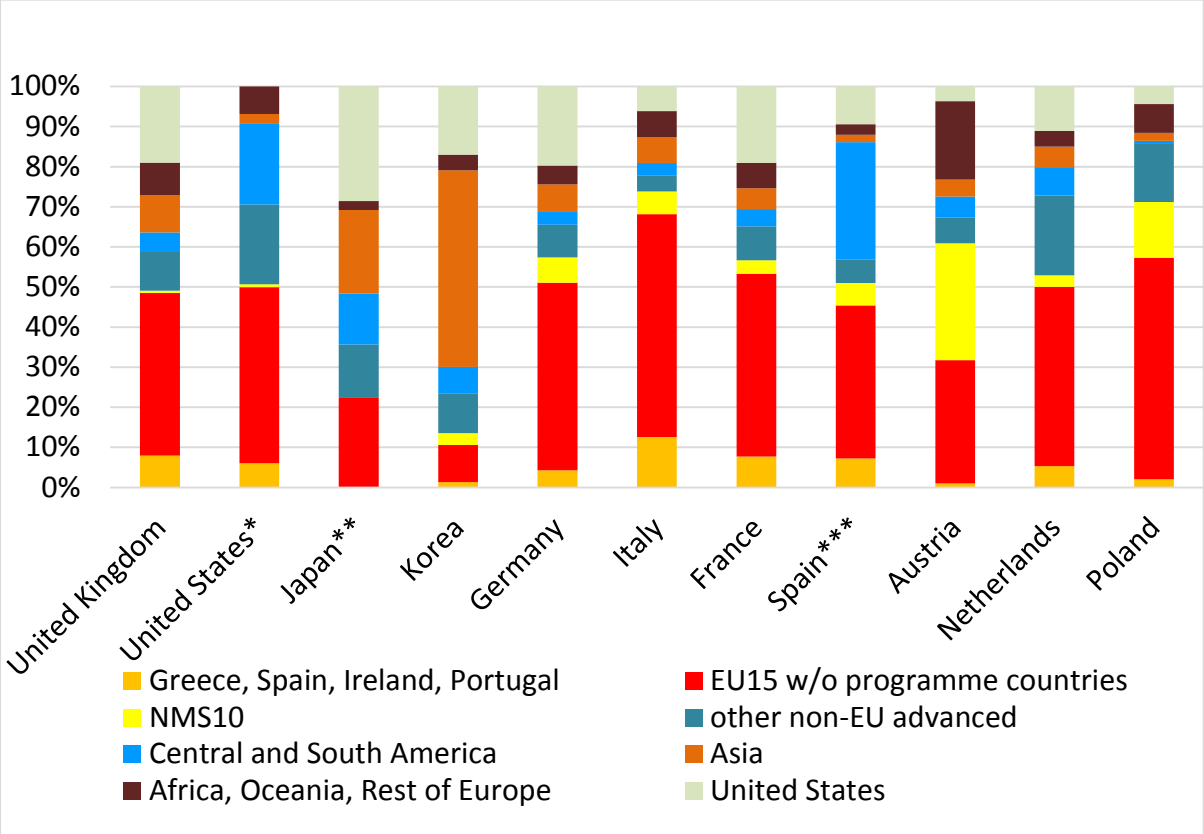
Figure 5: The yield (flow return) on FDI assets and the weighted average yield on FDI liabilities of 78 partner countries in which FDI asses are held, percent of previous year adjusted stock



Source: Bruegel using data from the IMF Balance of Payments Statistics and the OECD 'FDI positions by partner country' dataset. Note: the weighted average considers 78 countries with time-varying weights corresponding to the share of each country in the FDI assets of the investor country in each year in 2006-12, while for 2013-16 we use the 2012 weights (the latest available data). On average in 2006-12, the 78 countries account for the following share of FDI assets of the source countries include in this figure: 94.2 percent for Austria, 96.6 percent for France, 97.6 percent for Germany, 82.9 percent for Japan, 87.6 percent for Korea, 98.5 percent for the Netherlands, 95.7 percent for Spain, 88.0 percent for the United Kingdom and 88.6 percent for the United States. We derived the weights based on the OECD's 'FDI positions by partner country' dataset. For a few missing values we used approximations, eg we approximated a missing data in a particular year by the average of the preceding and subsequent years.

Therefore, our calculations suggest that most continental European investors reach the average yield earned in the countries of their FDI destinations, but US, UK and Japanese investors were able to outperform this benchmark. This difference in 'investor performance' is a much more significant factor in explaining the difference in US and continental European FDI assets returns than the geographical composition of FDI assets.

Figure 6: Geographical composition of FDI assets, 2011 (% total)



Source: Bruegel using data from OECD 'FDI positions by partner country' dataset. Note: NMS10: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Romania, Slovakia, Slovenia, Poland and Romania; other non-EU advanced: Australia, Canada, Israel, Korea, Norway, New Zealand, Switzerland, Singapore, Taiwan (CN); *for the US, Asia and Europe refers to 2008, and Oceania to 2009 data; NMS10 exclude SI, SK and LV; **for Japan, EU15 refers to EU27; ***for Spain, NMS10 exclude EE, SI, SK, LV, and LT; other non-EU advanced exclude IL, KR and NZ.

A word of caution is warranted here because of the possible impact of countries that attract investment for tax reasons. A very large share of FDI investment is held in jurisdictions that are frequently considered as centres of tax avoidance or even tax evasion. By using a novel data-driven approach for identifying offshore financial centres (OFCs) based on the global corporate ownership network including data on over 98 million firms, Garcia-Bernardo *et al* (2017) identify 24 *"sink-OFCs"* that attract and retain foreign capital through low taxation and lenient regulation, and five major *"conduit-*

OFCs" that are attractive intermediate destinations in the routing of international investments and enable the transfer of capital without taxation. In Table 3 we include the share of foreign FDI in some of these territories. For example, almost 7 percent of US FDI liabilities were held in Bermuda (sink-OFC), while the share of Cayman Islands (sink-OFC) is 4.5 percent. Japanese investors also hold a very large share, almost 7 percent, of their FDI investments in the Cayman Islands. FDI investments in Luxembourg (sink-OFC), the Netherlands (conduit-OFC) and the United Kingdom (conduit-OFC) are also very large. Quite likely, at least partly, large investments in these jurisdictions serve tax optimisation purposes and might also involve undeclared income.

However, it is unclear whether these investments influence the yields we calculate. We use official statistics and therefore consider, eg the reported US yield on FDI assets from every country, including Bermuda and the Cayman Islands, while undeclared income most likely does not enter official statistics. Therefore, investments in these countries most likely do not impact our result, yet the large share of these countries necessitates some caution, because FDI stock and yield data might be measured imprecisely.

Table 3: The share of certain 'tax optimisation' territories in FDI assets, 2006-12 average, percent of total FDI assets

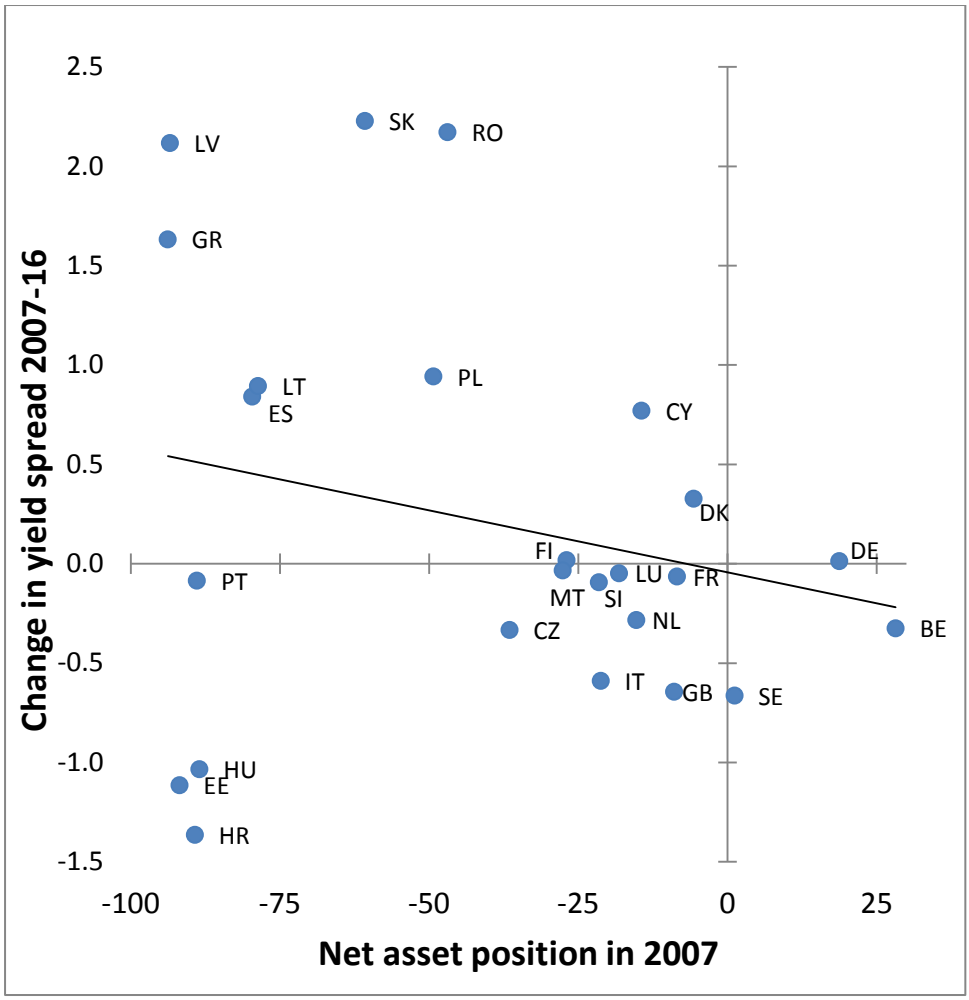
		Source countries					
		United States	United Kingdom	Germany	France	Netherlands	Japan
Destination countries	Bermuda	6.8%	1.7%	0.2%	0.4%	1.5%	n.a.
	British Virgin Islands	1.8%	0.11%	0.02%	0.04%	0.02%	n.a.
	Jersey	n.a.	3.0%	0.10%	0.16%	0.06%	n.a.
	Cayman Islands	4.5%	1.3%	0.3%	0.0%	0.2%	7.0%
	Luxembourg	6.5%	11.5%	7.7%	4.3%	6.6%	0.7%
	Hong Kong	1.3%	2.8%	0.5%	0.5%	0.7%	1.8%
	Netherlands	13.5%	13.6%	11.0%	11.7%	--	10.0%
	United Kingdom	14.0%	--	10.8%	11.5%	14.1%	5.2%
	Switzerland	3.4%	1.7%	2.8%	4.0%	8.1%	0.3%
	Singapore	2.9%	0.8%	1.0%	0.5%	1.8%	3.2%
	Ireland	4.2%	3.5%	0.8%	2.1%	1.8%	n.a.
	Altogether	**58.9%**	**40.0%**	**35.2%**	**35.3%**	**34.9%**	**28.2%**

Source: Bruegel using data from OECD 'FDI positions by partner country' dataset. Note: the destination countries were selected on the basis of Garcia-Bernardo et al (2017). We include a subset of the 24 sink-OFCs and all the five major conduit-OFCs.

Finally, we check if changes in yield spread helped the stabilisation of net foreign asset positions. Figure 7 plots the change of the spread from the average of 2005-07 to the average of 2014-16 against

the net position in 2007, for EU countries[8]. There is some evidence that yield spread changes had in general a stabilising impact, but there are key exceptions. For example, Croatia, Estonia and Hungary had NIIP close to minus 90 percent of GDP in 2007, but the yield spread deteriorated thereafter. In Portugal, another country with a close to minus 90 percent of GDP NIIP the yield spread hardly changed. Therefore, while for the other EU countries a negative relationship seems to hold, the exception of these four countries with large negative NIIP position weaken the evidence.

Figure 7: Change in yield spread from 2005-07 to 2014-16 in EU countries (percentage point)



Source: Bruegel using data from the IMF Balance of Payments Statistics. Note: yield spread $=(y^{A}_{2014-16} - y^{L}_{2014-16}) - (y^{A}_{2005-07} - y^{L}_{2005-07})$, where eg $y^{A}_{2014-16}$ indicates the average yield on assets in 2014-16 as defined in equation (2). We use a three-year average to reduce the dependency of the results on a particular year. Net position and yield spread consider total assets and liabilities for all countries but the six countries that joined the euro area after 2007: Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania. In these countries a large share of reserve assets was passed to the ECB at the time of euro entry, which is indicated in country specific data as a significantly negative fall in reserve assets, and thereby it influences the average yield on foreign assets. For these six countries, our indicators consider the sum of FDI, portfolio investment (both equity and debt) and other investment.

[8] There are several outlier observations for non-EU countries and therefore we do not include them.

5. Revaluation of foreign assets and liabilities

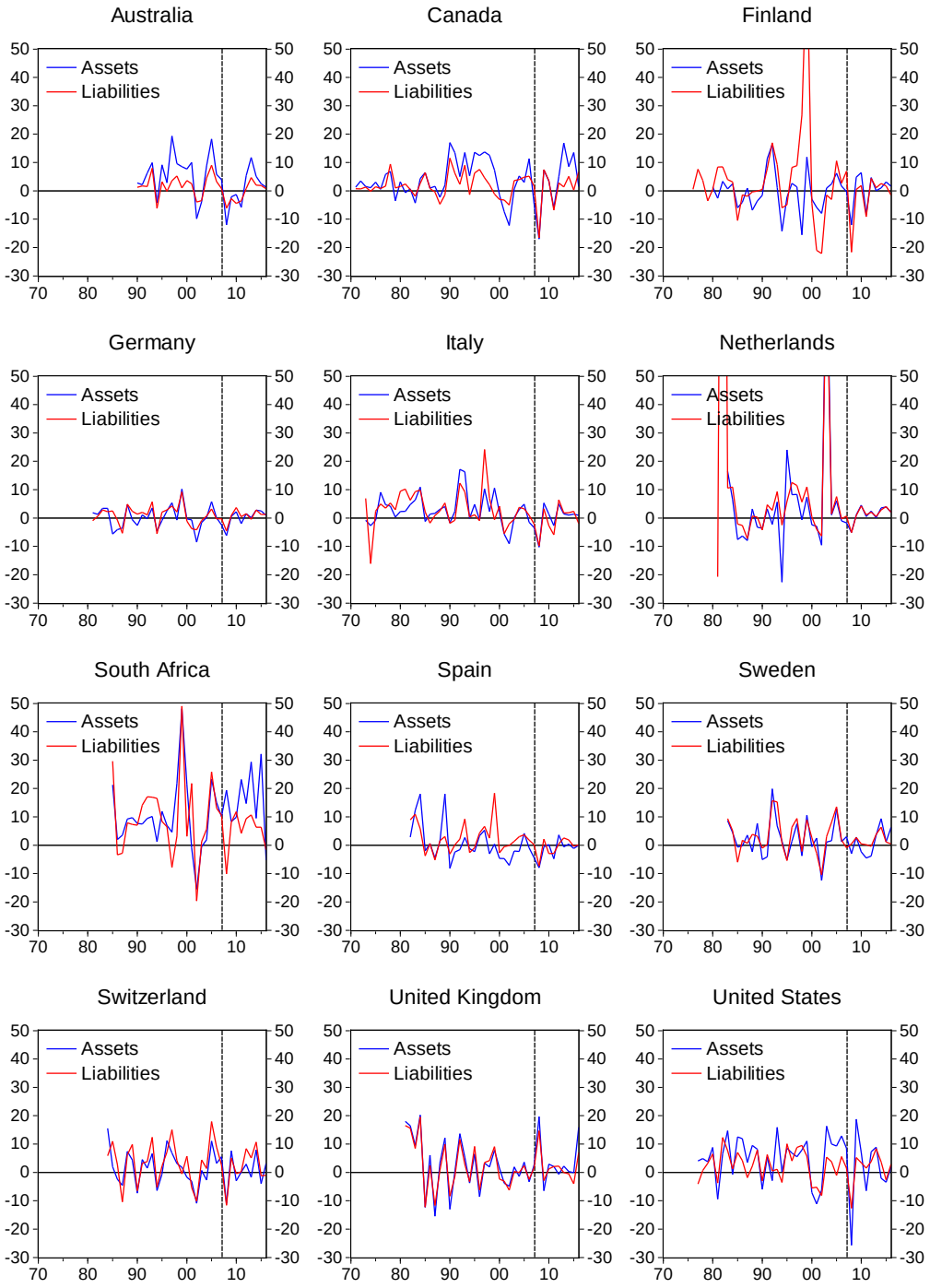
Annual revaluations of foreign assets and liabilities changes are rather volatile (Figure 8). For most countries and years, the annual revaluation of assets and liabilities move in parallel, most likely due to equity prices (global co-movement of stock prices) and exchange rate changes (which directly influence foreign-currency denominated assets and liabilities).

The large annual volatility indicated by Figure 8 does not allow checking of whether annual changes are purely random or respond to certain factors. In order to see the cumulative impact of revaluation, Figure 9 reports our cv_t indicator from equation (5) for the same twelve countries. While these are the countries for which data is available for the longest time periods, there are still differences, eg for Canada we start to cumulate revaluation in 1970, while for Australia in 1989. Therefore, cross-country comparison has some limitations, yet the relatively long sample periods allow drawing some interesting conclusions.

The United States is indeed characterised by persistent positive cumulative revaluation effects, which are larger for the assets than for the liabilities, highlighting a key advantage for the US. However, these positive revaluation effects relative to gross stocks result almost entirely from developments from the mid-1970s to mid-1980s. Since the mid-1980s, the cumulative share of revaluation in gross stocks oscillated at about 40 percent for assets and 20 percent for liabilities[9]. Since 2007, the US absorbed relative asset losses and thereby contributed to global risk sharing. Our index for assets is lower in 2016 than in 2007, while the index for liabilities is higher in 2016 than in 2007. This outcome is largely the consequence of the appreciation of the US dollar, since most US liabilities are in US dollars (the US dollar value of which does not change with currency movements), while a large share of US assets is in foreign currencies (the value of which declines in US dollars when the dollar appreciates).

[9] Given that the stock of assets and liabilities expanded significantly since the 1980s, a relatively stable share of revaluation in gross asset stock implies, in absolute terms, a tendency for continuous gain.

Figure 8: Annual revaluation effects (percent of previous year adjusted stock), 1970-2016



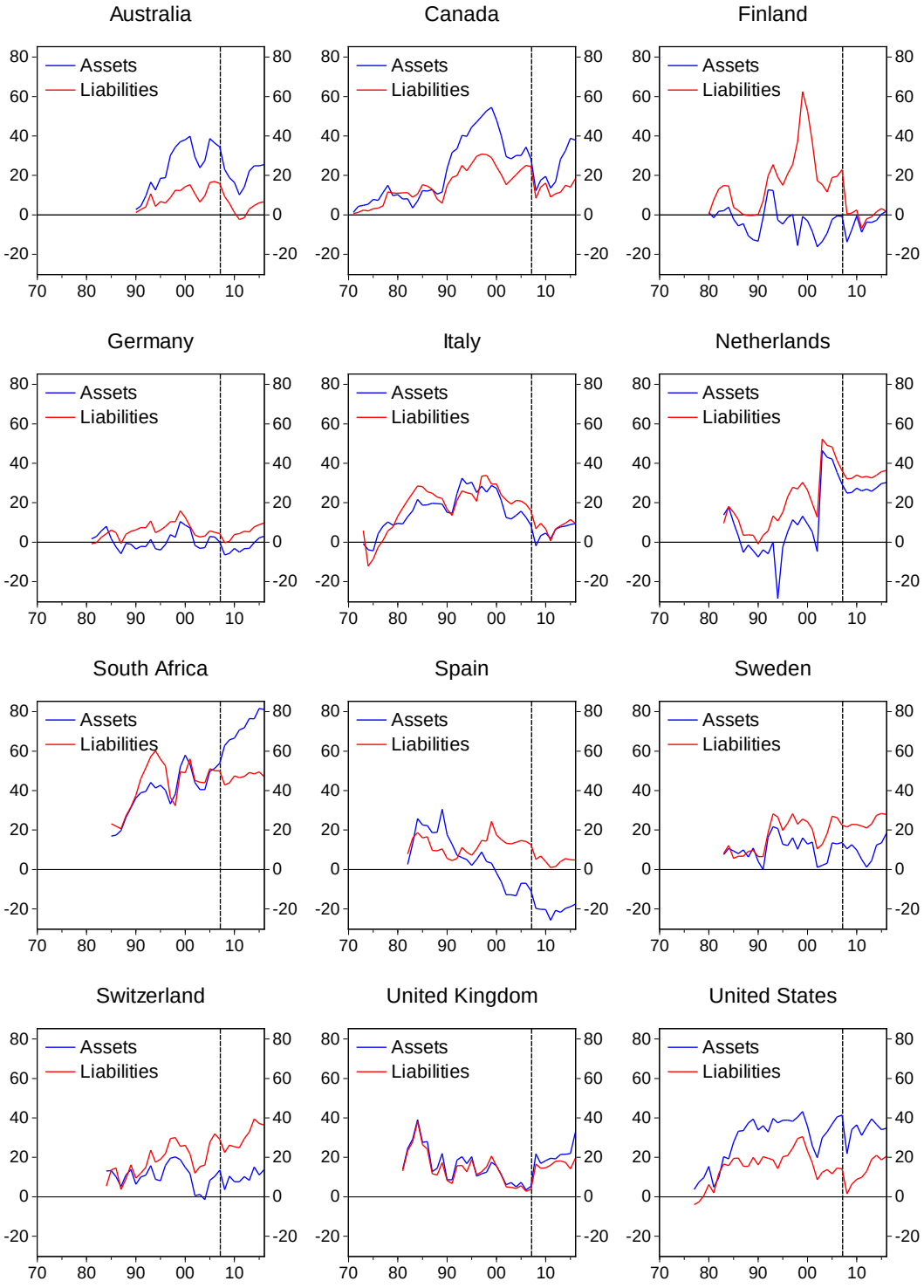
Source: Bruegel using data from the IMF Balance of Payments Statistics. Note: The sum of FDI, portfolio investment and other investment is considered (that is, financial derivatives and reserves assets are disregarded). Equation (3) describes the indicator, which includes the impact of exchange rate changes, market price changes and other factors like reclassification, all measured in domestic currency unit. The vertical dashed line indicates 2007. Those twelve countries are included for which the availability of stock and flow data starts before 1990. We set the vertical axis to range from -30 percent to plus 50 percent in all panels, yet Finnish data (possibly due to Nokia stocks) and Dutch data (due to reclassification of FDI in 2003[10]) had higher changes in certain years.

[10] The stock of gross FDI assets and liabilities increased by 5-fold from 2002 to 2003 in the Netherlands; see the chart on page 54 of the annex.

Australia and Canada also recorded persistently higher valuation gains on assets relative to liabilities since the early 1990s, while South Africa achieved such positive developments since 2006. In the past few years, the United Kingdom also registered large gains on assets (possibly boosted by the pound sterling depreciation following the Brexit vote in June 2016).

By contrast, Finland, Germany, the Netherlands, Spain, Sweden and Switzerland accumulated worse revaluation effects on assets than on liabilities, while in Italy asset and liability revaluations moved in parallel. For Finland, liability revaluations in the 1990s were very large, possibly because of the Nokia share price increase in the dot.com bubble of the late 1990s. This was followed by massive liability devaluation and thereby for the full period of 1980-2017, the total cumulative revaluation was the same at almost zero for both assets and liabilities.

Figure 9: Cumulative revaluation effects (percent of actual stock), 1970-2016



Source: Bruegel using data from the IMF Balance of Payments Statistics. Note: The sum of FDI, portfolio investment and other investment is considered (that is, financial derivatives and reserves assets are disregarded). Equation (5) describes the indicator, which includes the impact of exchange rate changes, market price changes and other factors like reclassification, all measured in domestic currency unit. The vertical dashed line indicates 2007. For each country, we cumulate the changes starting from the first available observation, and thereby for some countries (eg Canada) a longer period is considered than for others (eg Australia).

In order to see if there was a systematic impact of revaluation changes on net foreign investment positions, Figure 10 plots our revaluation gain indicator defined in equation (6) against the stock of net foreign assets for two sample periods: 2000-07 in panel A and 2007-17 in Panel B, for a sample of 51 countries. There is a clear negative correlation in both periods: countries with negative net international investment positions tended to have positive revaluation gains, while countries with large net foreign assets tended to suffer from revaluation losses.

In the 2007-16 period, China suffered by far the largest revaluation loss. Among other larger net foreign asset holders, Saudi Arabia, Switzerland and Japan also suffered significant losses, while Germany, a country that had a modest net foreign asset position in 2007, suffered from modest losses, in line with the cross-country relationship observed for other countries. The United States (which had a slightly negative net foreign asset position in 2007), also suffered losses as described earlier. Thereby, the losses of these predominantly large countries helped other countries with negative net international positions to gain and to improve their positions.

There is no uniform tendency concerning the asset classes that suffered losses in 2007-16, as summarised by Table 4 (see country-specific charts showing annual dynamics in the Annex)[11]. Concerning FDI, China and Saudi Arabia actually gained in 2007-16, Switzerland, Japan and the United States lost on net terms, while in Germany the revaluation of FDI was broadly neutral. The net FDI loss for Switzerland was the result of a larger gain on liabilities than on assets. Portfolio equity was negative (in net terms) for Saudi Arabia, Germany, Switzerland and the US, while it was positive for Japan and neutral for China. The sign of revaluation impacts was similarly mixed for the other main assets classes: portfolio debt, other investment and reserve assets. As regards the revaluation of total assets and liabilities in 2007-16, the six countries form three distinct groups: China and Saudi Arabia lost on assets, while there were gains on their liabilities; in Switzerland and in the US there was close to zero revaluation on assets, but a gain on liabilities; while in Japan and Germany there were larger gains on liabilities than the gains on assets. Therefore, the channels through which these countries suffered relative net asset losses differ markedly.

[11] Note that the table summarises the total (cumulative) revaluation changes from 2007-2016. This period includes both the immediate aftermath of the collapse of Lehman Brothers, when for example equity prices fell throughout the world, and more recent periods when equity prices increased.

Table 4: Summary of revaluation changes in some larger countries suffering losses on total NIIP in 2007-2016

		FDI	Portfolio equity	Portfolio debt	Other investments	Reserves	Total
China	Assets	++	+	-	-	-	-
	Liabilities	+	+	+	+		+
	Balance	+	~	-	-	-	-
Saudi Arabia	Assets	+	-	+	-	~	-
	Liabilities	-			~		+
	Balance	+	-	+	-	~	-
Switzerland	Assets	+	-	-	-	-	~
	Liabilities	++	+	+	-		+
	Balance	-	-	-	~	-	-
Japan	Assets	~	+	~	+	~	+
	Liabilities	-	~	-	++		++
	Balance	-	+	-	-	~	-
Germany	Assets	~	~	+	~	+	+
	Liabilities	~	+	+	-		++
	Balance	~	-	~	-	+	-
United States	Assets	-	+	~	+	+	~
	Liabilities	~	++	~	~		+
	Balance	-	-	~	+	+	-

Source: Bruegel. Notes: +: revaluation gain from 2007-2016; ++: larger revaluation gain than the gain in the other side of the balance sheet from 2007-2016; -: revaluation loss from 2007-2016; ~close to zero revaluation from 2007-2016.

On average EU countries fit the global trend reflected on Figure 10, but there are some important exceptions[12]. Croatia benefitted the most from revaluations, largely because of a large loss on FDI liabilities (-50 percent in total from 2007-16), while the losses on FDI assets were smaller (-11 percent from 2007-16). Latvia, Lithuania, Estonia, Greece, Poland and Slovakia, EU countries with sizeable negative investment positions in 2007, also benefitted from revaluation gains in 2007-16. However, Spain, Portugal and Hungary had net negative asset position of about 100 percent of GDP in 2007, yet these countries were not able to benefit from revaluation gains, as our indicator for 2007-16 is close to zero. On the other hand, Norway, a large net foreign asset holder, benefitted from sizeable revaluation gains.

Therefore, although there are some significant outliers, our findings suggest that there is a clear and statistically significant negative correlation between net foreign asset positions and revaluation

[12] The correlation coefficient for the sample of 24 non-EU countries is -0.56, while the correlation coefficient for 27 EU countries is -0.42 (Bulgaria is not included due to missing data). The correlation coefficient for the combined sample of 51 EU and non-EU countries is -0.52.

changes both before and after 2007, which is stabilising: countries with negative NIIP tend to gain, while countries with positive NIIP tend to lose.

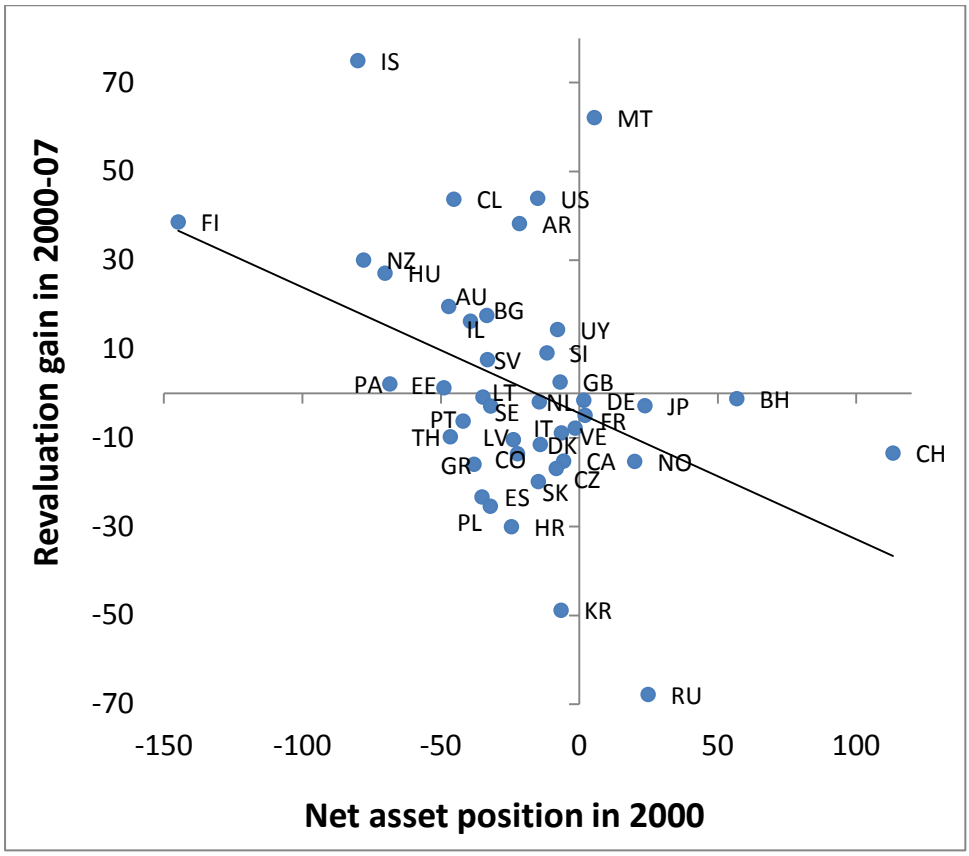
Further research should explore the reasons behind this stabilising behaviour, yet the currency composition of foreign assets and liabilities might play a role. A stabilising behaviour would be consistent with liabilities denominated in the domestic currency and assets denominated in foreign currencies[13]. Under such circumstances, net asset holders – countries that typically have current account surpluses – might face a currency appreciation, which reduces the domestic currency value of assets, while leaving unchanged the domestic currency value of liabilities, and thereby the NIIP deteriorates. In contrast, countries with net negative foreign asset positions, which typically have current account deficits, might experience currency depreciation, which increase the domestic currency value of foreign assets, leaving the domestic currency value of liabilities unchanged, and thereby the NIIP improves. Unfortunately, it is not easy to get information about the currency composition of foreign assets and liabilities. Bénétrix, Lane and Shambaugh (2015) tried to approximate the currency composition of foreign assets and liabilities by using a range of datasets and inferential techniques. They find some evidence that the distribution of currency-related valuation effects was stabilising, which is in line with our findings.

However, the experiences of euro-area countries highlight that currency changes cannot be the only factor behind the stabilising role of valuation adjustments of foreign assets and liabilities. Some euro-area countries are characterised by large positive and others by large negative net international investment positions. Given the shared currency, the changes in the value of the euro cannot be stabilising for all members. Nevertheless, many euro-area countries, including surplus countries like Germany and deficit countries like Slovakia, fit the cross-country pattern between the initial stock of NIIP and subsequent valuation changes.

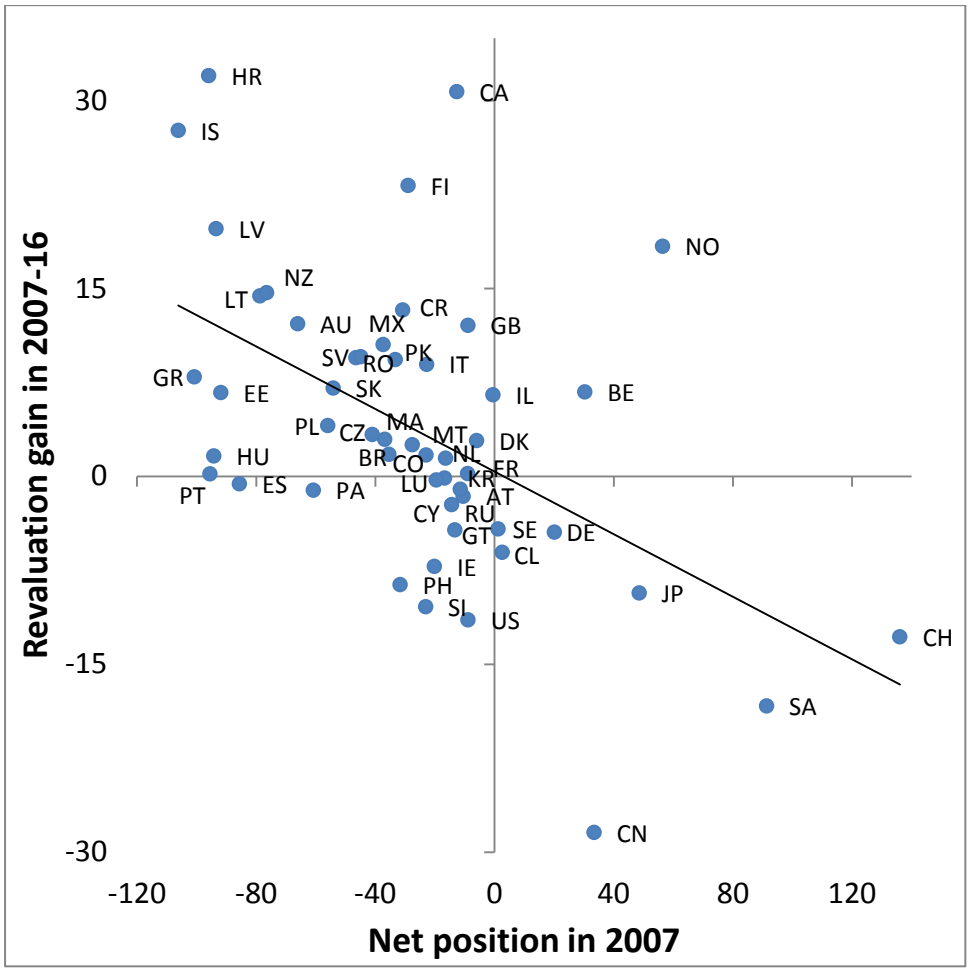
[13] Such a situation likely characterise most advanced countries. In earlier decades, many emerging countries borrowed in foreign currencies (see Eichengreen and Hausmann, 1999), but more recently foreign currency exposures have declined in many emerging countries.

Figure 10: Revaluation gain vs initial stock of net assets

A) 2000-2007



B) 2007-2016



Source: Bruegel using data from the IMF Balance of Payments Statistics. Note: revaluation gain is defined by equation (6). Net position and revaluation considers total assets and liabilities for all countries but the six countries that joined the euro area after 2007: Cyprus, Malta, Slovakia, Estonia, Latvia and Lithuania, because in these countries a large share of reserve assets was passed to the ECB at the time of euro entry, which is indicated in country specific data as a significantly negative fall in reserve assets, and thereby in total assets too (see the country-specific charts in the annex). For these six countries, our indicators consider the sum of FDI, portfolio investment (both equity and debt) and other investment. South Africa is excluded from the chart due to its outlier observation (-31 percent of GDP NFA in 2007 and 103 percent revaluation gain in 2007-16).

6. Decomposition of NIIP changes

Finally, we look at the role of revaluation changes in the change in net international investment positions from 2007-16. A straightforward way would be to decompose the change in NIIP to net financial flows and non-flows (which include capital gains or losses). However, in the European Union, EU transfers play an important role in cross-border financial flows and most EU transfer are recorded in the capital account. EU transfers do not create a liability for the receiving country, thereby supporting

the sustainability of current account deficits. Therefore, we would also like to indicate the contribution of the capital account to the financing of current account deficits, which indirectly improves the NIIP.

Figure 11 shows the change in NIIP from 2007 to 2016 and decomposes it into three components. The sum of the total current account balance and the total capital account balance corresponds to financial flows, if net errors and omissions are considered as capital flows (see our discussion at equation (7)). If that's the case,

$$(9) \qquad non - flow_t = \Delta(NIIP_t) - CAB_t - KAB_t \,,$$

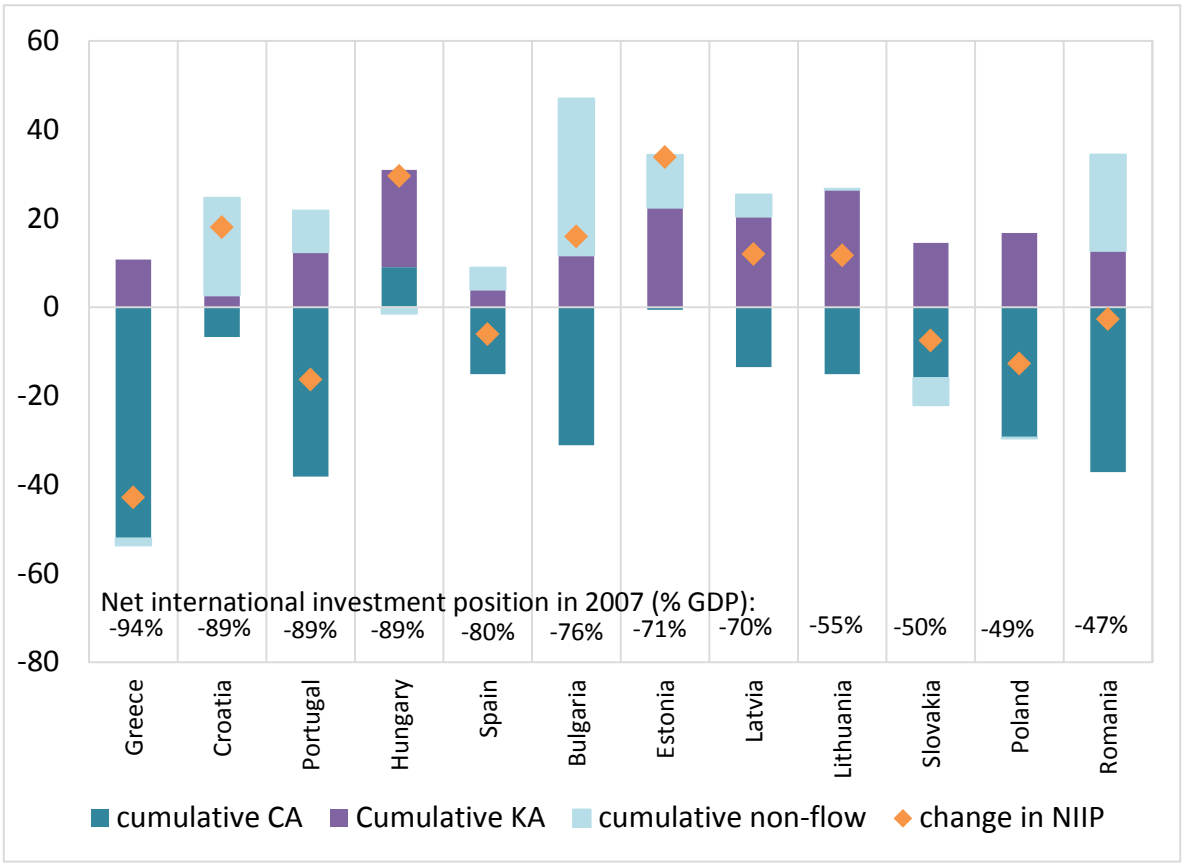
where non-flow includes valuation changes and other factors (like reclassification).

Most central European countries that joined the EU in 2004 received capital account transfers over 20 percent of GDP in 2007-16, which was very supportive for the sustainability of their NIIP. Greece, Portugal, Bulgaria and Romania, but also the higher-income Czech Republic, received between 10-13 percent of GDP. Therefore, EU transfers played very important roles in the improvement of the net international investment positions of these countries.

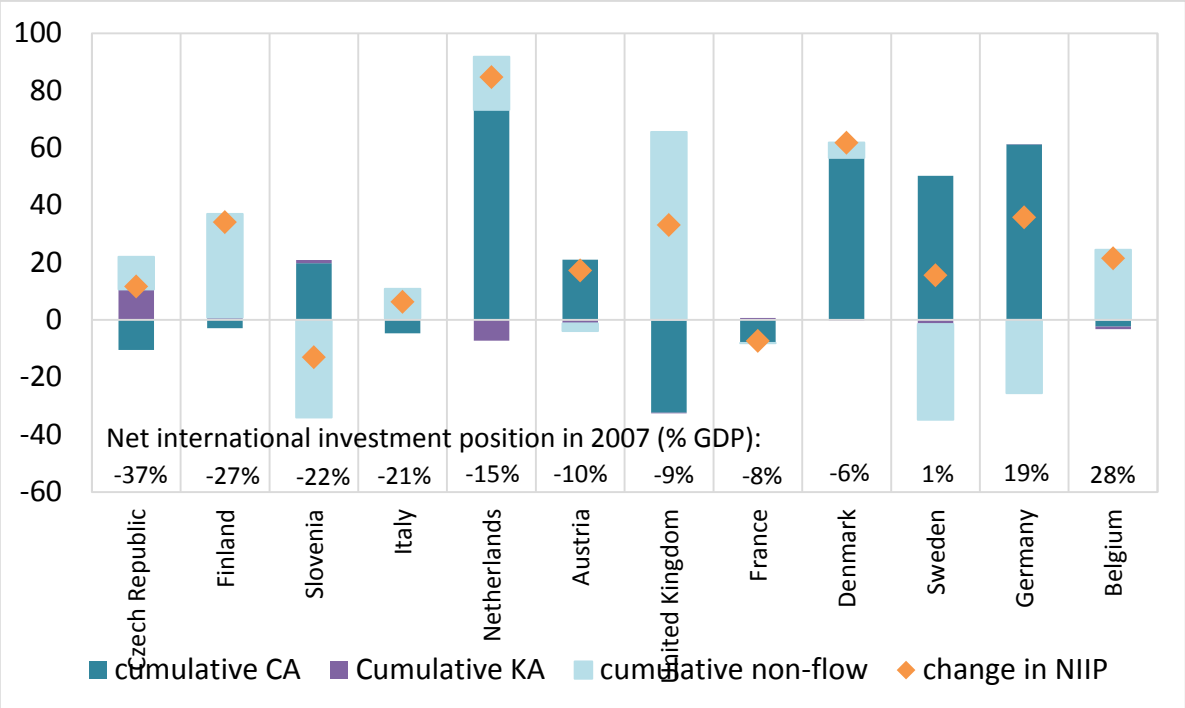
It is also notable that valuation changes (which are included in 'non-flows') played an especially large role in the NIIP improvement of Croatia, Bulgaria, Estonia, Romania, the Czech Republic, Finland, the United Kingdom, Belgium, South Africa, Canada and Norway. Portugal also benefited from such improvements. In most of these countries, valuation changes were much larger than financial flows.

Figure 11: Change in NIIP from 2007-2016 due to capital flows and non-flows, % GDP

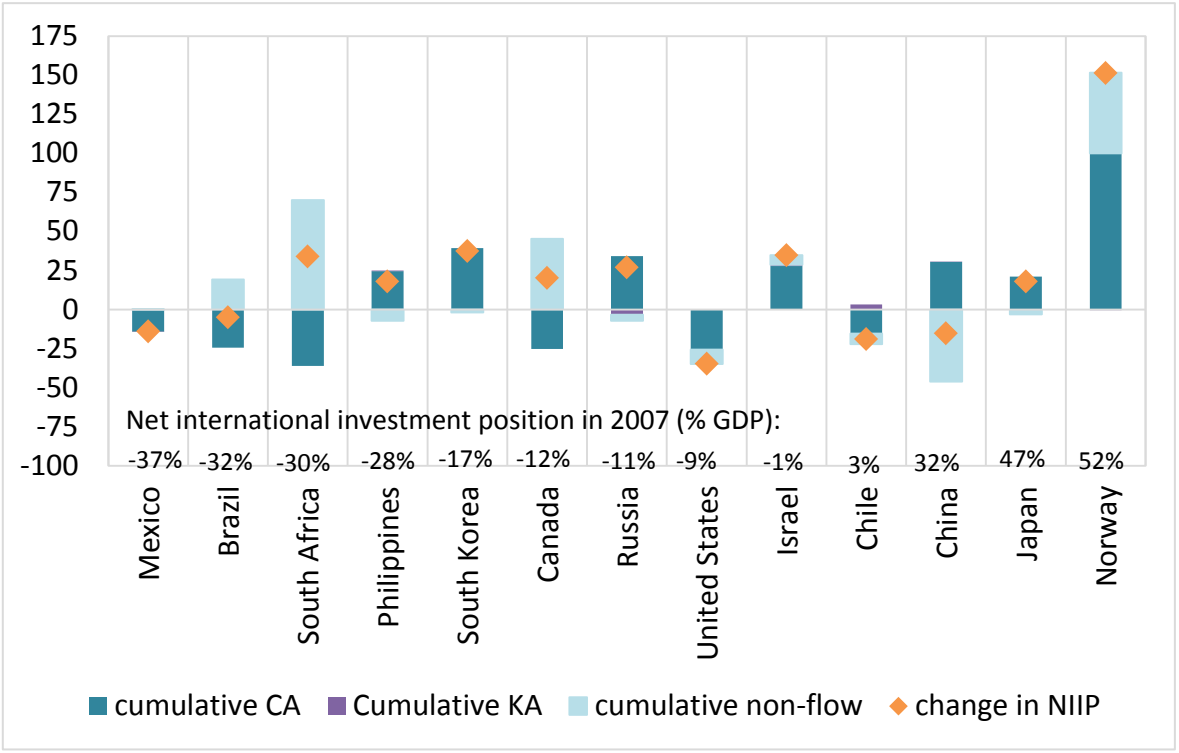
A: EU countries with the largest negative NIIP position in 2007



B: EU countries with the less negative or positive NIIP position in 2007



C: Non-EU countries



Source: Bruegel using data from the IMF Balance of Payments Statistics and IMF World Economic Outlook dataset. Note: cumulative CA = the sum of annual current account balances (as a share of GDP) in 2007-16; cumulative KA = the sum of annual capital account balances (as a share of GDP) in 2007-16; cumulative non-flow: change in NIIP minus cumulative CA minus cumulative KA; see equation (9). Note that changes in GDP, which is used as the denominator, also influence our cumulative non-flow calculation. E.g. in Greece GDP contracted significantly in 2007-16, while in Poland it grew a lot.

7. Conclusions and further research questions

Financial globalisation led to large increases in foreign assets and liabilities in recent decades, increasing the scope for valuation changes that are potentially larger than trade or financial flows. We have documented the large increases in foreign assets and liabilities (measured as a share of GDP) for most of the 56 countries we consider.

Our calculations confirm that the United States enjoys an 'exorbitant privilege' regarding the yield (flow income) on foreign assets and liabilities: the yield on US foreign assets exceeded the yield on US foreign liabilities in each year for which data is available. However, we conclude that the United States did not benefit from continued valuation gains on net foreign assets. We find that as a share of asset stock, valuation gains are almost entirely a result of developments from the mid-1970s to mid-1980s, but since the mid-1980s, the cumulative share of revaluation in gross stocks oscillated at about 40 percent for assets and 20 percent for liabilities. And since 2007, the US absorbed relative asset losses

and thereby contributed to global risk sharing. Therefore this element of the US´s 'privilege' is not robust to more recent data.

As regards the flow yield, only Japan and Switzerland exhibit a picture similar to the United States, but no other main advanced country. Thereby, we cannot confirm the hypothesis that the creation of the euro, which has become the second most internationalised currency, has generated external yield advantages for euro-area countries similar to what is observed for the United States.

The main driving force of the US yield advantage is better yielding FDI assets over FDI liabilities. The geographical allocation of FDI assets, which likely captures risk factors, explains only a small part of the US yields on FDI assets. The key reason is that US, and also UK and Japanese investors, were able to outperform the average yield earned in the countries of their FDI destinations, while most continental European investors earn the average. Further research should analyse the reasons behind the higher-than-average US/UK/Japanese FDI asset yields, including the following:

- Do investments in 'tax optimisation' countries distort FDI yields? We found that about 60 percent of US and 40 percent of UK FDI is invested such countries, and Japanese investors also invested a surprisingly large share of Japan's FDI investments in the Cayman Islands. In principle, this should not affect our results, given that we compare reported profit transfers (relative to FDI assets) and thereby undeclared income does not enter the statistics we use. However, when investment in 'tax optimisation' countries is so high, FDI yield and stock data might be measured imprecisely.
- Does the treatment of intellectual property distort the statistics? Some companies might establish the bulk of their intellectual property in their home country and have little physical investment in other countries, yet profit from these other countries might be related to their home-country intellectual property. Thereby, the ratio of profit to physical investment abroad can be large.
- Could financial sophistication contribute to high yields on FDI assets? Financial sophistication might help investors to better identify profitable investment opportunities.

We also document that emerging countries in general, and central European countries in particular, are characterised by rather high yields on their FDI liabilities. Beyond possible risk factors, these high yields most likely reflect higher returns on capital in these countries, because of low capital/income ratios and the potential for fast productivity growth.

For several European and non-European countries, valuation changes were greater than current account and financial transactions, highlighting the importance of such changes. In the EU, the generally negative international investment positions of a number of central and southern European countries were greatly supported by EU transfers.

The improvement of yields on foreign assets relative to liabilities played a small role in supporting negative international investment positions. However, valuation changes do not look random and played an important role in the sustainability of international investment positions, both before and after the 2008 crisis. Countries with negative net international investment positions tend to have positive revaluation gains, while countries with large net foreign assets tend to suffer from revaluation losses. For example, large net foreign asset holders like China, Saudi Arabia, Switzerland, Japan and Germany, suffered significant losses in 2007-16 and thereby helped the sustainability of negative positions of other countries. Risk-sharing was also fostered by losses suffered by the United States since 2007, a country with a negative international investment position. There is no uniform tendency in terms of the asset classes from which these losses arose. As regards the revaluation of total assets and liabilities in 2007-16, China and Saudi Arabia lost on assets, while there were gains on their liabilities; in Switzerland and in the US there was close to zero revaluation on assets, but a gain on liabilities; while in Japan and Germany there were larger gains on liabilities than the gains on assets. Therefore, the channels through which these countries suffered relative net asset losses differ markedly, and the differences are even greater when we look at various asset classes such as equity and debt. A key issue for future research is to better understand the drivers of these valuation changes.

References

Bénétrix, Agustin S., Philip R. Lane and Jay C. Shambaugh (2015) 'International currency exposures, valuation effects and the global financial crisis', *Journal of International Economics* 96: S98-S109

Curcuru, Stephanie E., Charles P. Thomas and Francis E. Warnock (2013) 'On Returns Differentials', *International Finance Discussion Papers* Number 1077, Board of Governors of the Federal Reserve System, available at https://www.federalreserve.gov/pubs/ifdp/2013/1077/ifdp1077.pdf

Darvas, Zsolt (2012) 'The euro crisis: ten roots, but fewer solutions', *Policy Contribution* 2012/17, Bruegel, available at http://bruegel.org/2012/10/the-euro-crisis-ten-roots-but-fewer-solutions/

Darvas, Zsolt, Pia Hüttl, Silvia Merler, Carlos De Sousa and Thomas Walsh (2015) 'Analysis of developments in EU capital flows in the global context', Study for DG MARKT of the European Commission, January, available at http://bruegel.org/2015/01/analysis-of-developments-in-eu-capital-flows-in-the-global-context/

Eichengreen, Barry and Ricardo Hausmann (1999) 'Exchange rates and financial fragility', *Proceedings - Economic Policy Symposium - Jackson Hole*, Federal Reserve Bank of Kansas City, pp 329-368

Garcia-Bernardo, Javier, Jan Fichtner, Frank W. Takes and Eelke M. Heemskerk (2017) 'Uncovering Offshore Financial Centers: Conduits and Sinks in the Global Corporate Ownership Network', *Nature*, Scientific Reports 7, Article number: 6246, available at https://www.nature.com/articles/s41598-017-06322-9

Gourinchas, Pierre-Olivier and Hélène Rey (2007) 'From World Banker to World Venture Capitalist: U.S. External Adjustment and the Exorbitant Privilege', in Clarida, Richard H. (ed) *G7 Current Account Imbalances: Sustainability and Adjustment*, University of Chicago Press

Gourinchas, Pierre-Olivier and Hélène Rey (2014) 'External adjustment, global imbalances, valuation effects', in Helpman, E., Rogoff, K., Gopinath, G. (eds) *Handbook of International Economics*, vol. 4. Elsevier, Amsterdam, pp. 585–645

International Monetary Fund (2014) 'BPM6 Compilation Guide. Companion document to the sixth edition of the balance of payments and international investment positions manual', available at: http://www.imf.org/external/pubs/ft/bop/2014/pdf/Guide.pdf

Lane, Philip (2013) 'Capital Flows in the Euro Area,' *European Economy - Economic Papers* 497, Directorate General Economic and Monetary Affairs (DG ECFIN), European Commission, available at http://ec.europa.eu/economy_finance/publications/economic_paper/2013/ecp497_en.htm

Lane, Philip R. and Gian Maria Milesi-Ferretti (2009) 'Where did all the borrowing go? A forensic analysis of the U.S. external position', *Journal of the Japanese and International Economies* 23(2): 177–199

Rogoff, Kenneth S. and Takeshi Tashiro (2015) 'Japan's exorbitant privilege', *Journal of the Japanese International Economies* 35: 43–61

Annex 1: Eurostat data on stock-flow adjustment for EU countries

Eurostat data on the decomposition of stock-flow adjustment to revaluation because of exchange rate changes, revaluation because of market price changes and 'other changes' is available only for a few European countries and for short periods.

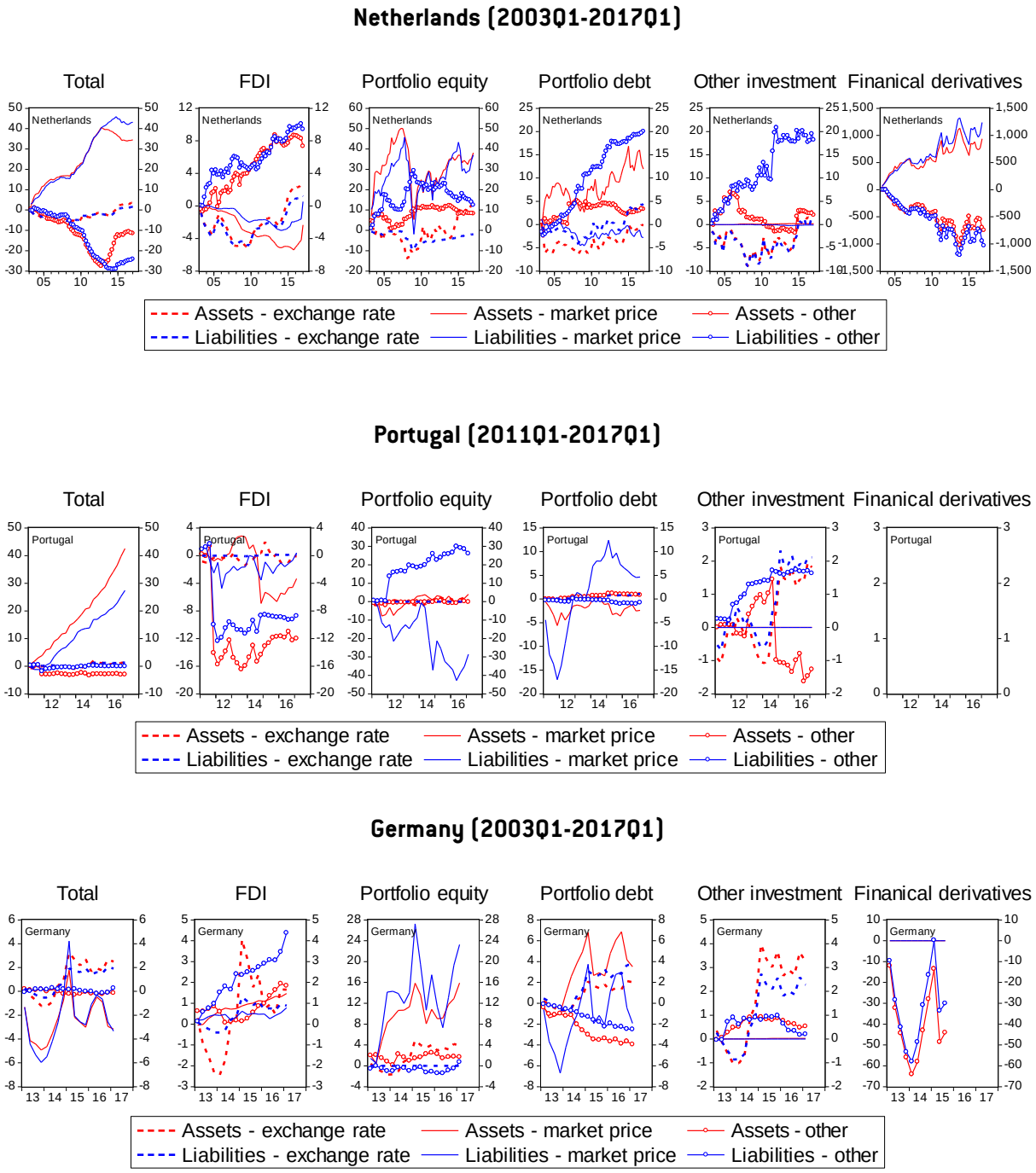
We also noticed a number of data discrepancies. For example, equation (1) of the main text is an identity and Eurostat data confirms this identity for Germany, Estonia, Greece, Italy, Latvia, Lithuania, Netherlands, Portugal and Slovakia. However, there are major discrepancies from this identity in the cases of Austria, Belgium, Czech Republic, France, Denmark, Hungary, Romania and Slovenia.

Moreover, Figure 12 suggests that financial derivatives play an important role in the development of the three main components of stock-flow adjustment (exchange rate, market price, 'other changes'), while financial derivatives are not in the focus of our study.

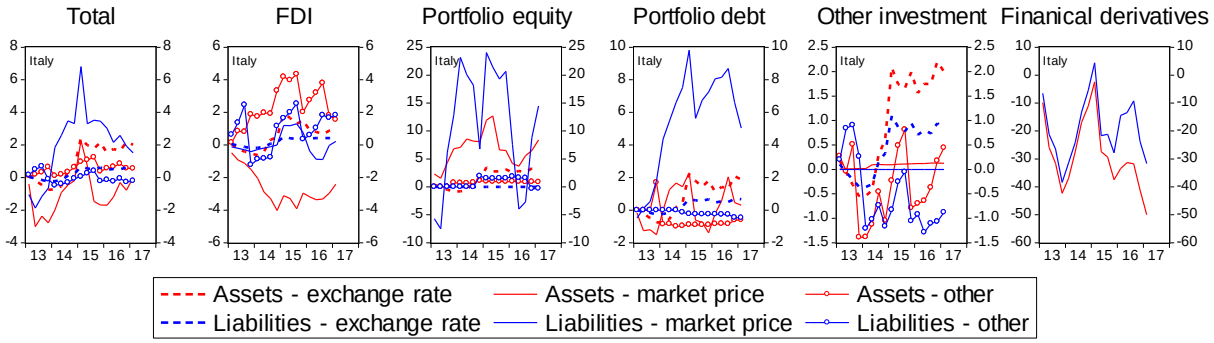
- In the case of Netherlands, the cumulative value of 'other changes' reached about minus 30 percent of both total assets and liabilities from 2003-12. However, Figure 12 reveals that the main reason behind this development was that the cumulative value of 'other changes' reached about minus 1000 percent (ie minus 10-times) the stock of both derivatives assets and liabilities, which looks an unreasonably large number. At the same time, market price gains increased the value of financial derivatives also by about 10-times in 2003-12.
- Financial derivatives might also play a decisive role in driving stock-flow adjustment components in Portugal. While specific data on revaluation of financial derivatives is not available, the cumulative market price change reached about 30-40 percent of total assets and liabilities in 2011-13, while FDI, portfolio equity, portfolio debt and other investment recorded minor market price increases, or even declines. Therefore, financial derivatives should explain the huge market price gains recorded for total assets and liabilities.

In the cases of Germany, Italy and Latvia, the contribution of 'other changes' to the stock-flow adjustment was relatively small in 2013-17, for all kinds of instruments and the total positions, with the exceptions of German financial derivatives and Latvian financial derivatives and portfolio debt assets.

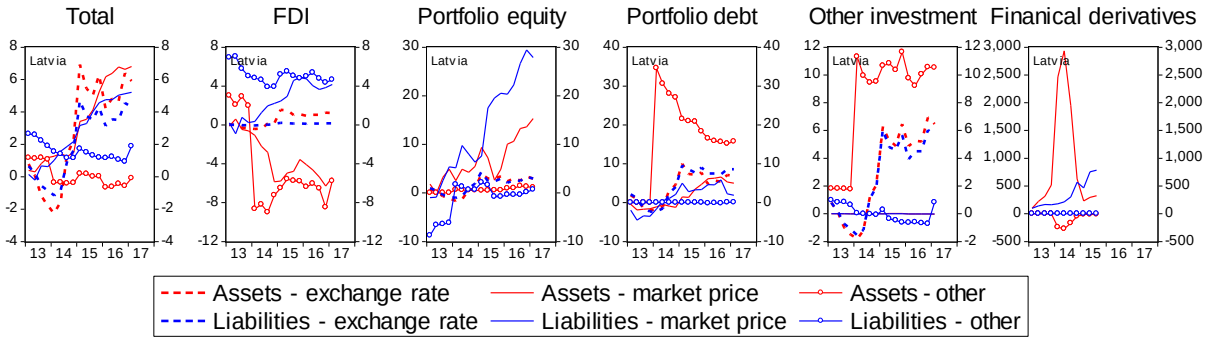
Figure 12: Cumulative value of revaluation effects and 'other changes' in four European countries (percent of stock)



Italy (2003Q1-2017Q1)



Latvia (2003Q1-2017Q1)

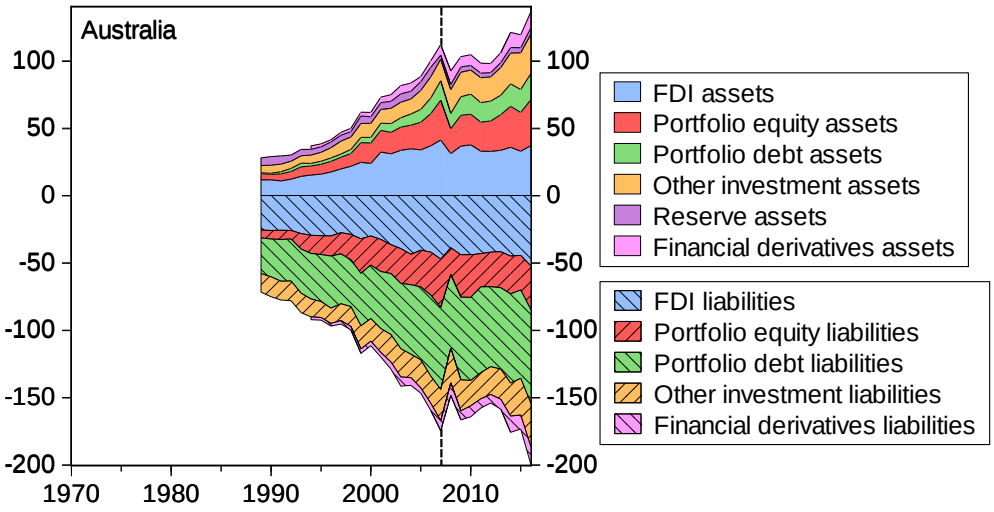


Source: Bruegel using Eurostat 'International investment position - quarterly and annual data (BPM6) [bop_iip6_q]' and 'Balance of payments by country - quarterly data (BPM6) [bop_c6_q]' datasets. Note: We calculate the cumulative value of revaluation/other effects starting from the first available observation and divide it by the actual stock.

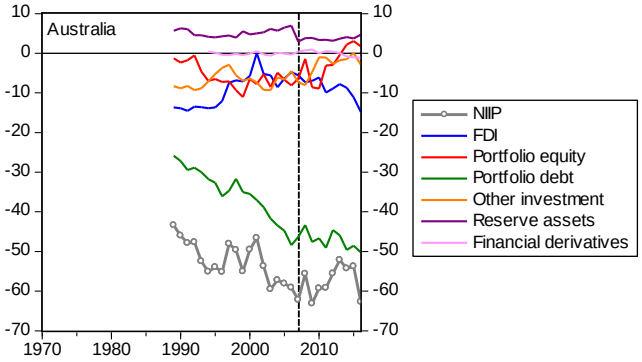
Annex 2: country-specific charts

Australia

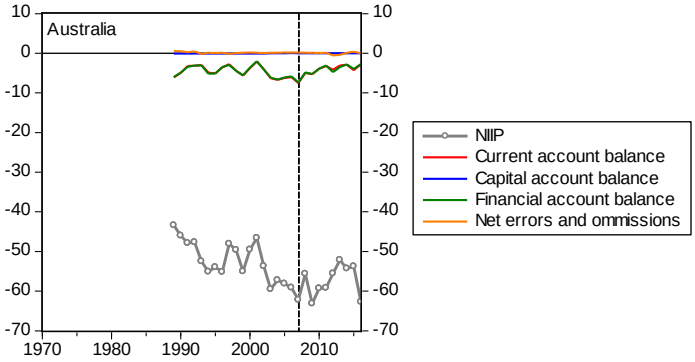
Gross international investment position (% GDP)



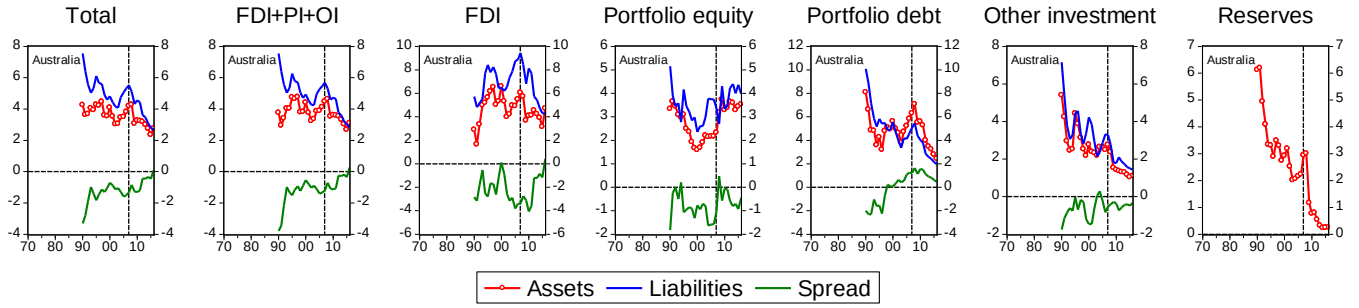
Net international investment position (% GDP)



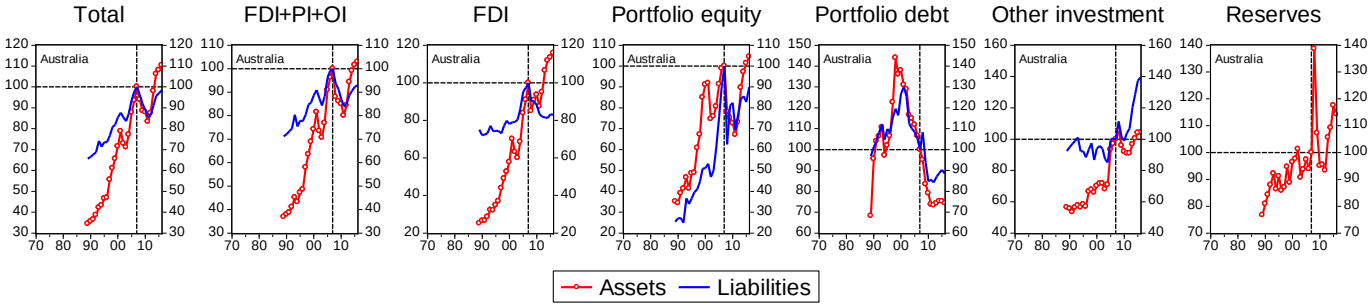
Flows and NIIP (% GDP)



Yield (%)

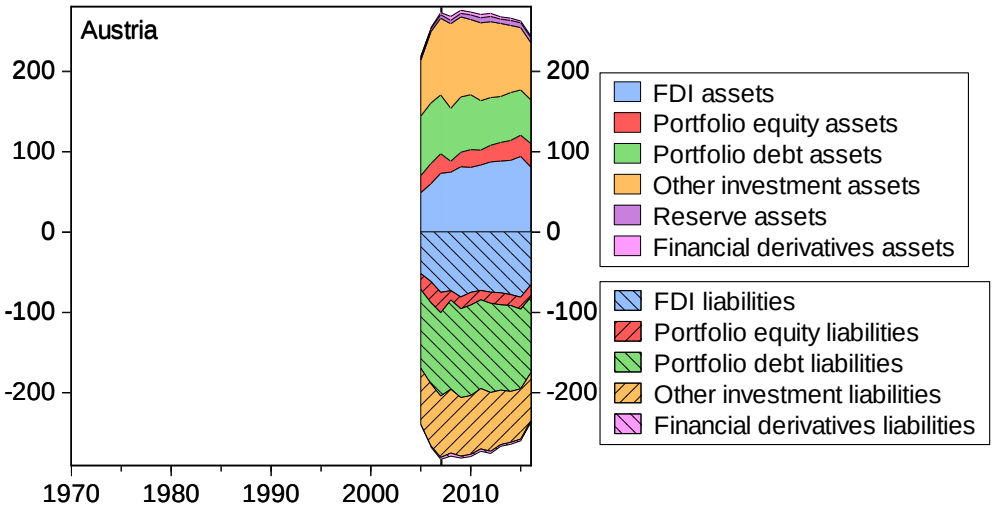


Revaluation index (2007=100)

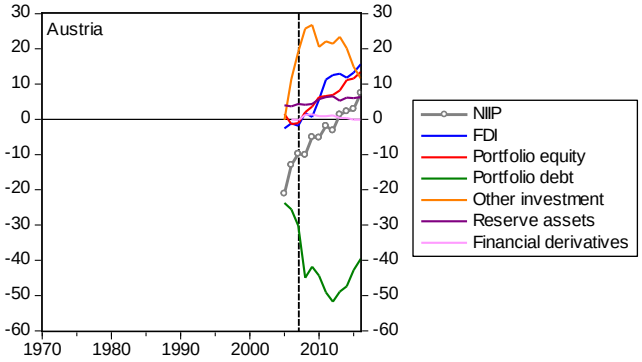


Austria

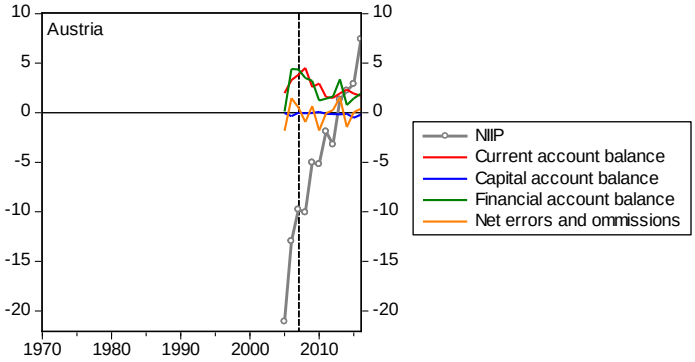
Gross international investment position (% GDP)



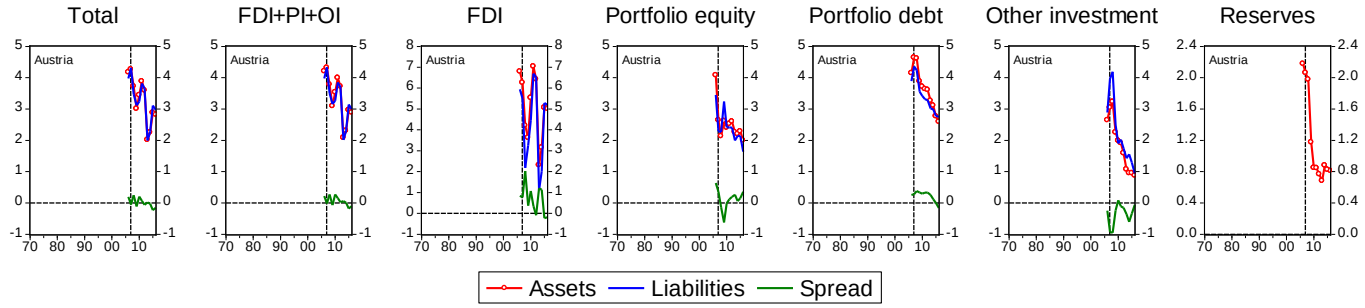
Net international investment position (% GDP)



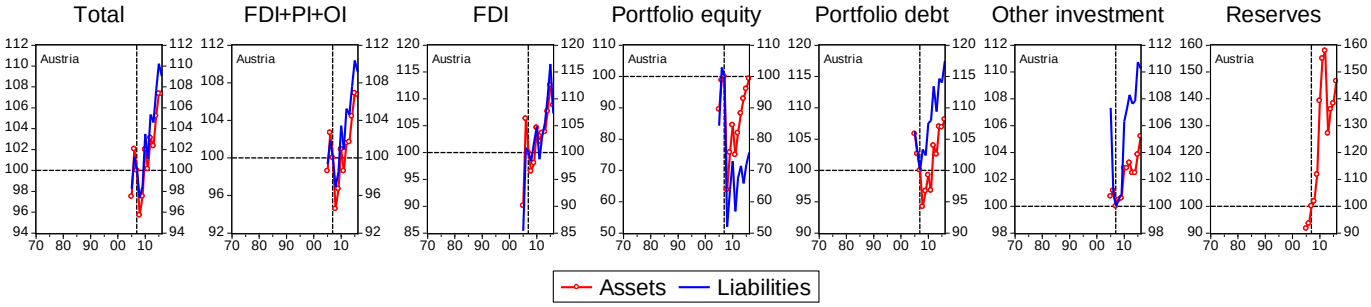
Flows and NIIP (% GDP)



Yield (%)

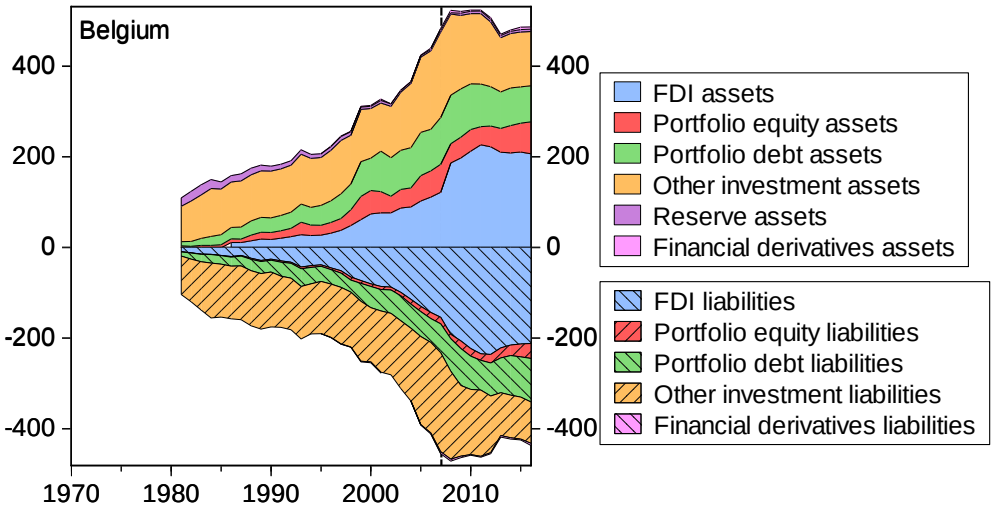


Revaluation index (2007=100)

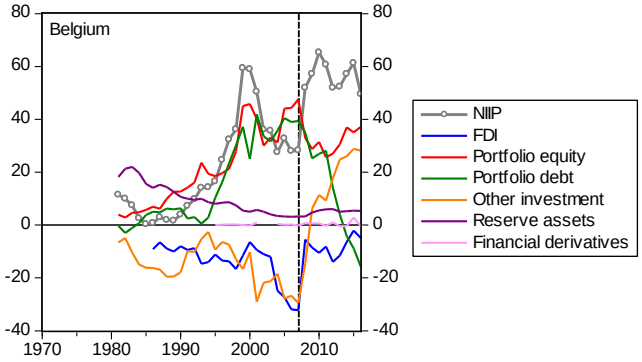


Belgium

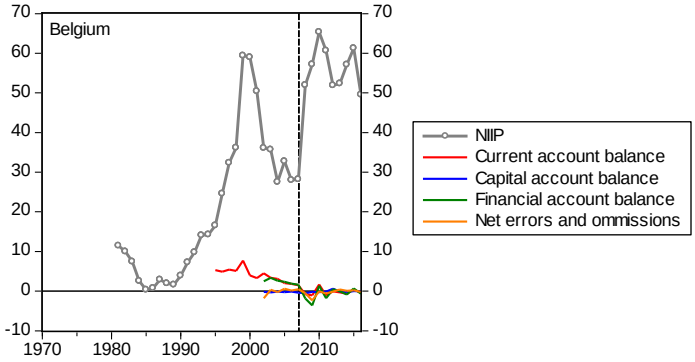
Gross international investment position (% GDP)



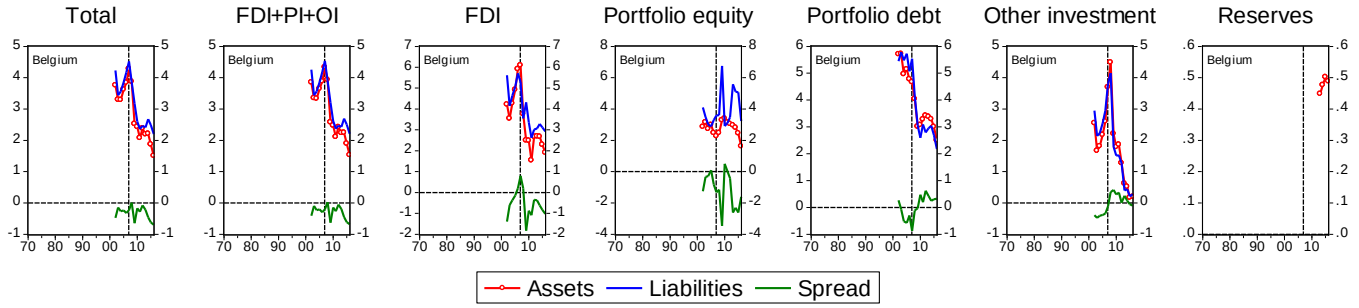
Net international investment position (% GDP)



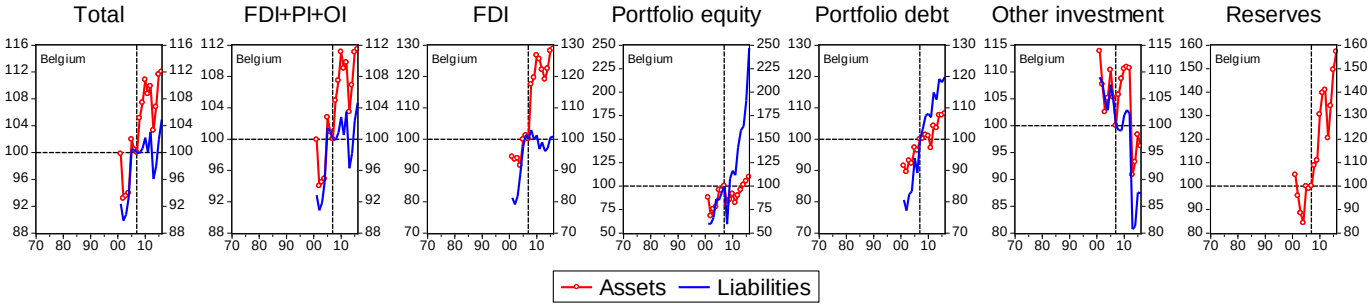
Flows and NIIP (% GDP)



Yield (%)

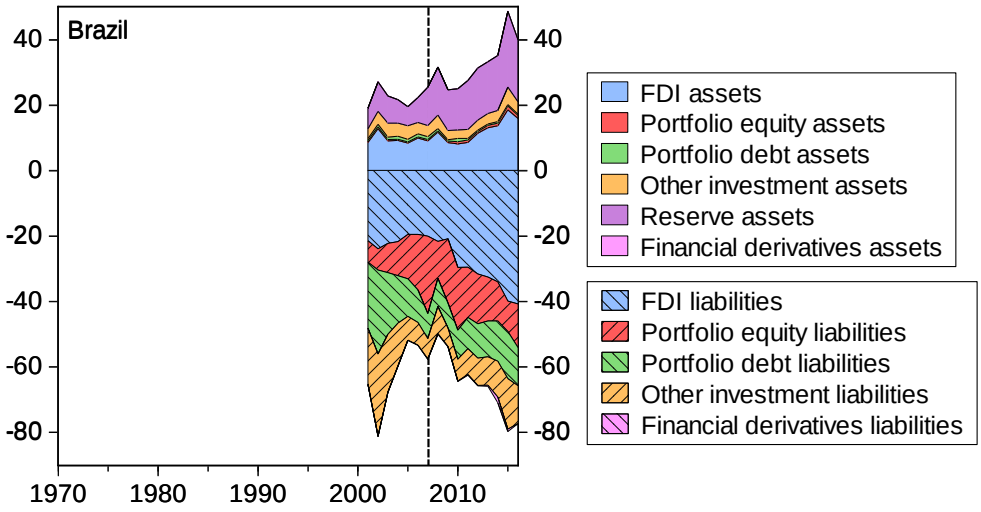


Revaluation index (2007=100)

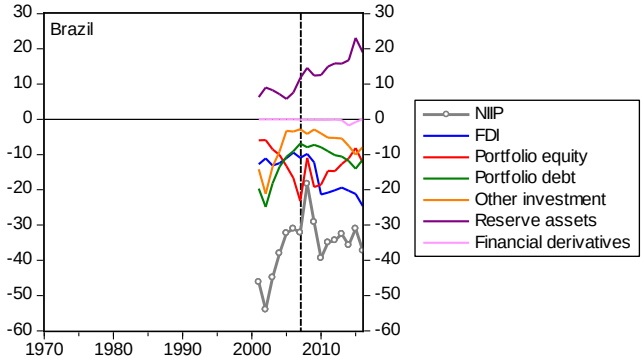


Brazil

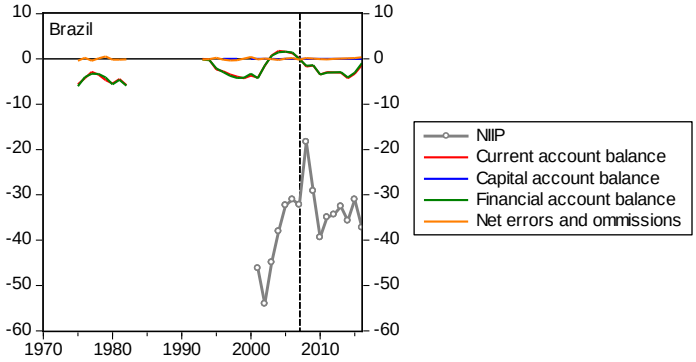
Gross international investment position (% GDP)



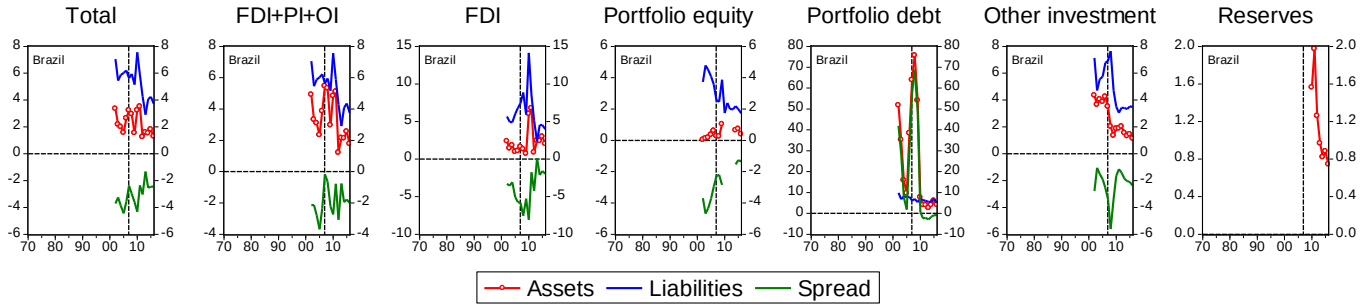
Net international investment position (% GDP)



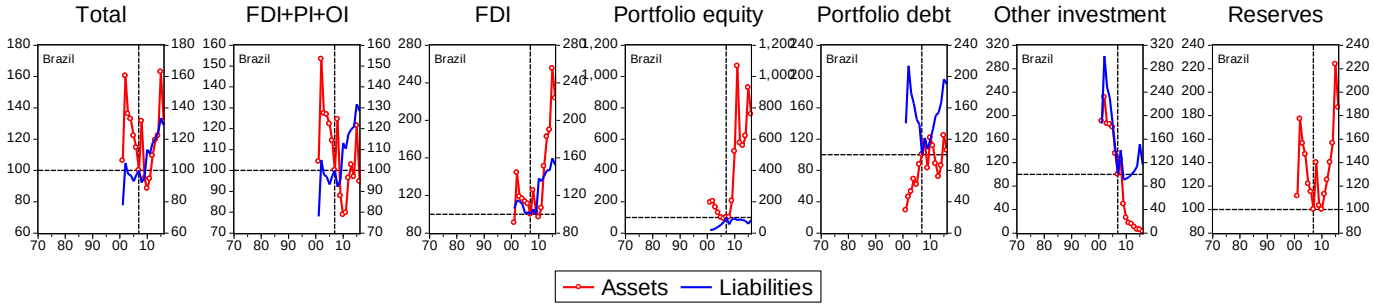
Flows and NIIP (% GDP)



Yield (%)

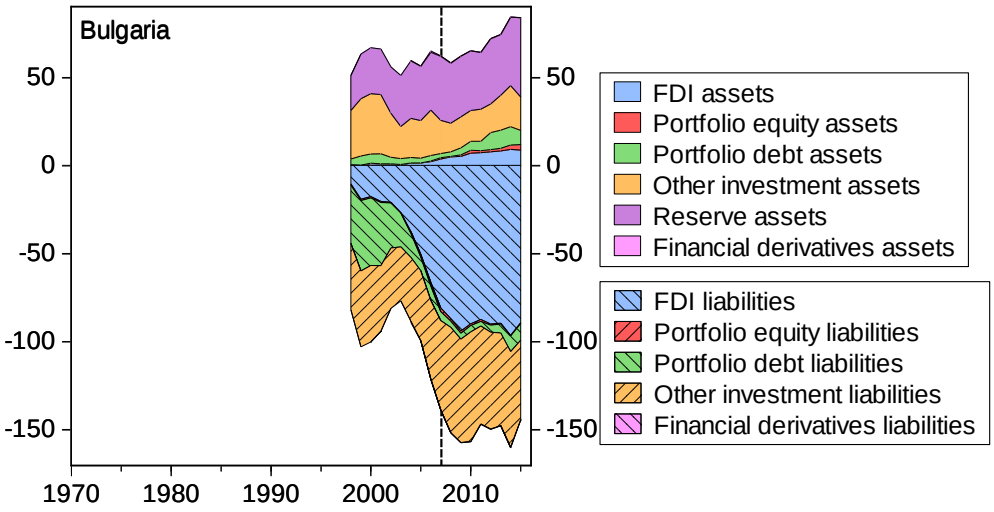


Revaluation index (2007=100)

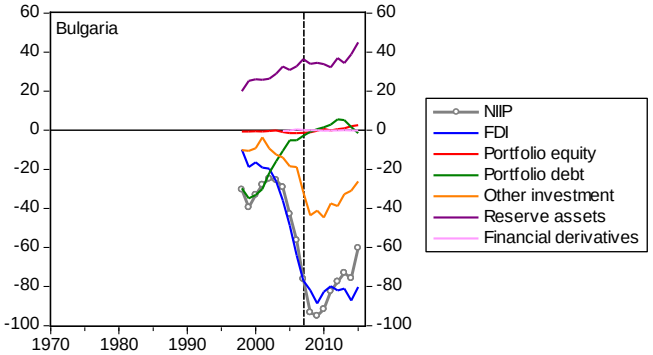


Bulgaria

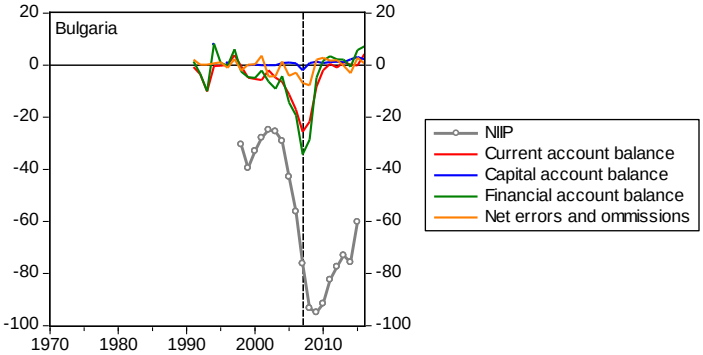
Gross international investment position (% GDP)



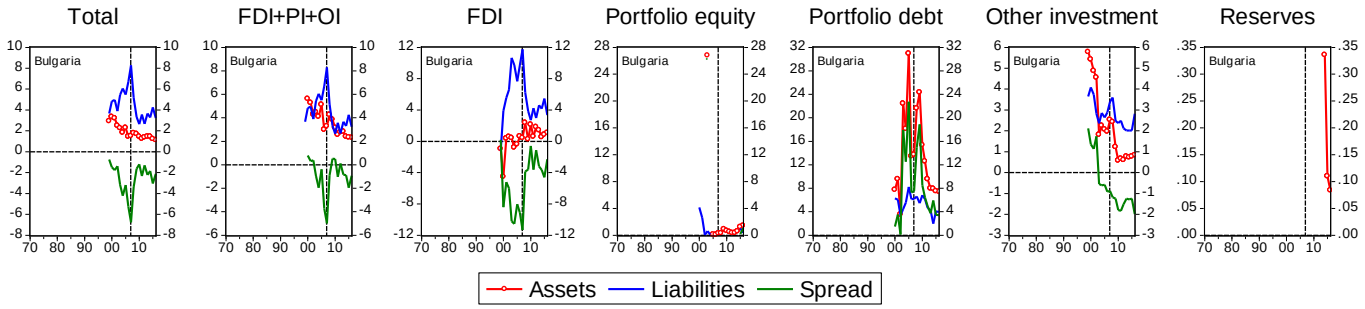
Net international investment position (% GDP)



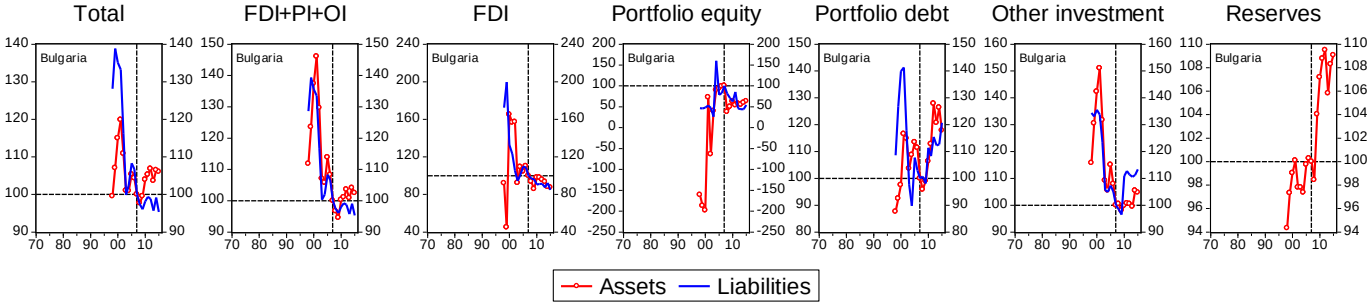
Flows and NIIP (% GDP)



Yield (%)

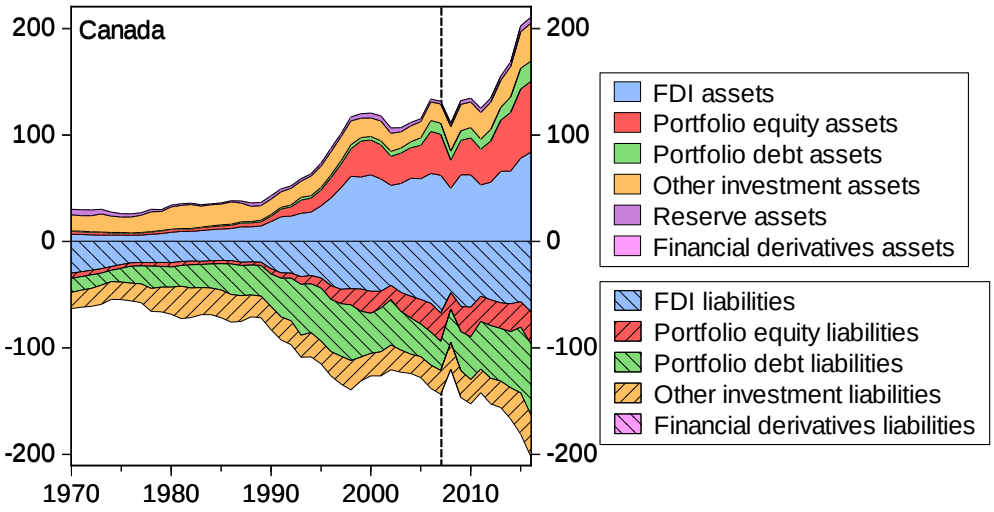


Revaluation index (2007=100)

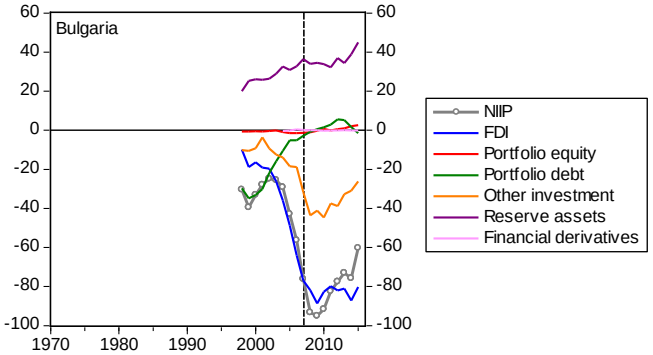


Canada

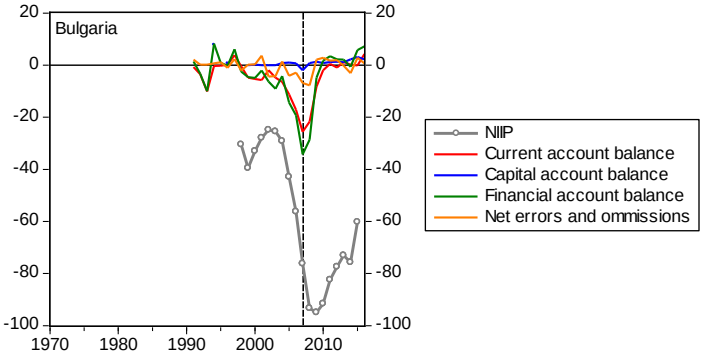
Gross international investment position (% GDP)



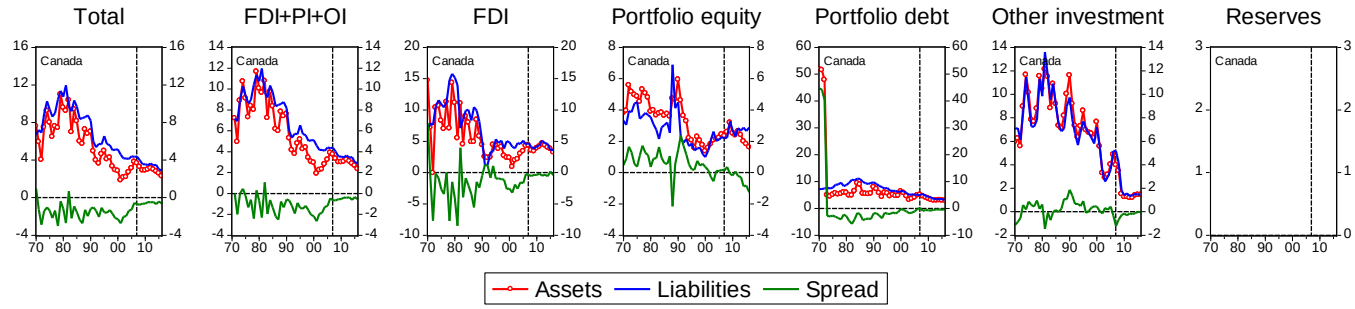
Net international investment position (% GDP)



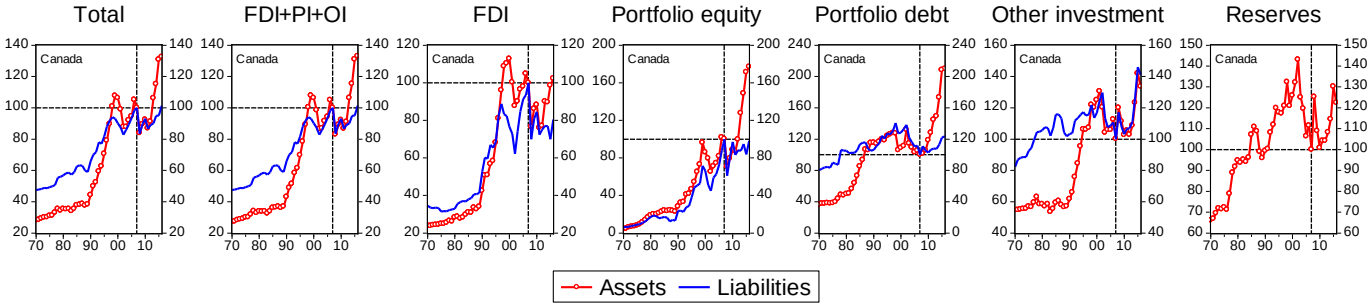
Flows and NIIP (% GDP)



Yield (%)

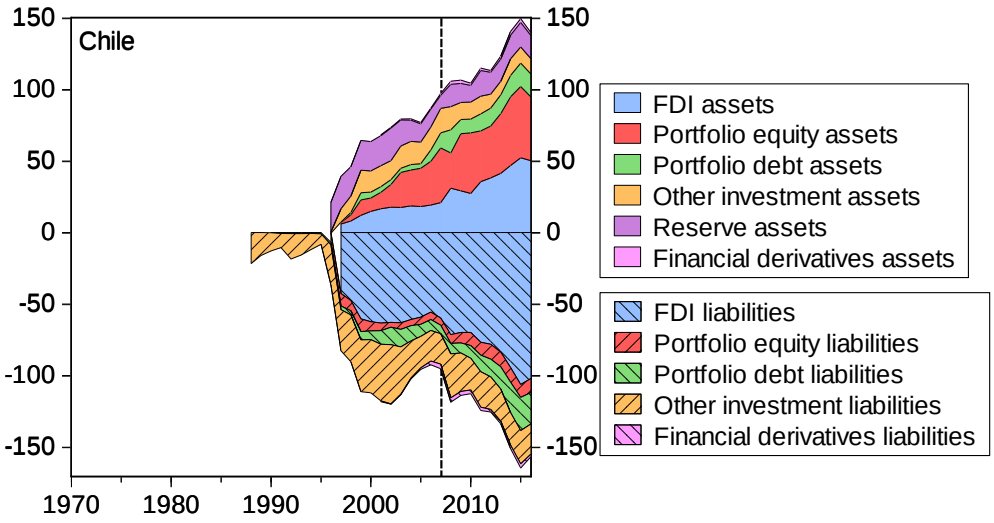


Revaluation index (2007=100)

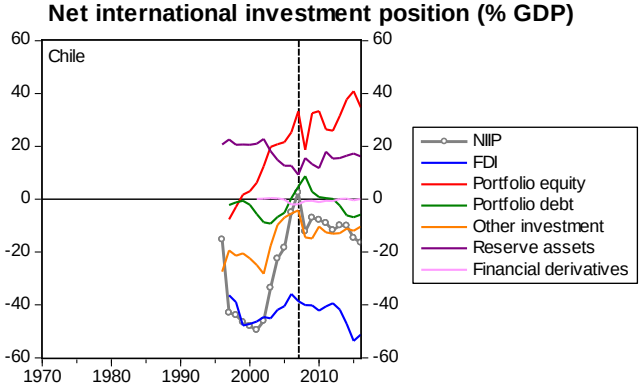


Chile

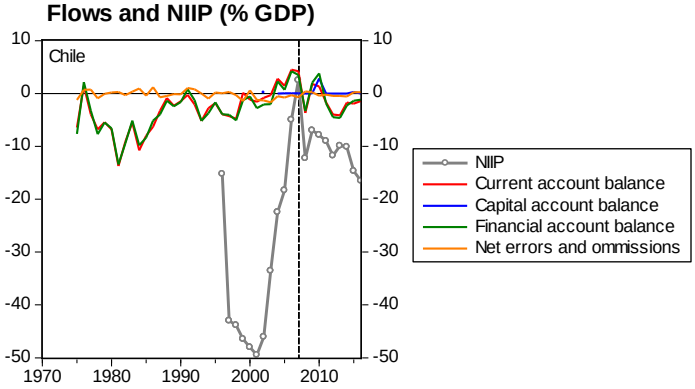
Gross international investment position (% GDP)



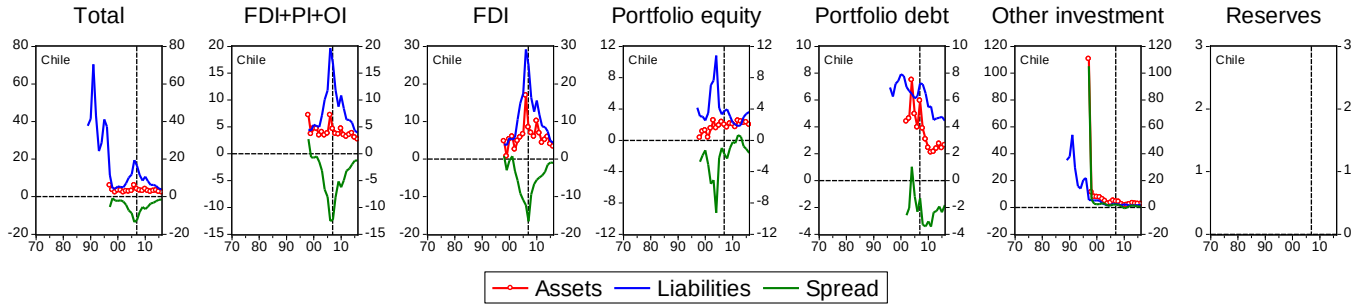
Net international investment position (% GDP)



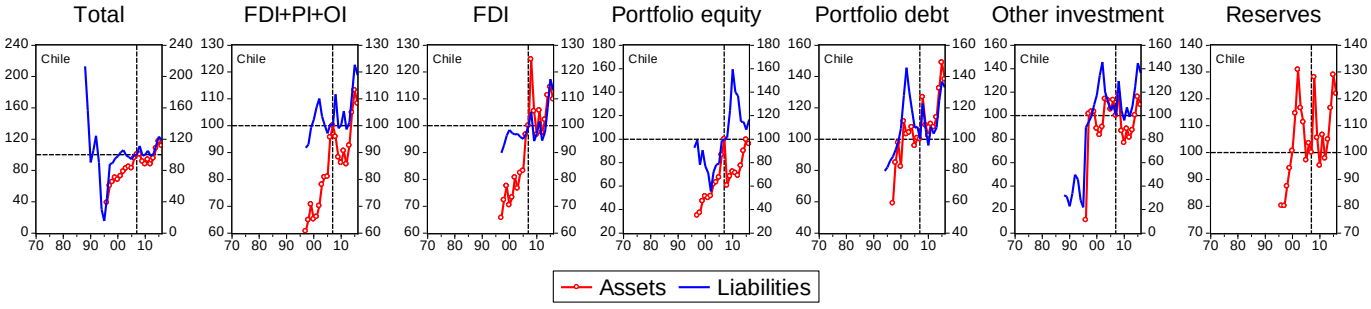
Flows and NIIP (% GDP)



Yield (%)

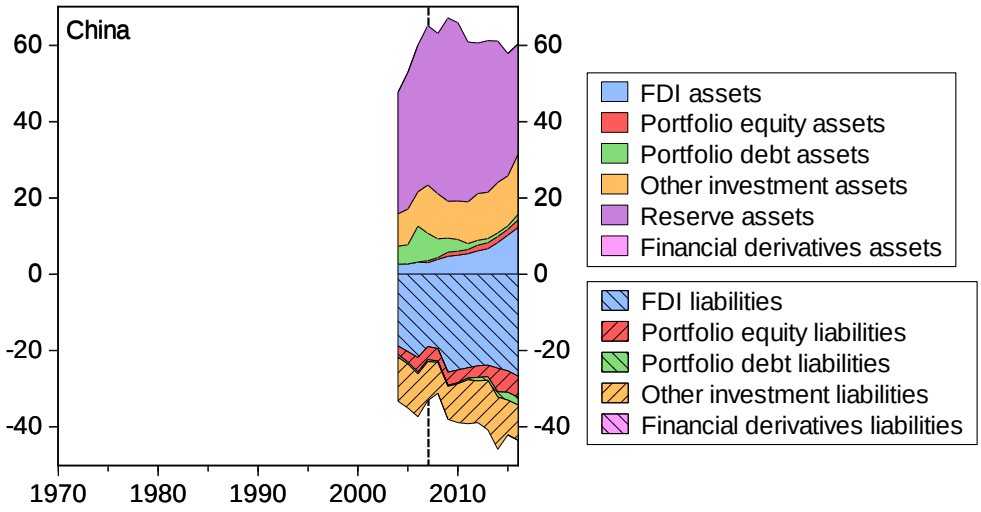


Revaluation index (2007=100)

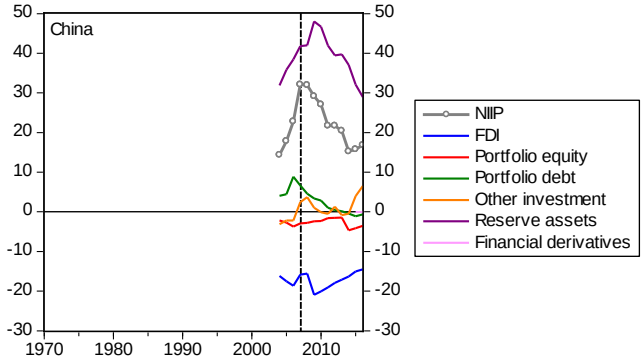


China

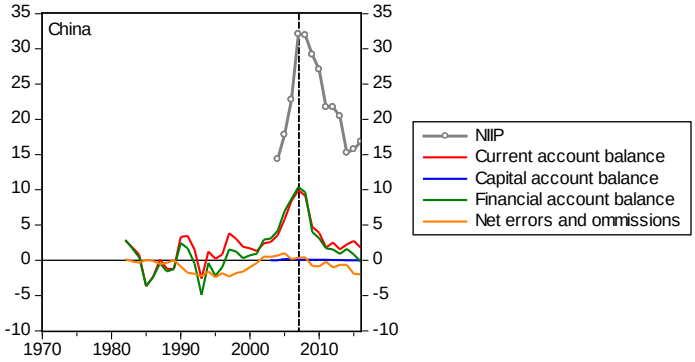
Gross international investment position (% GDP)



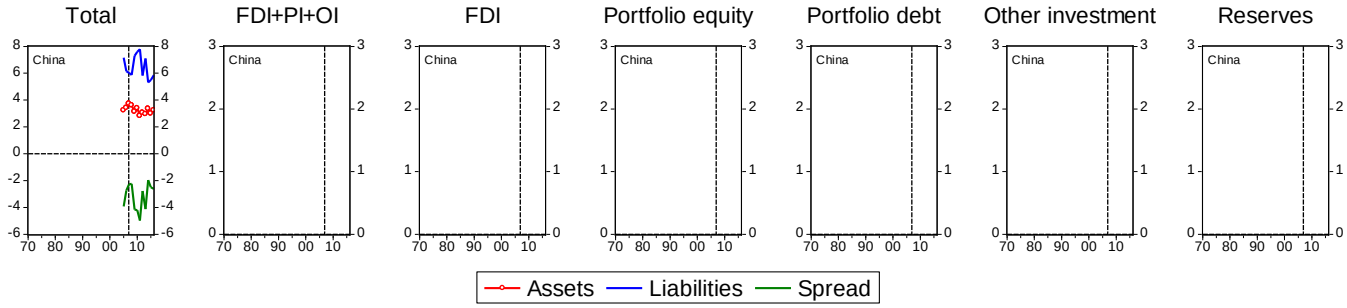
Net international investment position (% GDP)



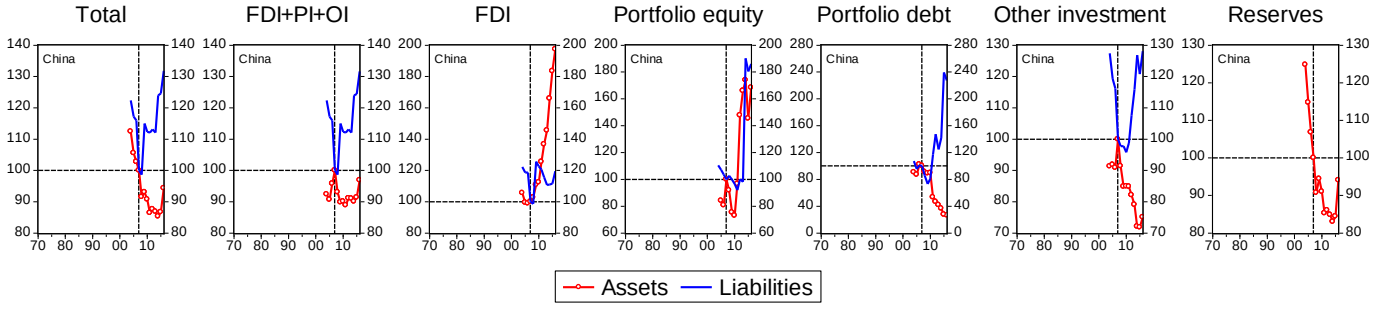
Flows and NIIP (% GDP)



Yield (%)

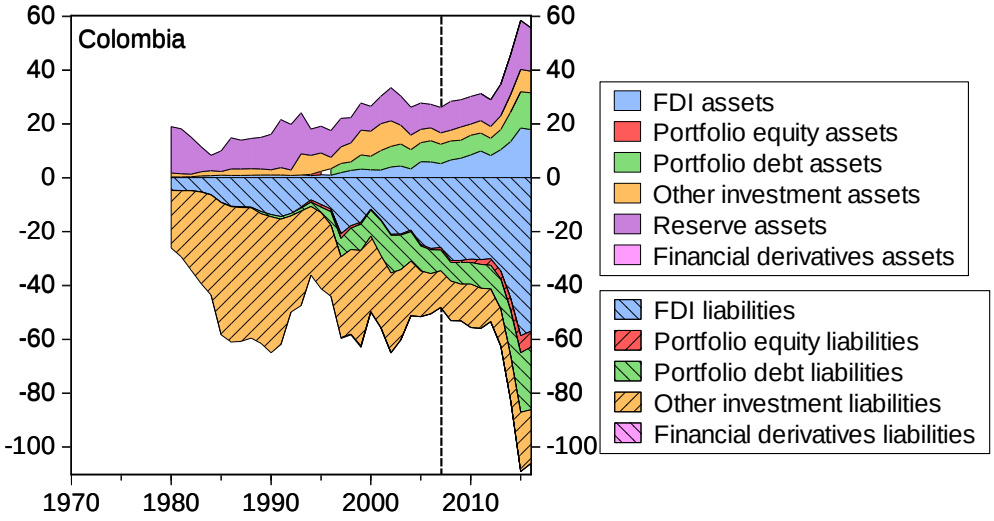


Revaluation index (2007=100)

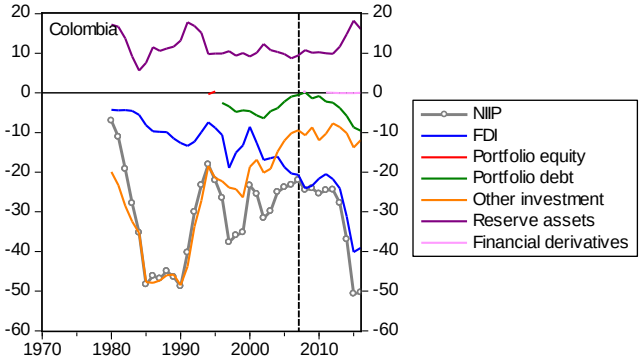


Colombia

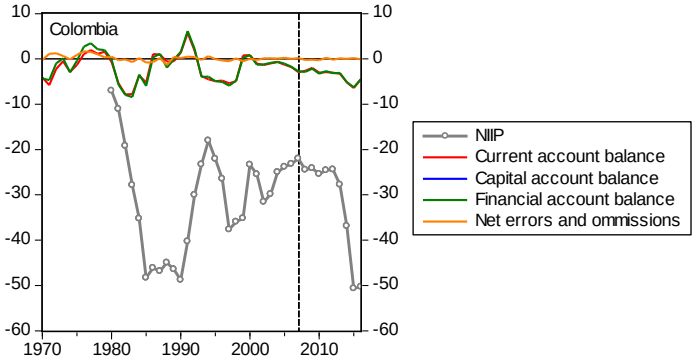
Gross international investment position (% GDP)



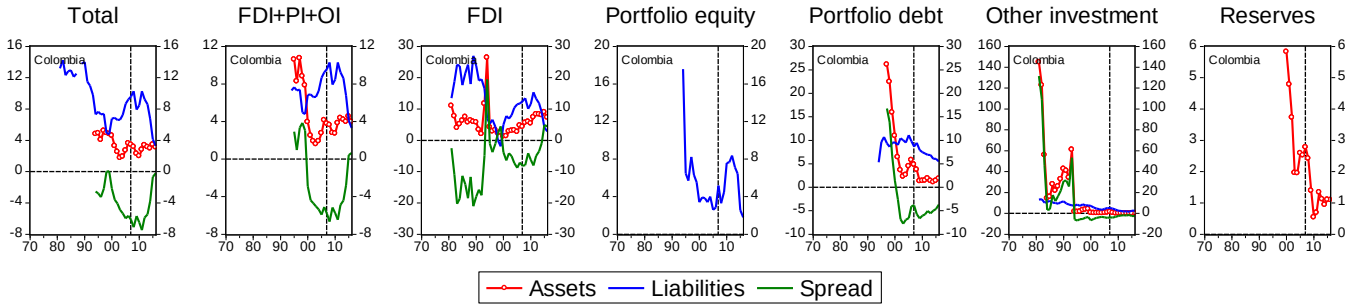
Net international investment position (% GDP)



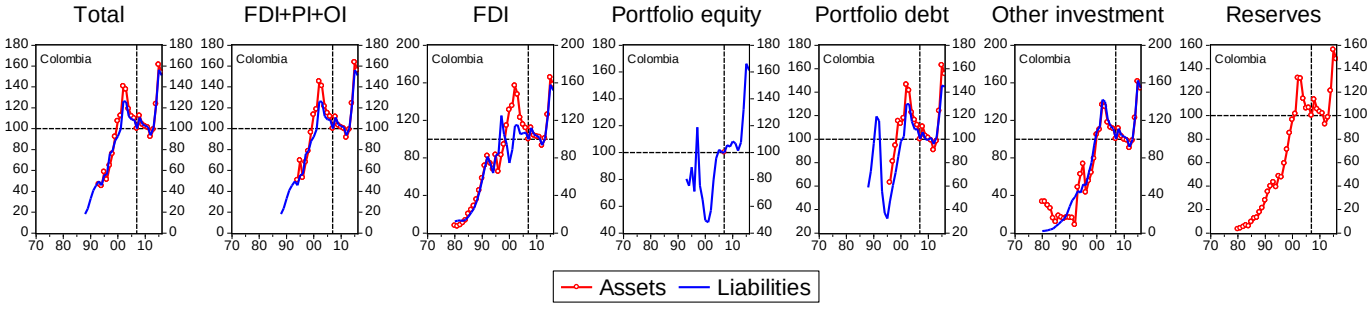
Flows and NIIP (% GDP)



Yield (%)

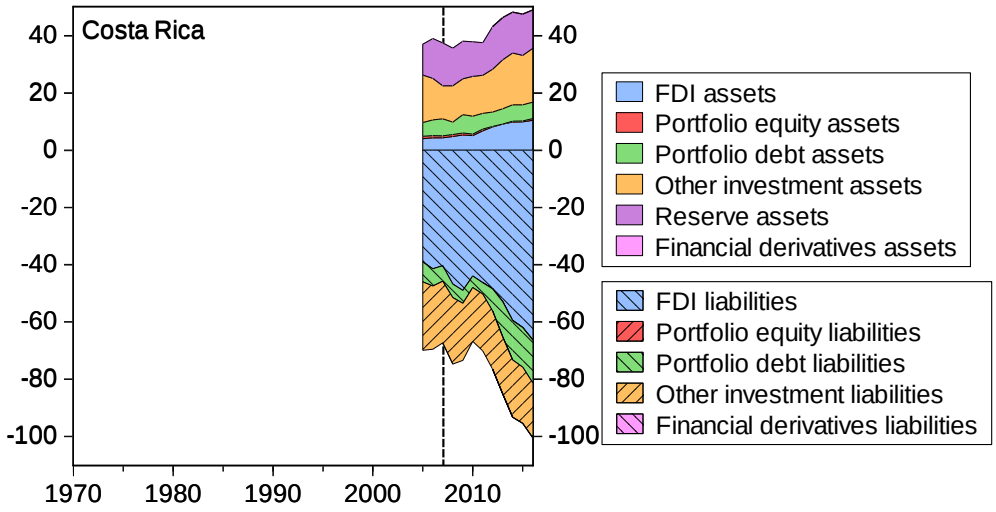


Revaluation index (2007=100)

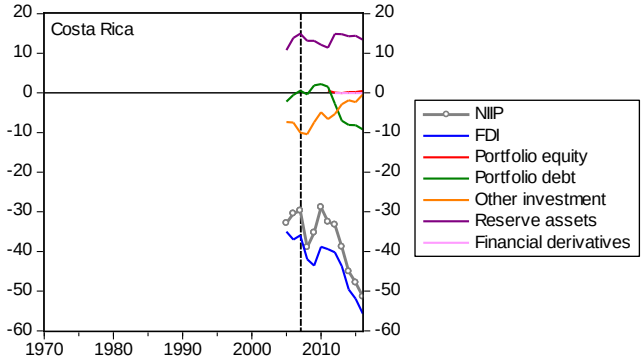


Costa Rica

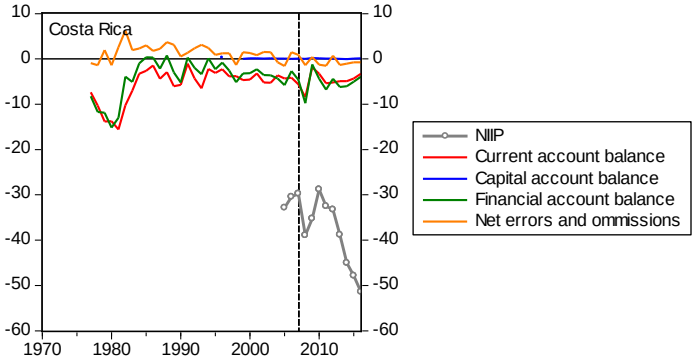
Gross international investment position (% GDP)



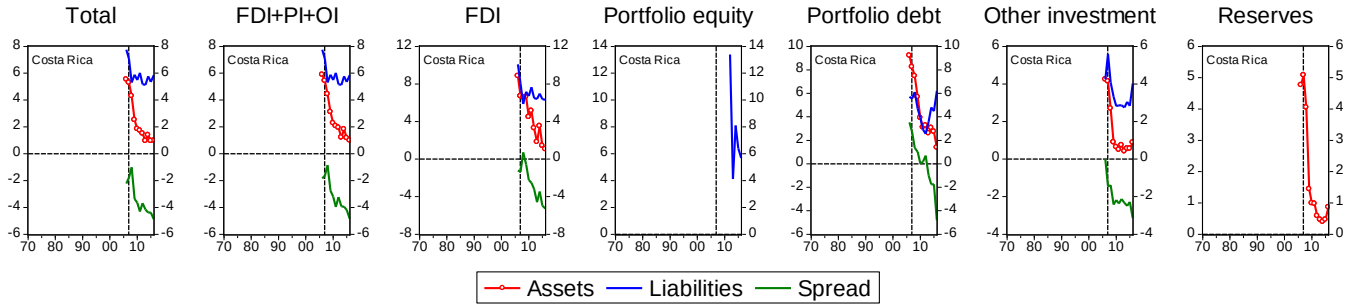
Net international investment position (% GDP)



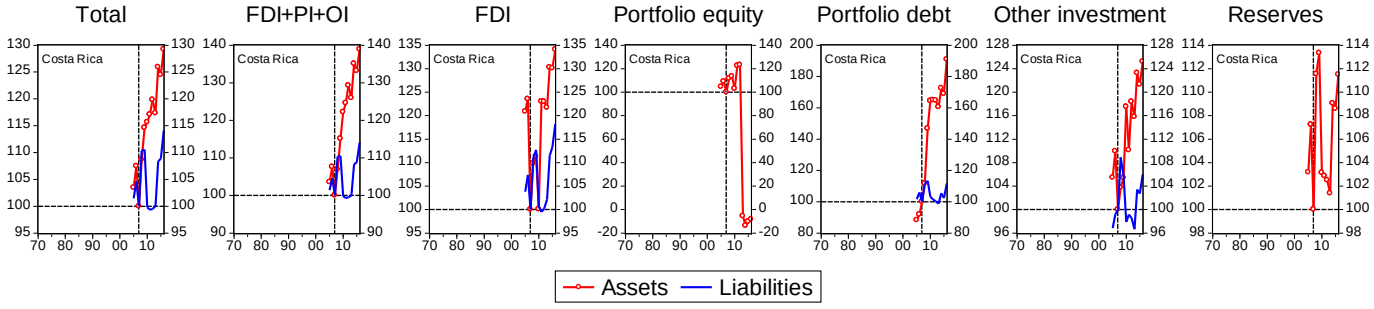
Flows and NIIP (% GDP)



Yield (%)

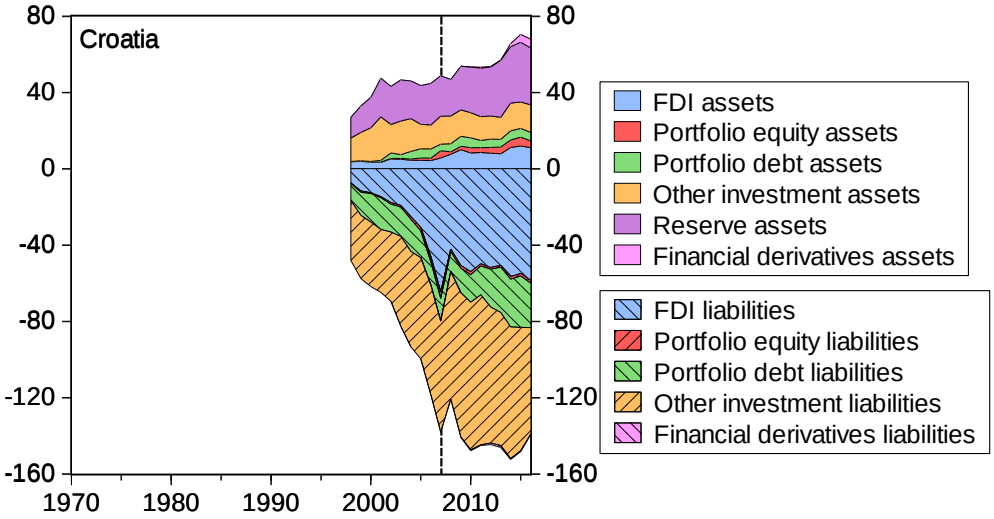


Revaluation index (2007=100)

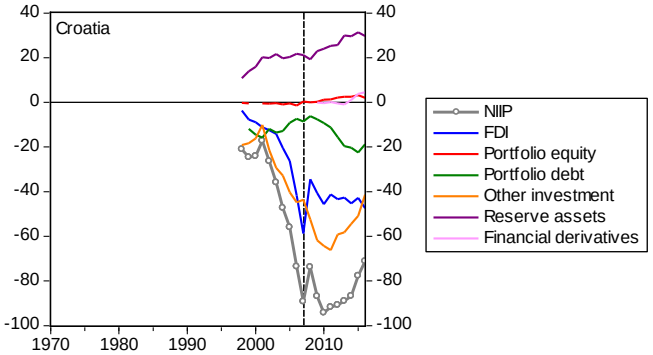


Croatia

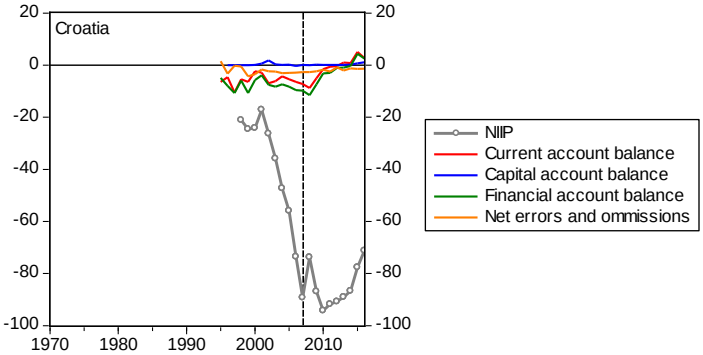
Gross international investment position (% GDP)



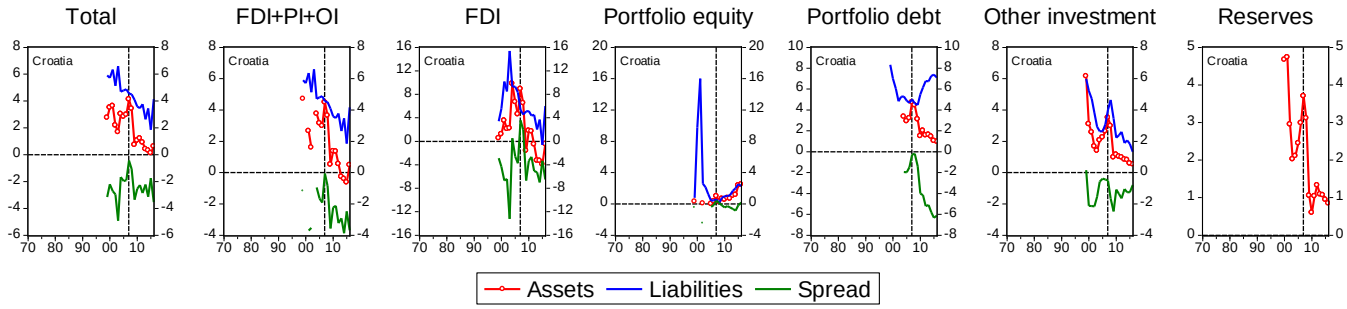
Net international investment position (% GDP)



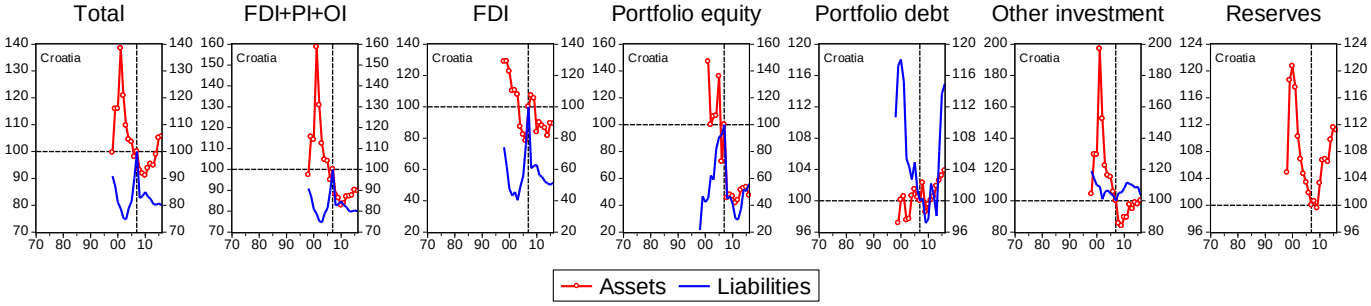
Flows and NIIP (% GDP)



Yield (%)

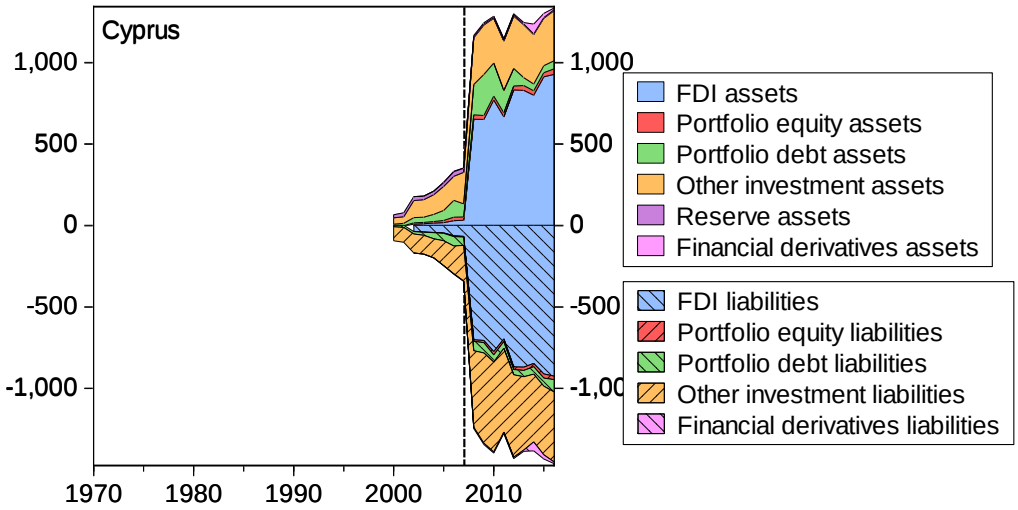


Revaluation index (2007=100)

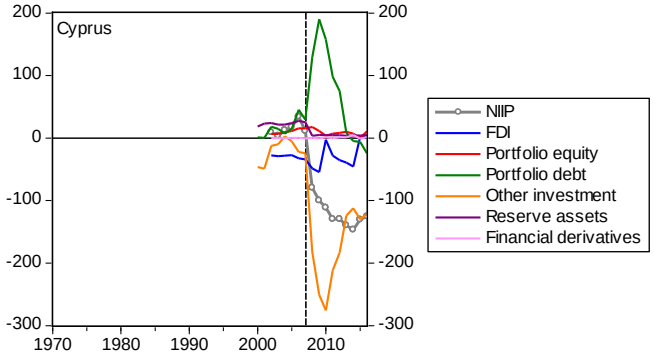


Cyprus

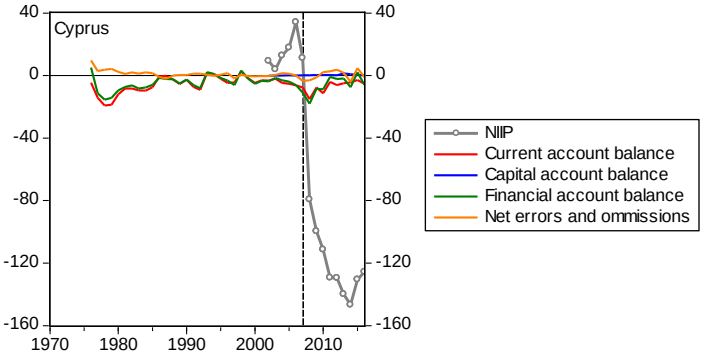
Gross international investment position (% GDP)



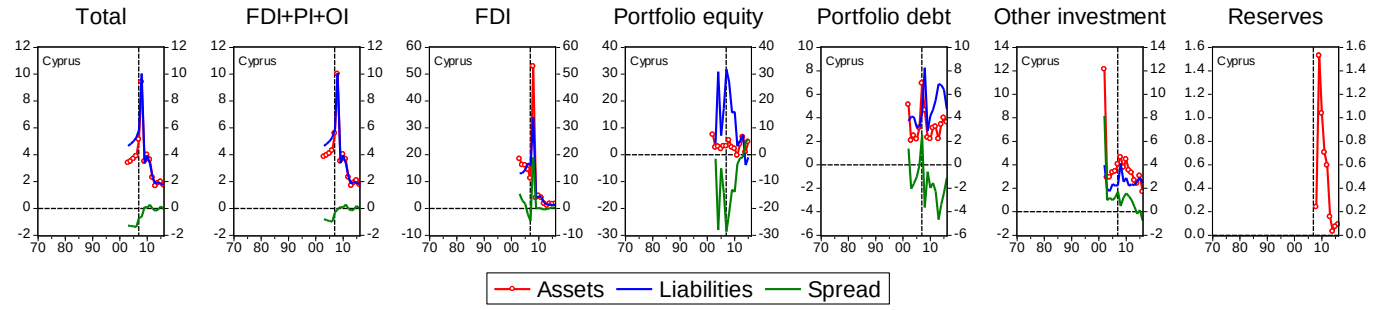
Net international investment position (% GDP)



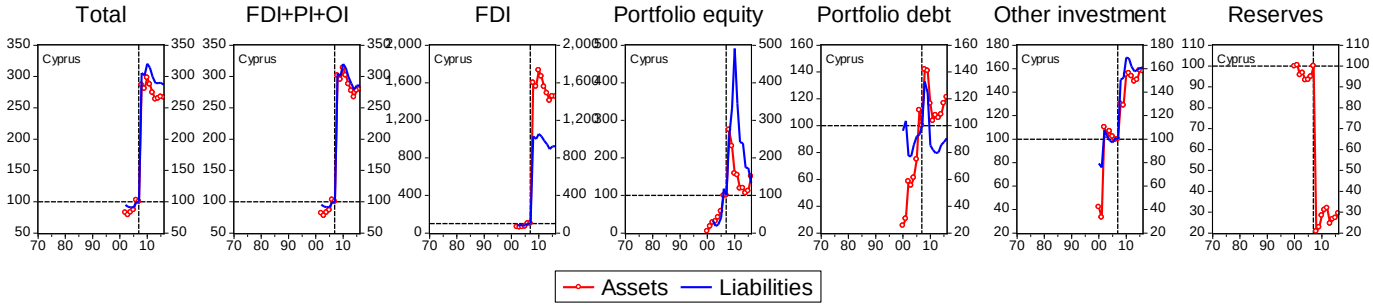
Flows and NIIP (% GDP)



Yield (%)

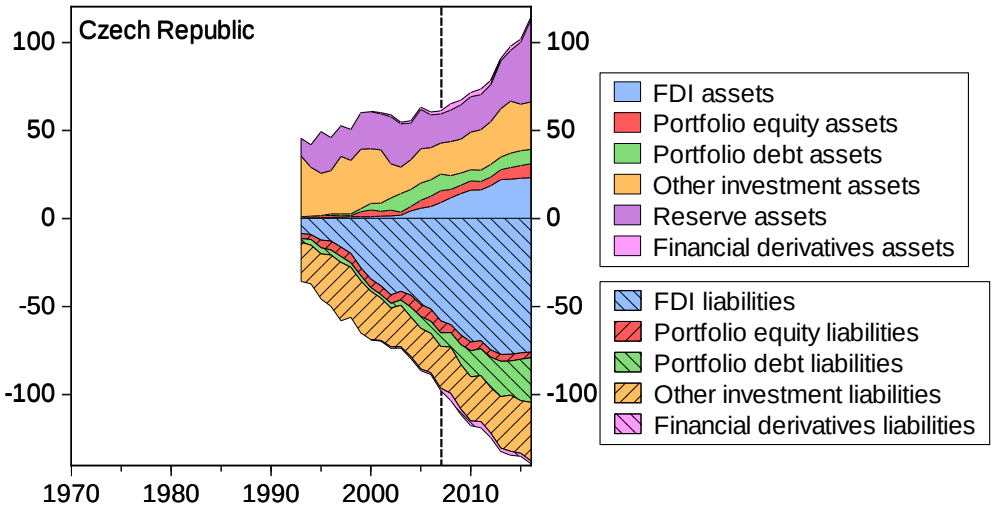


Revaluation index (2007=100)

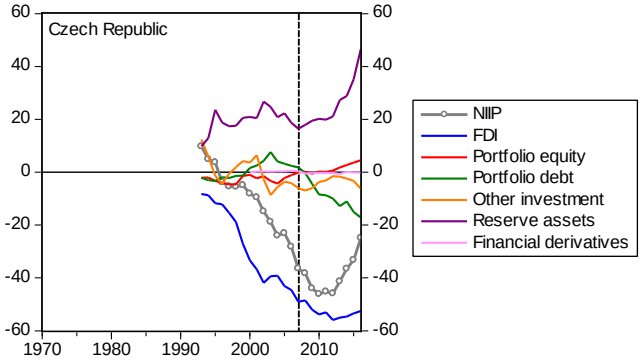


Czech Republic

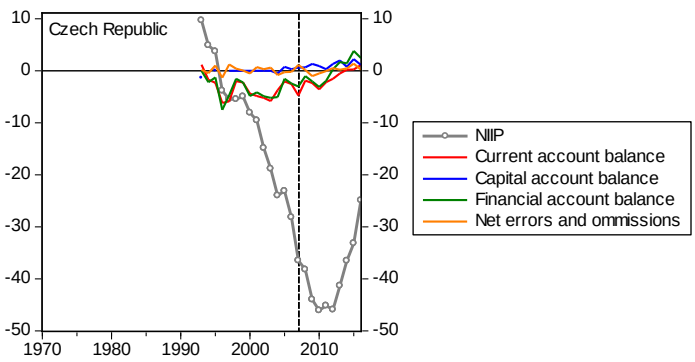
Gross international investment position (% GDP)



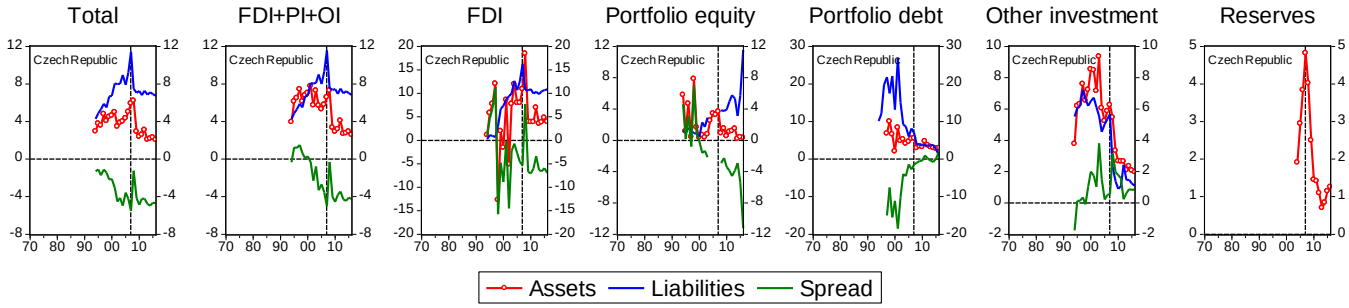
Net international investment position (% GDP)



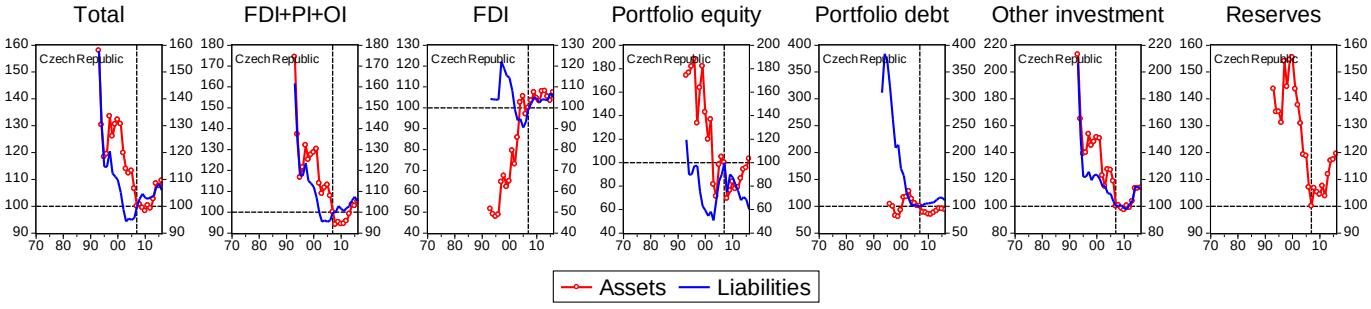
Flows and NIIP (% GDP)



Yield (%)

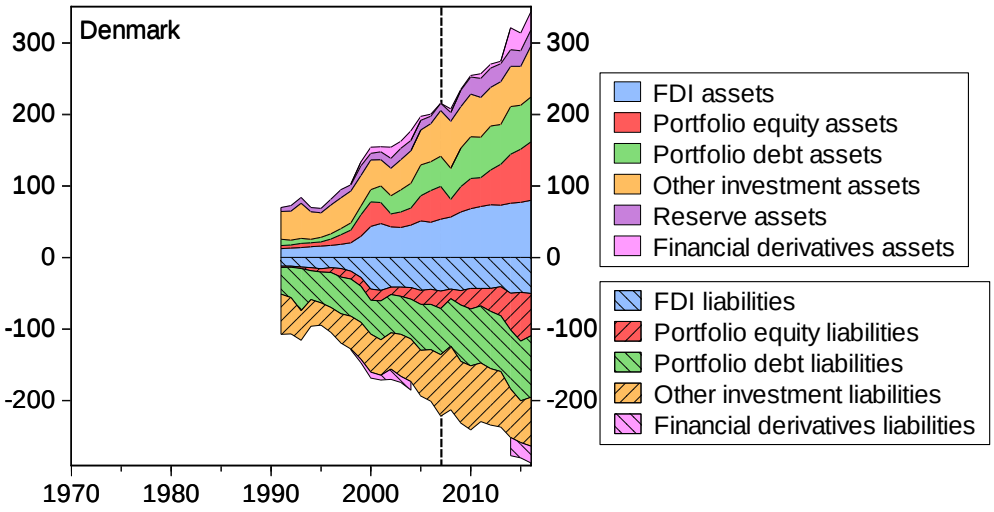


Revaluation index (2007=100)

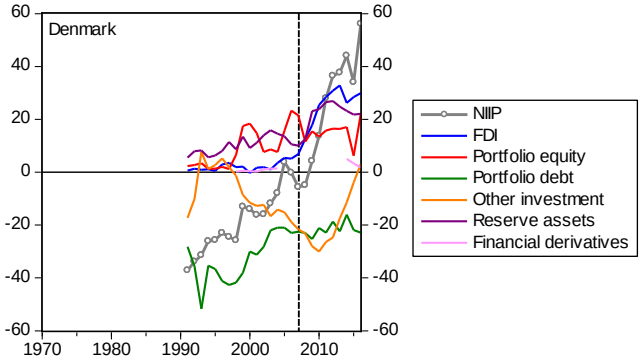


Denmark

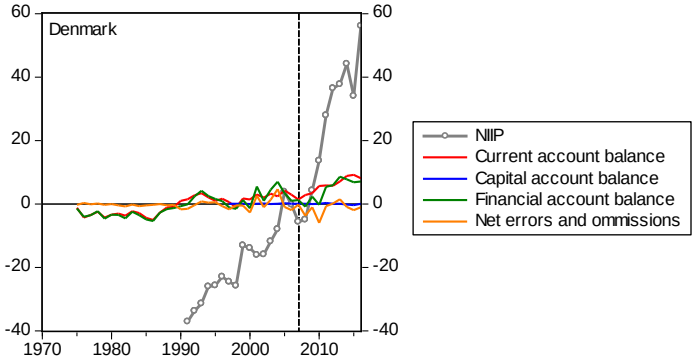
Gross international investment position (% GDP)



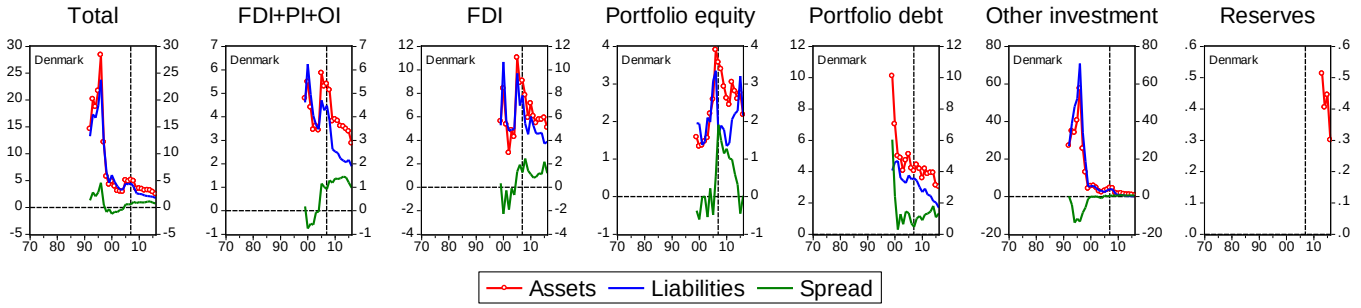
Net international investment position (% GDP)



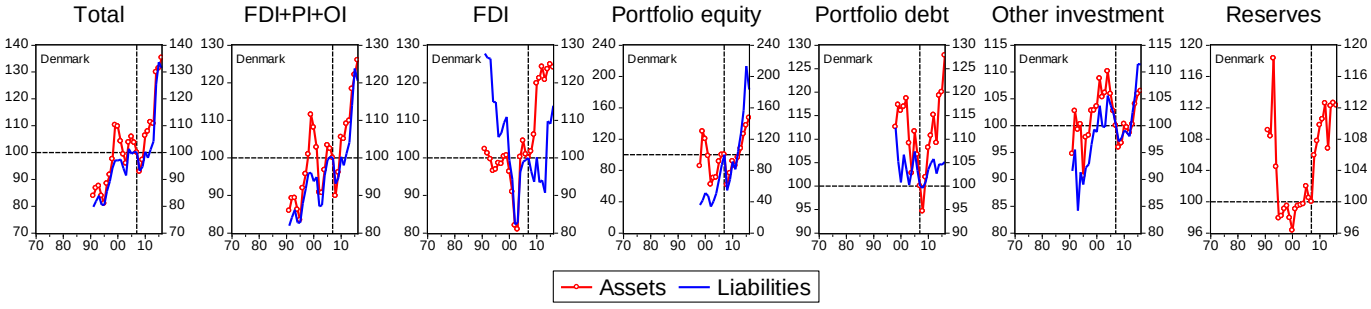
Flows and NIIP (% GDP)



Yield (%)

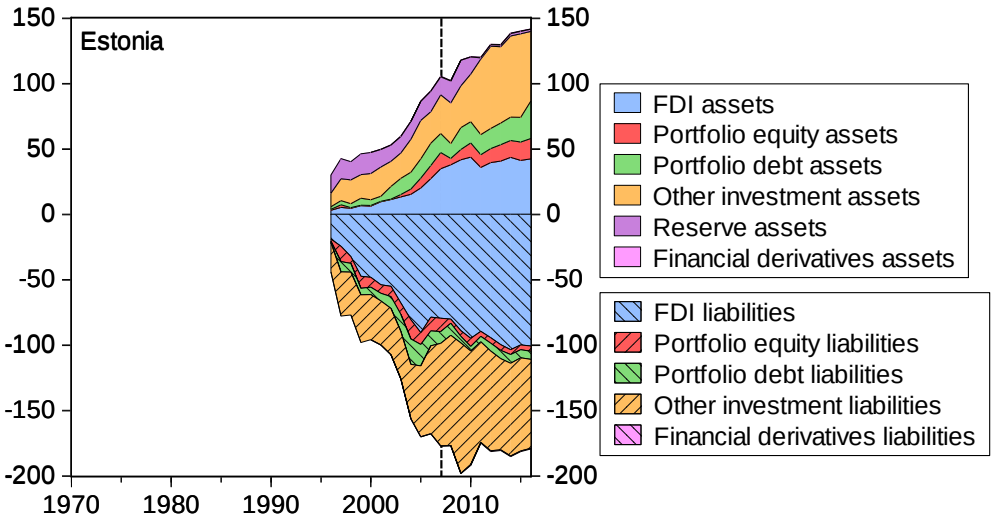


Revaluation index (2007=100)

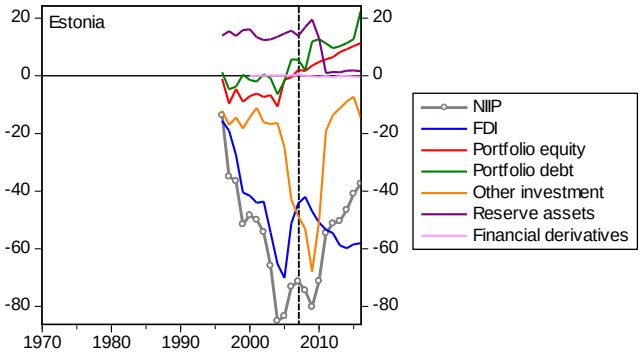


Estonia

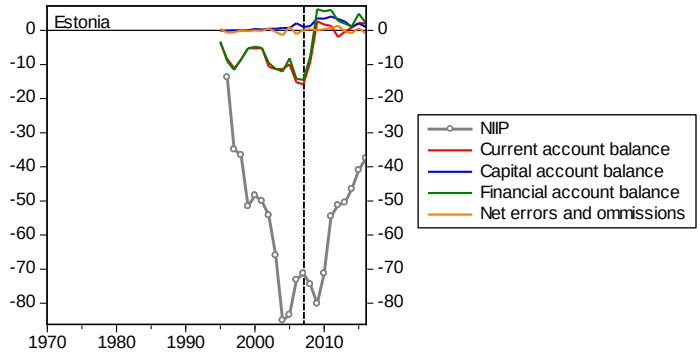
Gross international investment position (% GDP)



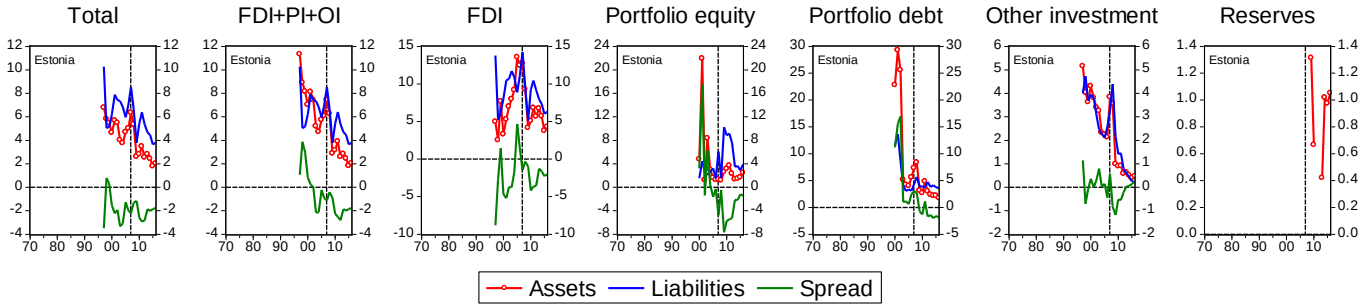
Net international investment position (% GDP)



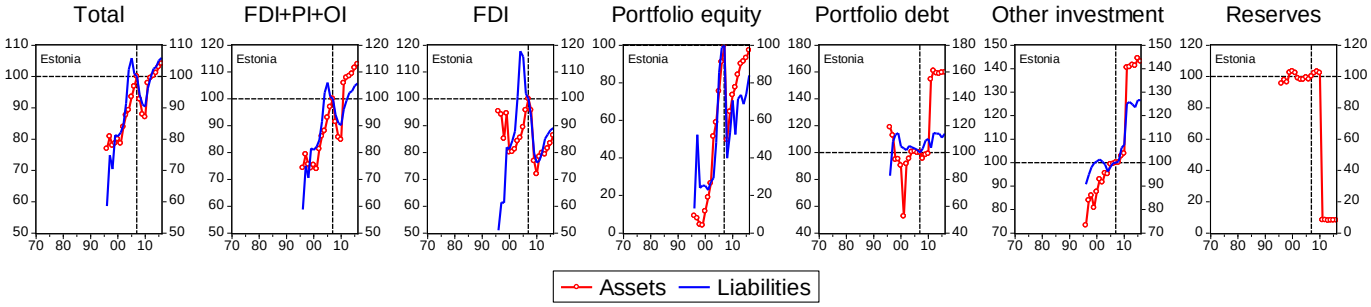
Flows and NIIP (% GDP)



Yield (%)

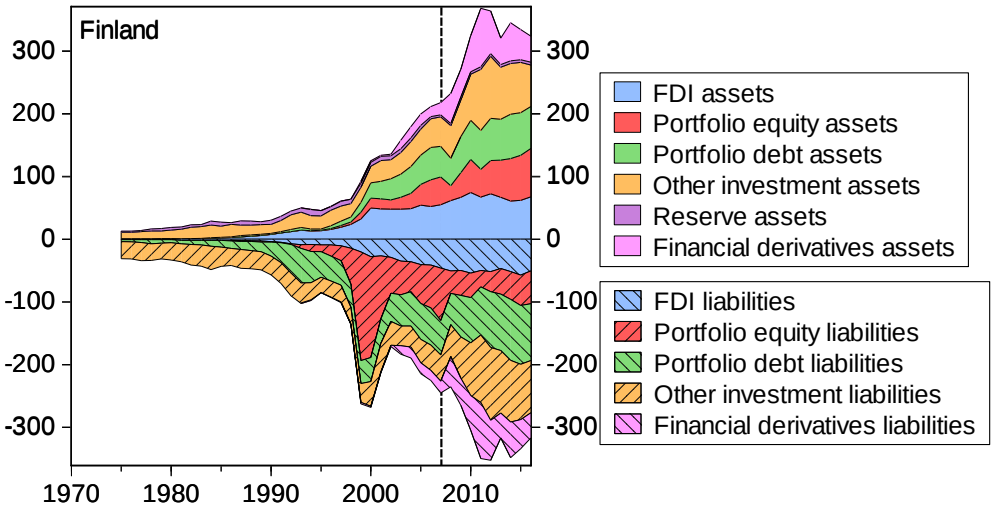


Revaluation index (2007=100)

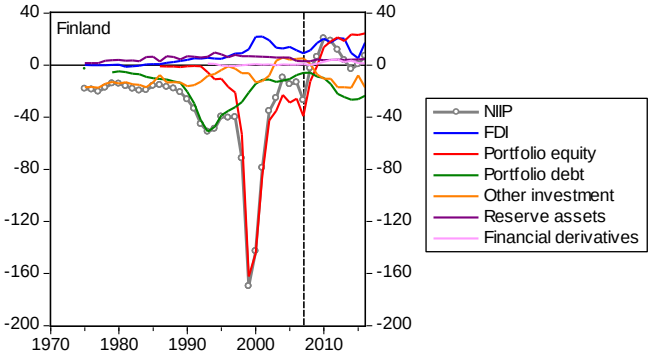


Finland

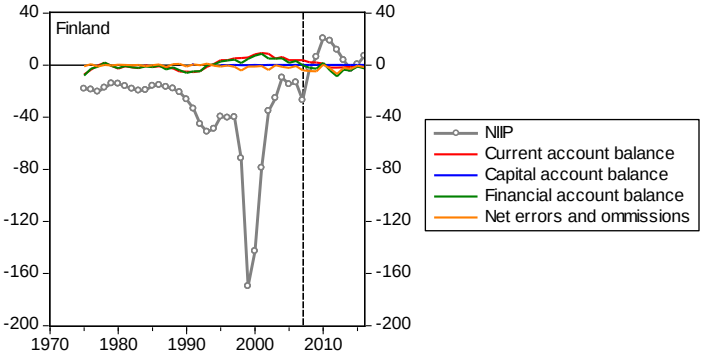
Gross international investment position (% GDP)



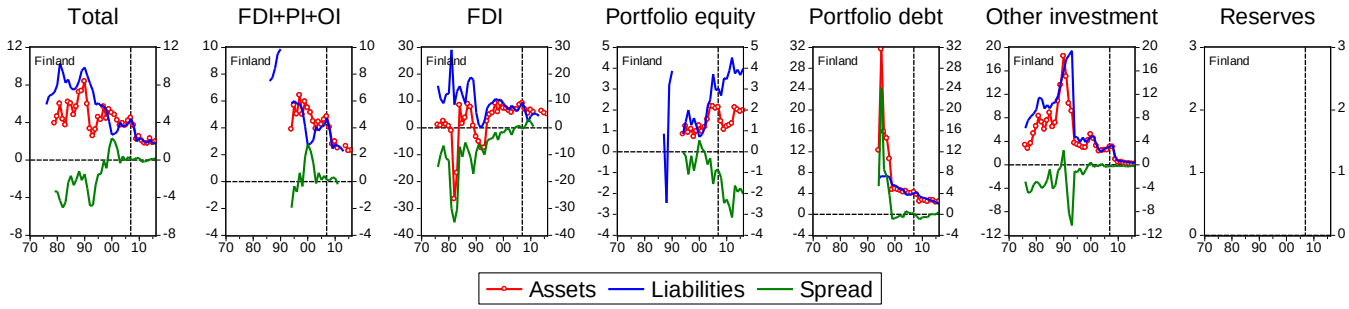
Net international investment position (% GDP)



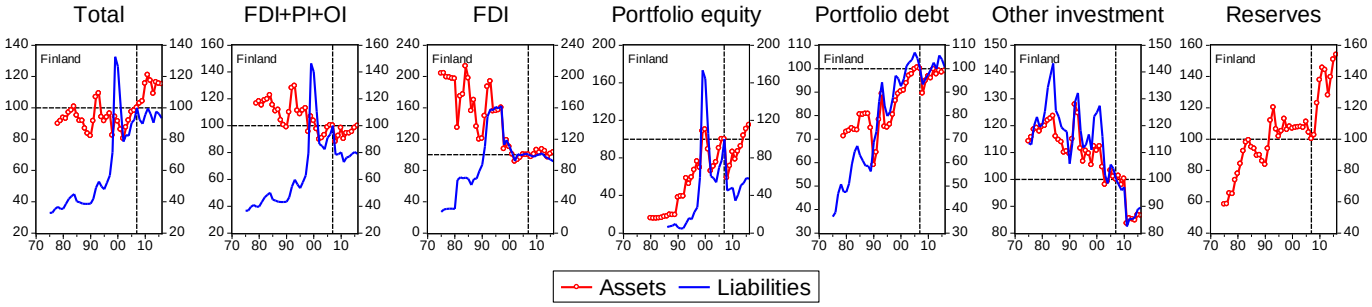
Flows and NIIP (% GDP)



Yield (%)

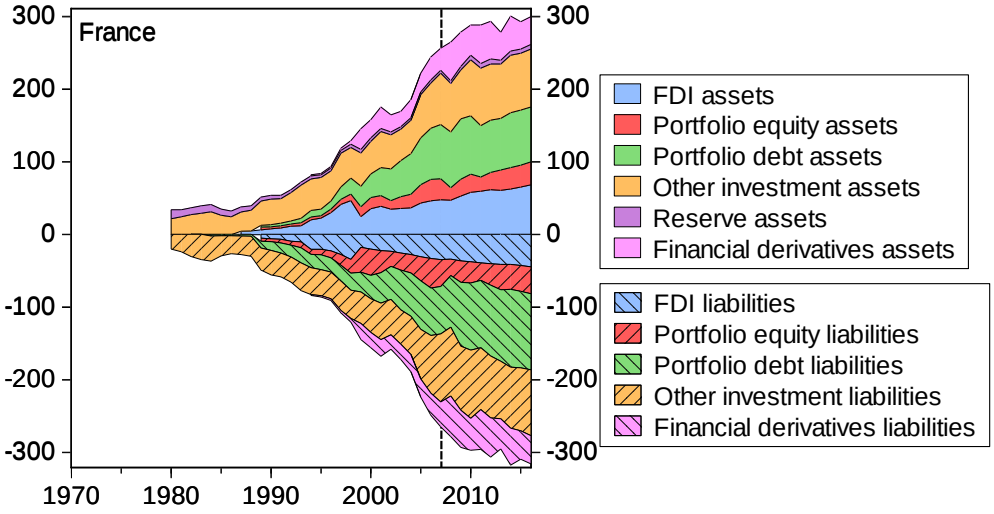


Revaluation index (2007=100)

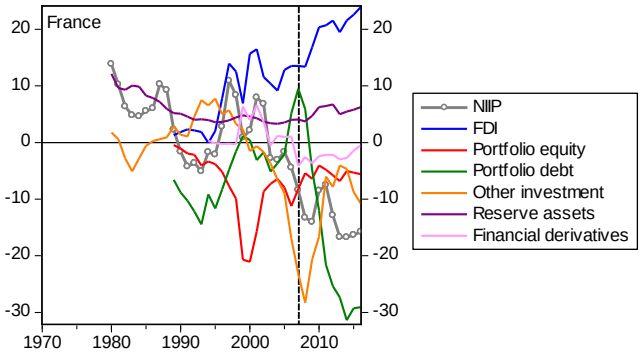


France

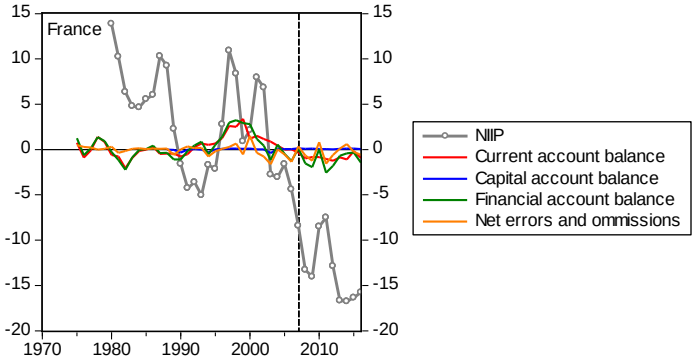
Gross international investment position (% GDP)



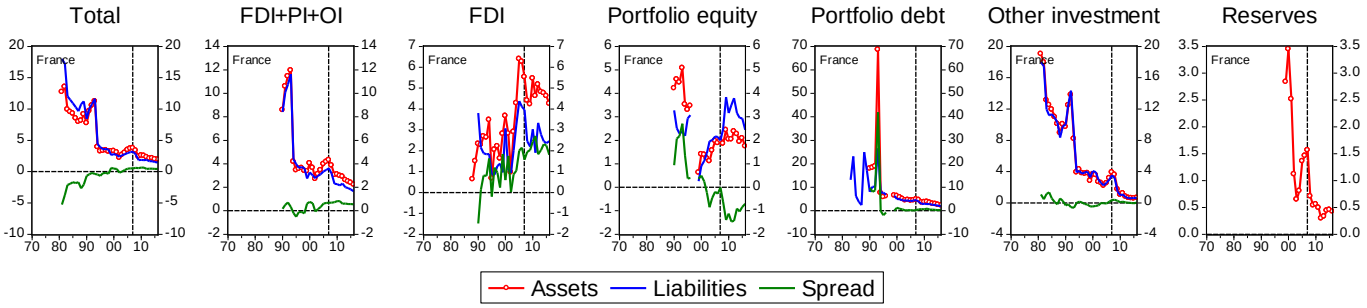
Net international investment position (% GDP)



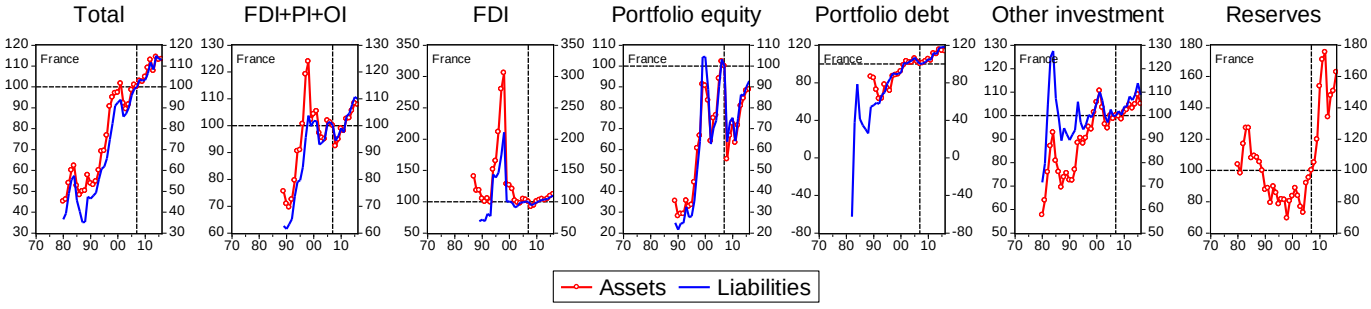
Flows and NIIP (% GDP)



Yield (%)

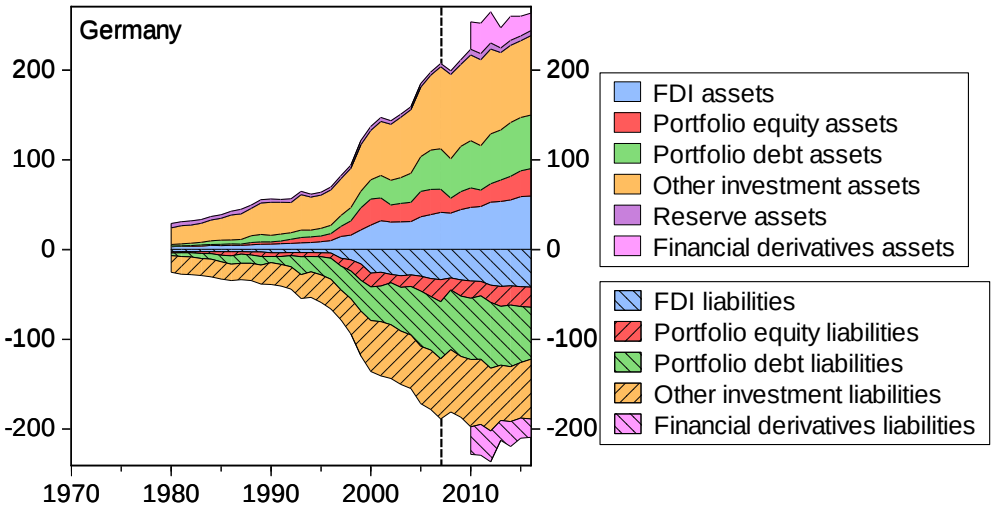


Revaluation index (2007=100)

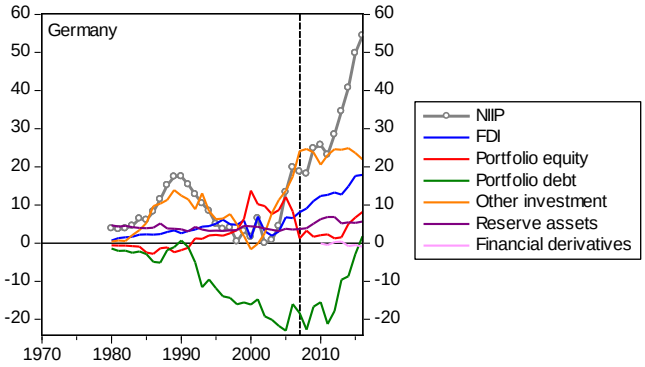


Germany

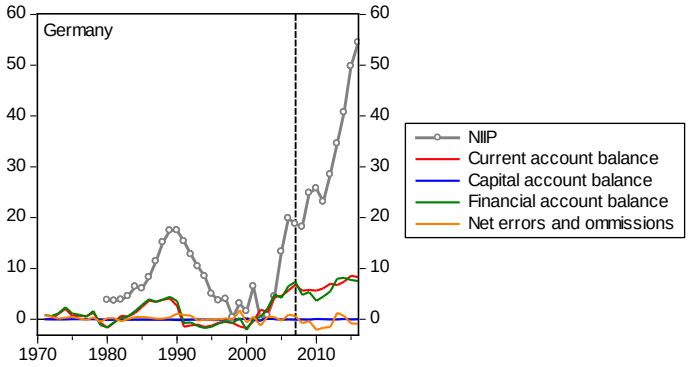
Gross international investment position (% GDP)



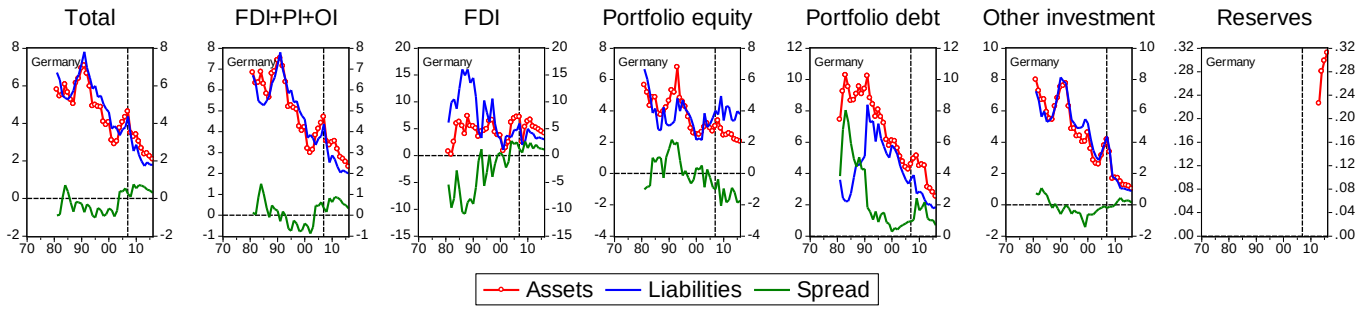
Net international investment position (% GDP)



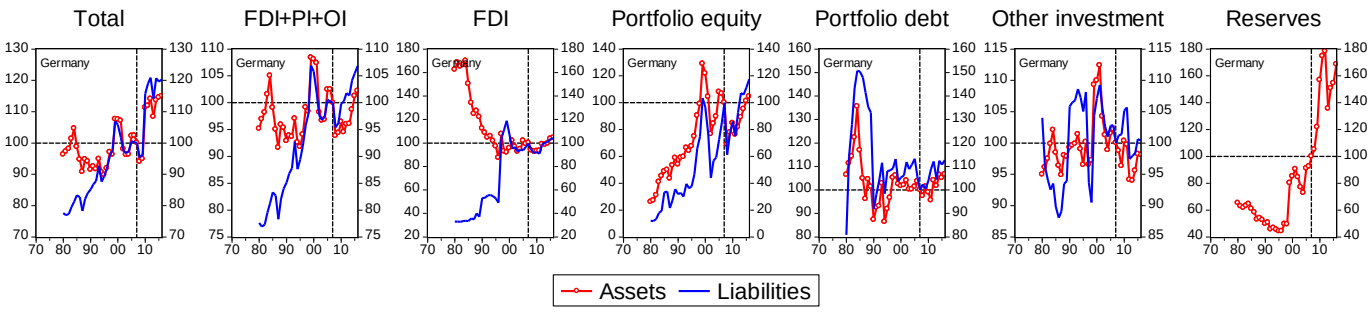
Flows and NIIP (% GDP)



Yield (%)

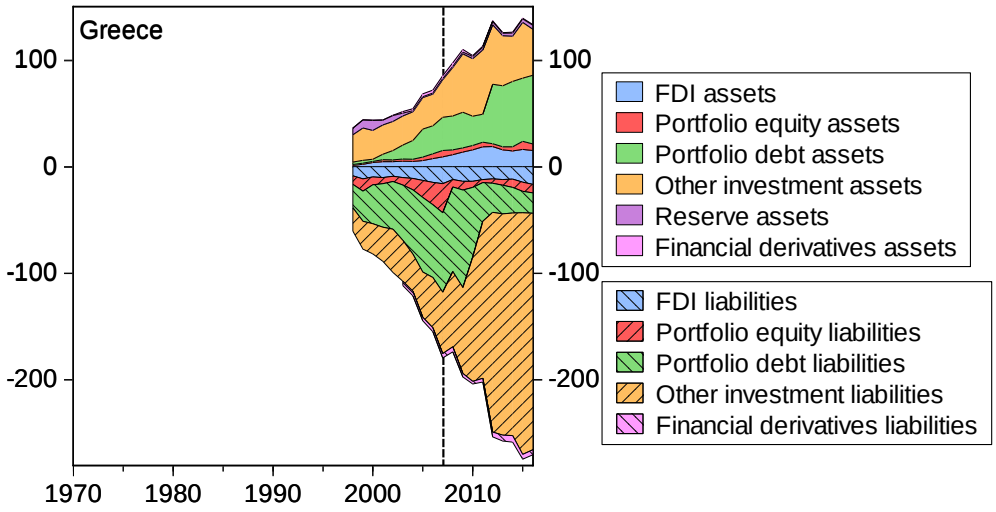


Revaluation index (2007=100)

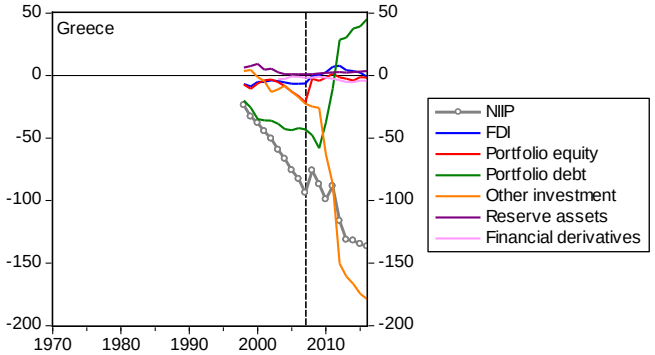


Greece

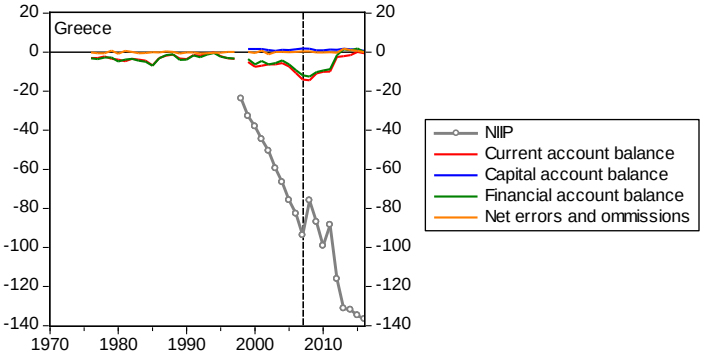
Gross international investment position (% GDP)



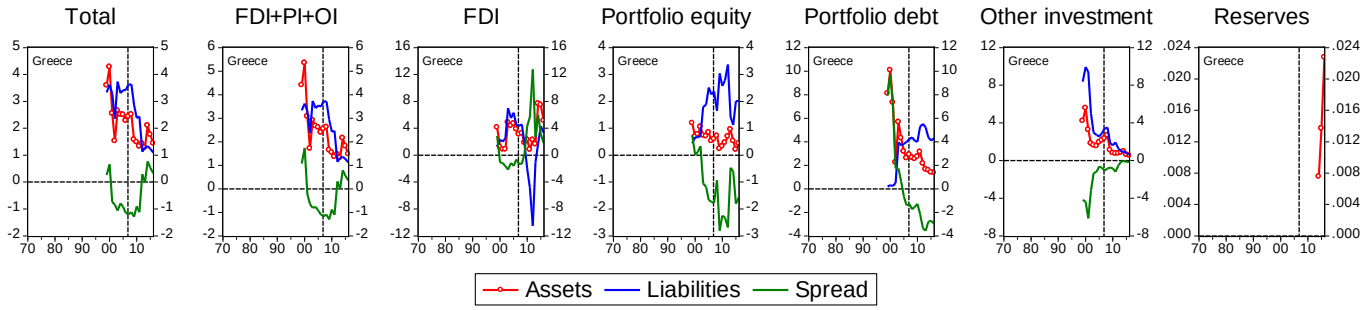
Net international investment position (% GDP)



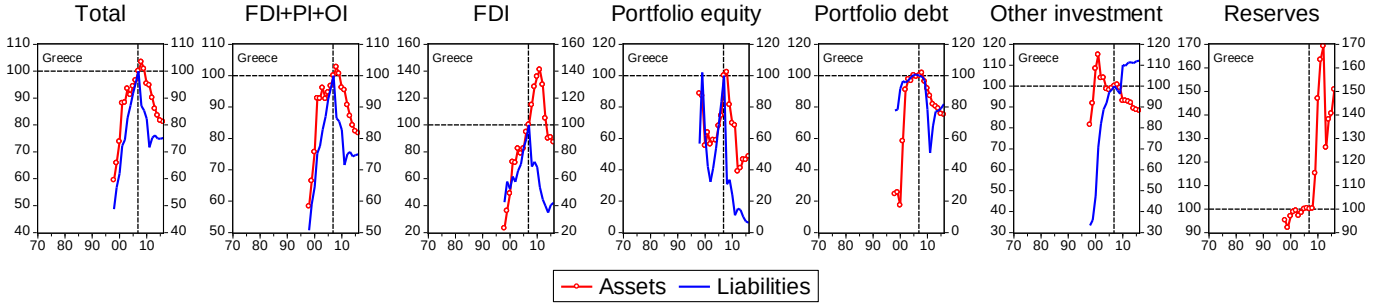
Flows and NIIP (% GDP)



Yield (%)

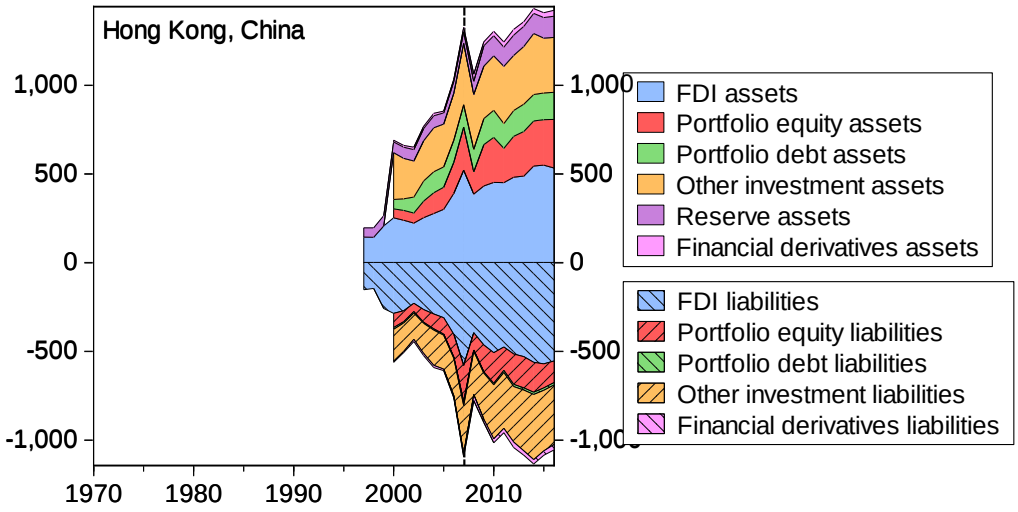


Revaluation index (2007=100)

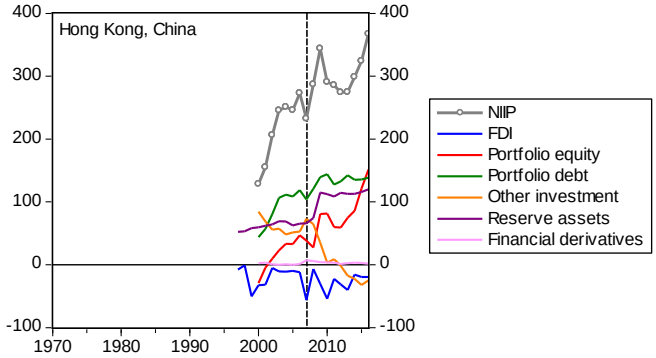


Hong Kong, China

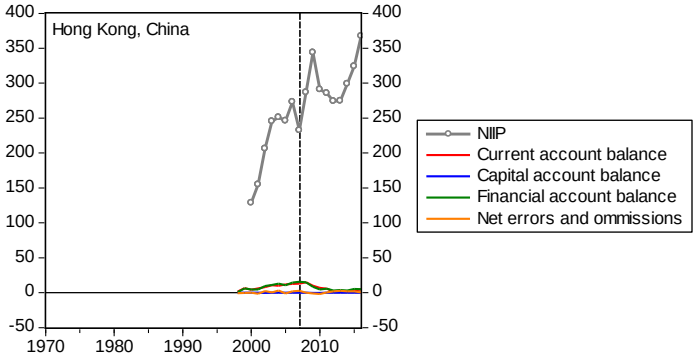
Gross international investment position (% GDP)



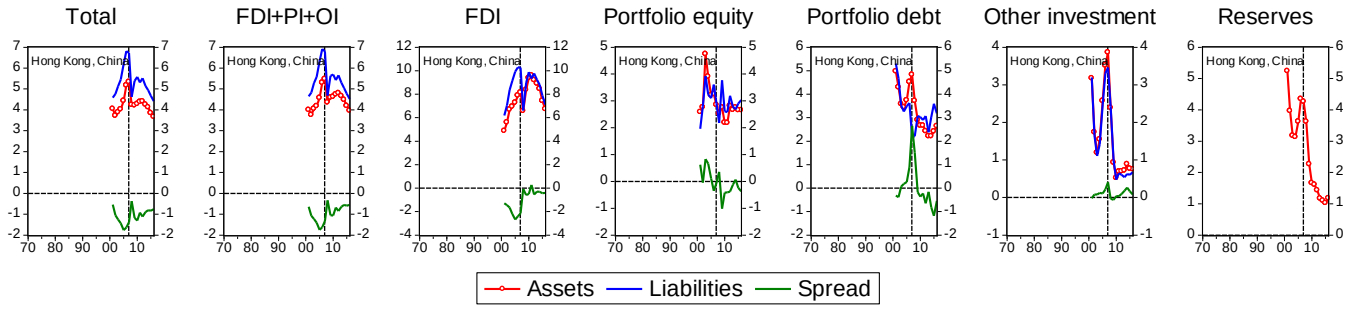
Net international investment position (% GDP)



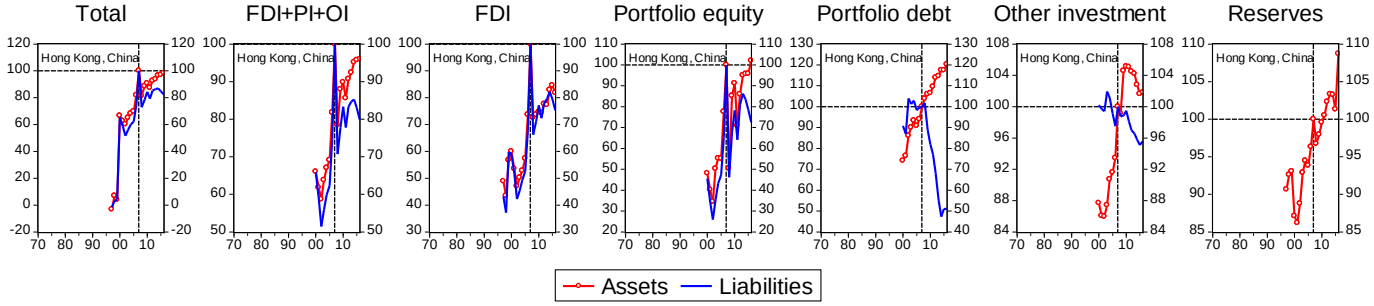
Flows and NIIP (% GDP)



Yield (%)

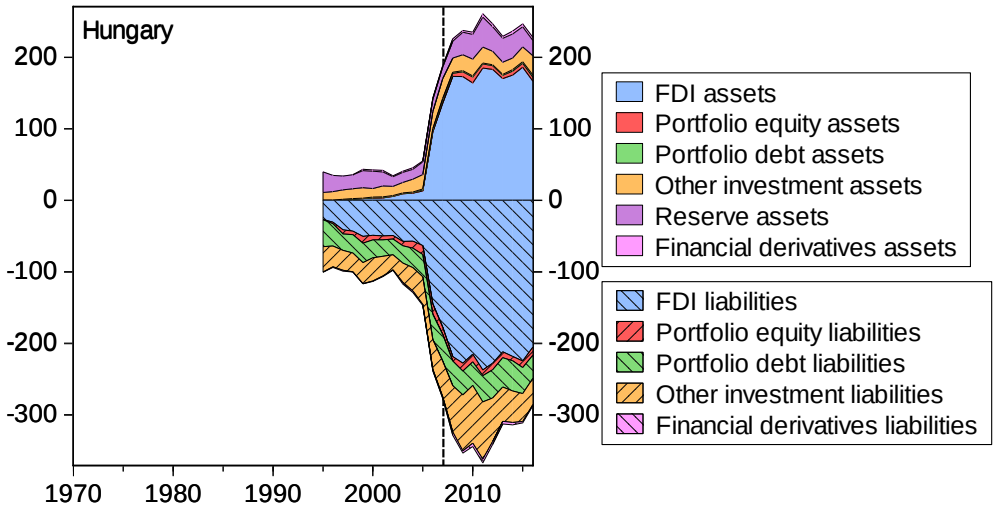


Revaluation index (2007=100)

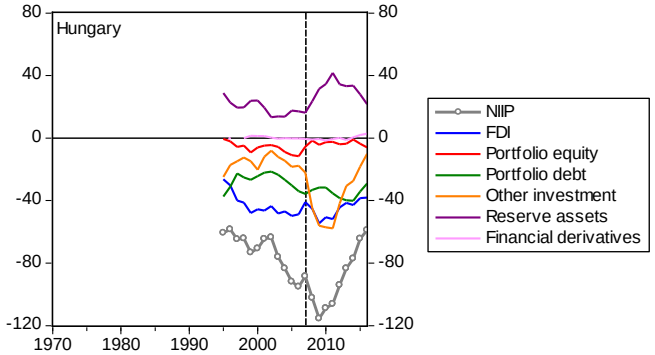


Hungary

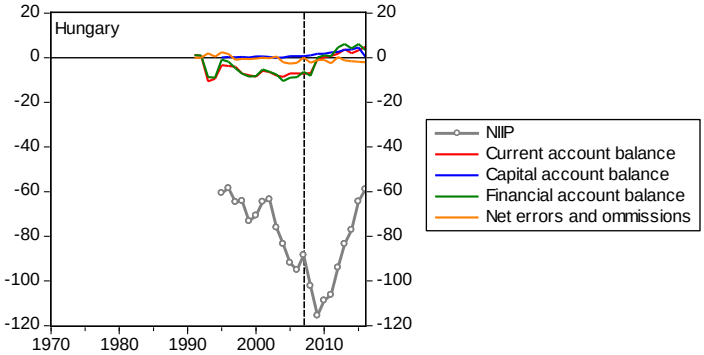
Gross international investment position (% GDP)



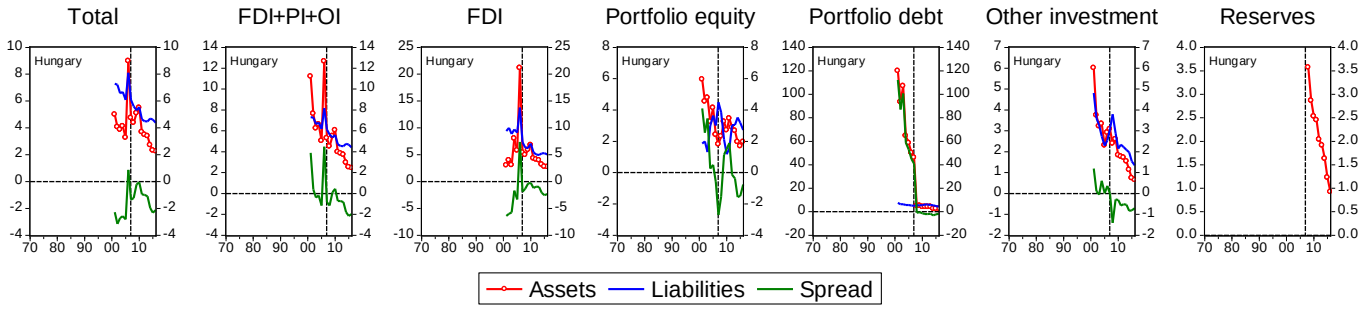
Net international investment position (% GDP)



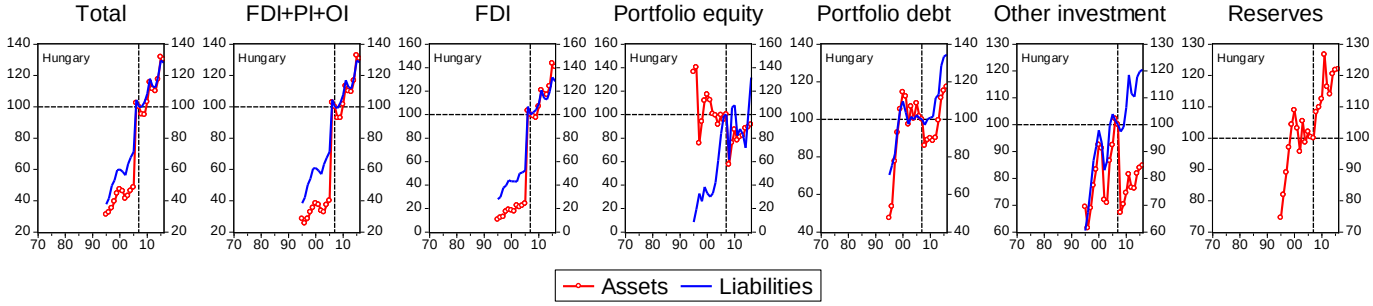
Flows and NIIP (% GDP)



Yield (%)

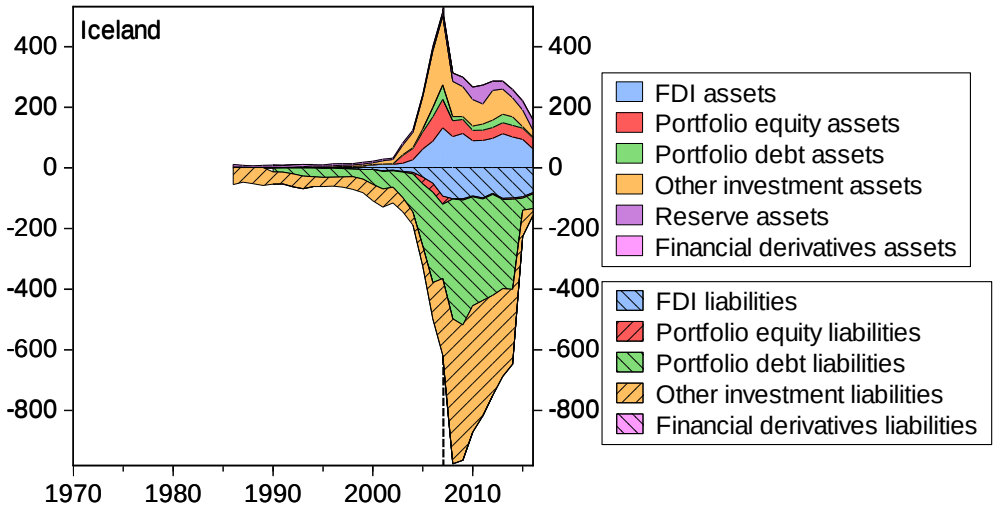


Revaluation index (2007=100)

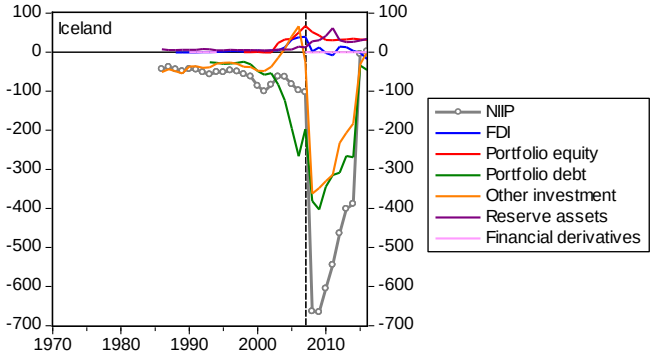


Iceland

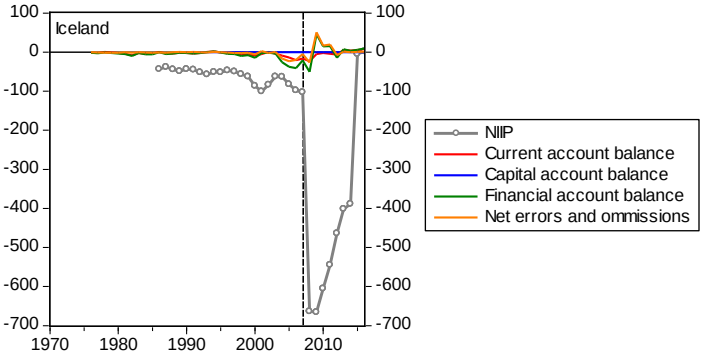
Gross international investment position (% GDP)



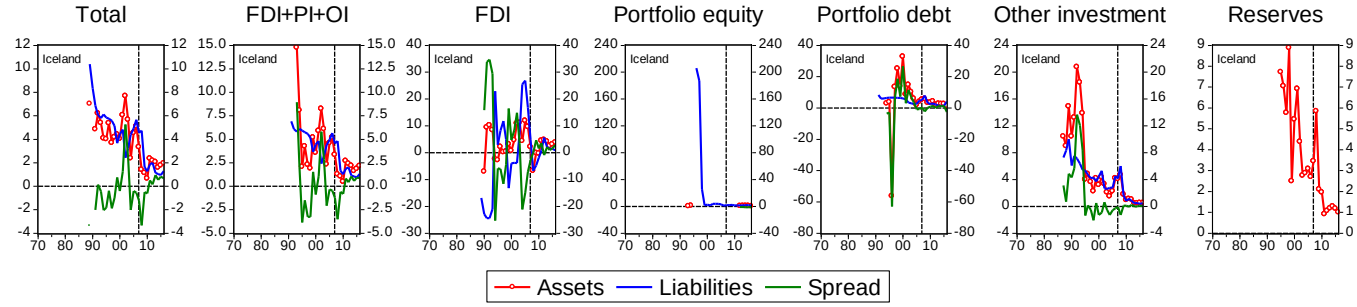
Net international investment position (% GDP)



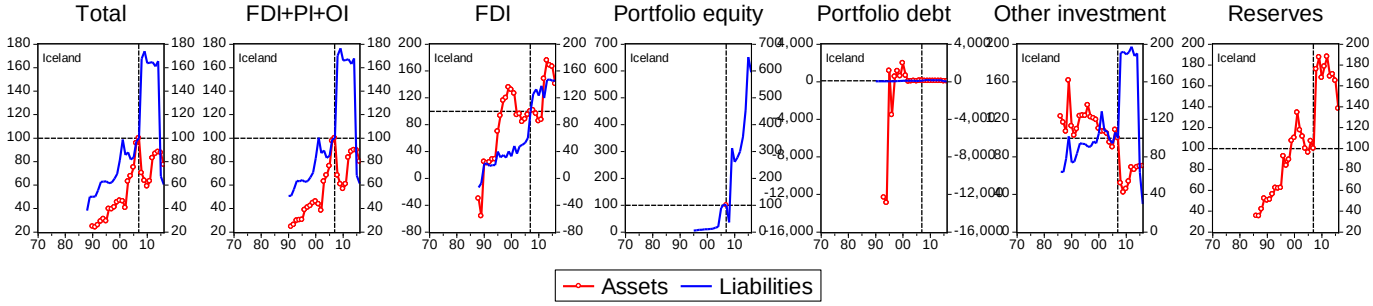
Flows and NIIP (% GDP)



Yield (%)

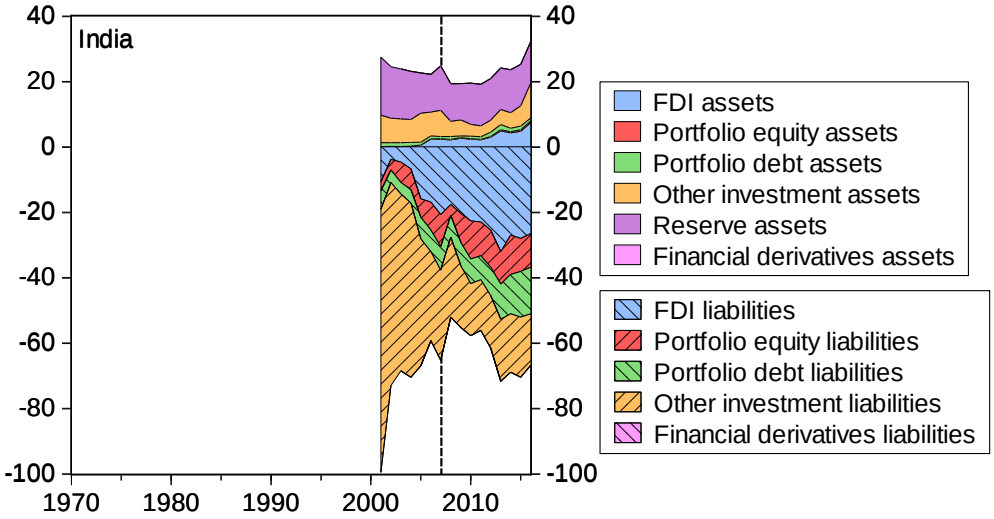


Revaluation index (2007=100)

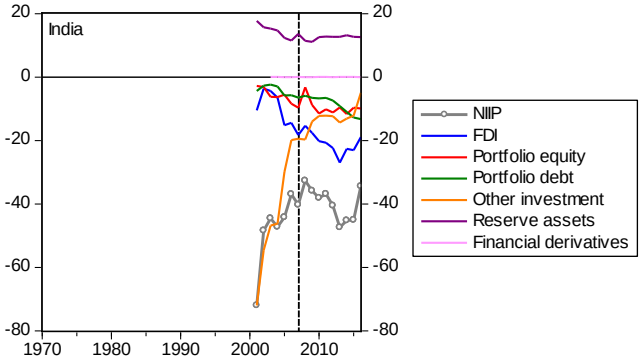


India

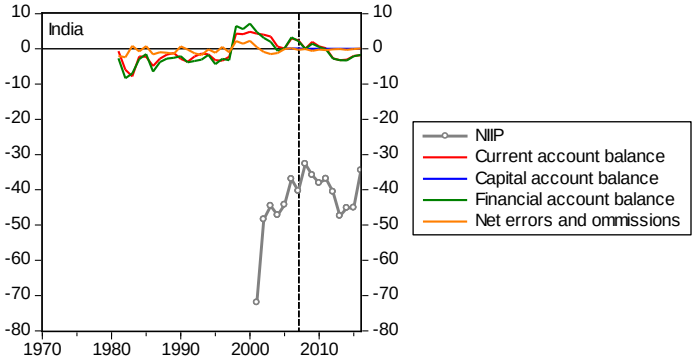
Gross international investment position (% GDP)



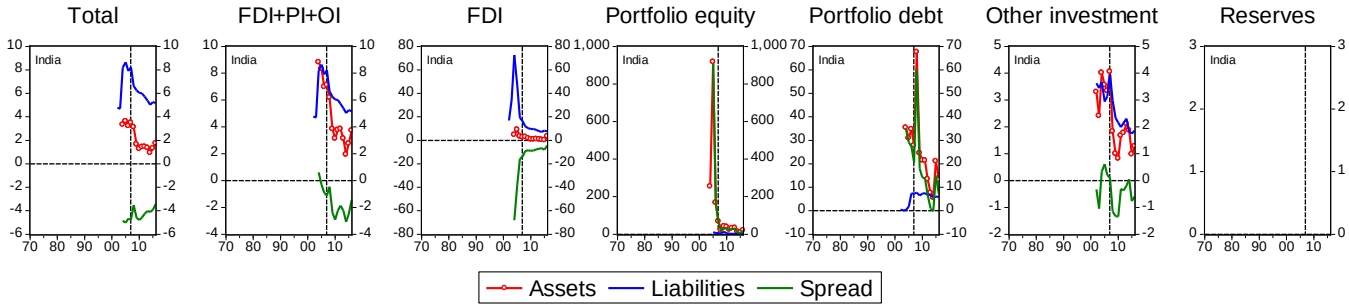
Net international investment position (% GDP)



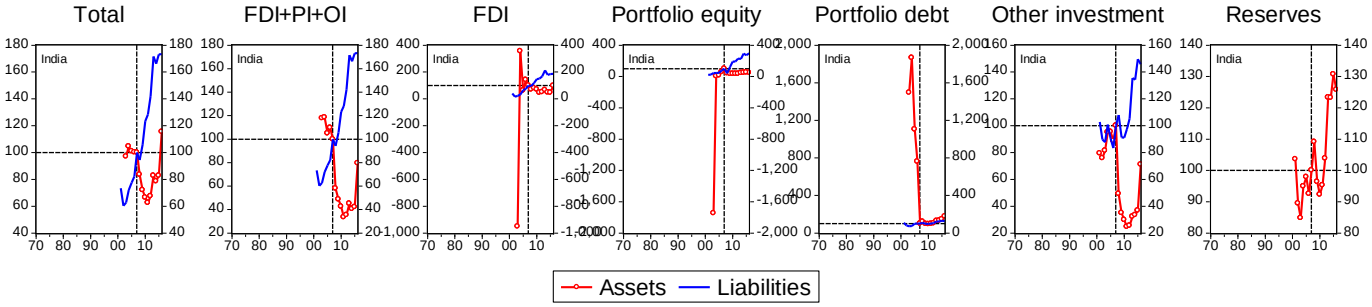
Flows and NIIP (% GDP)



Yield (%)

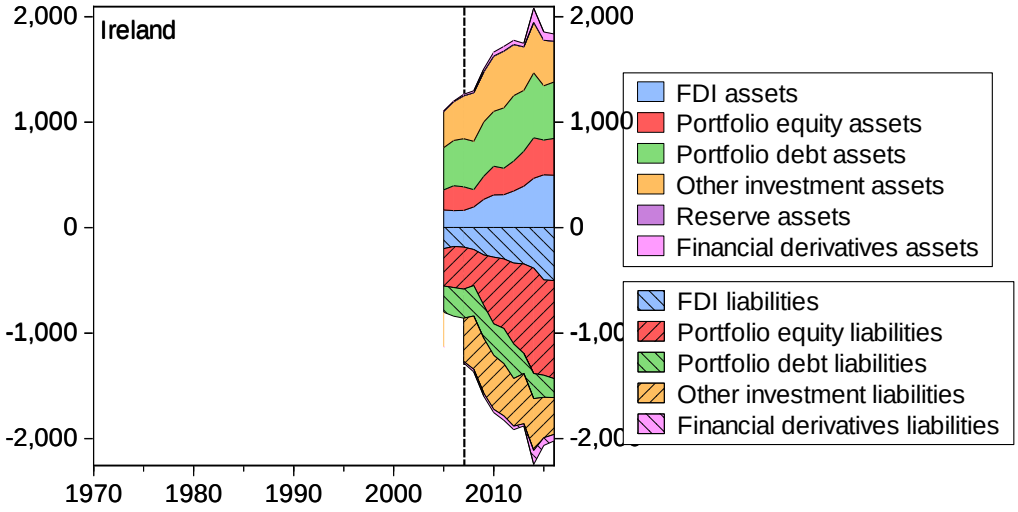


Revaluation index (2007=100)

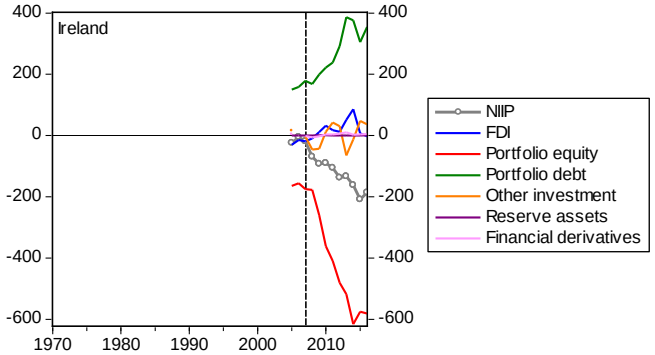


Ireland

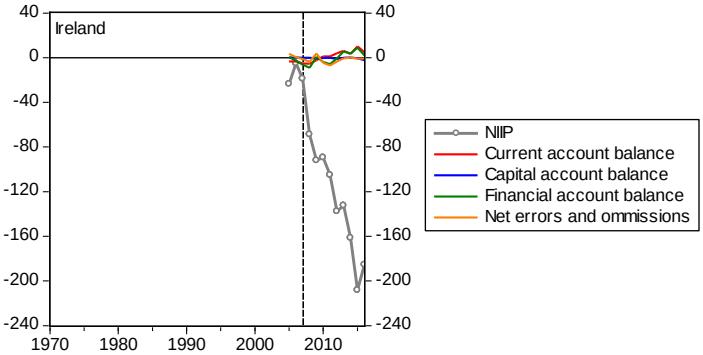
Gross international investment position (% GDP)



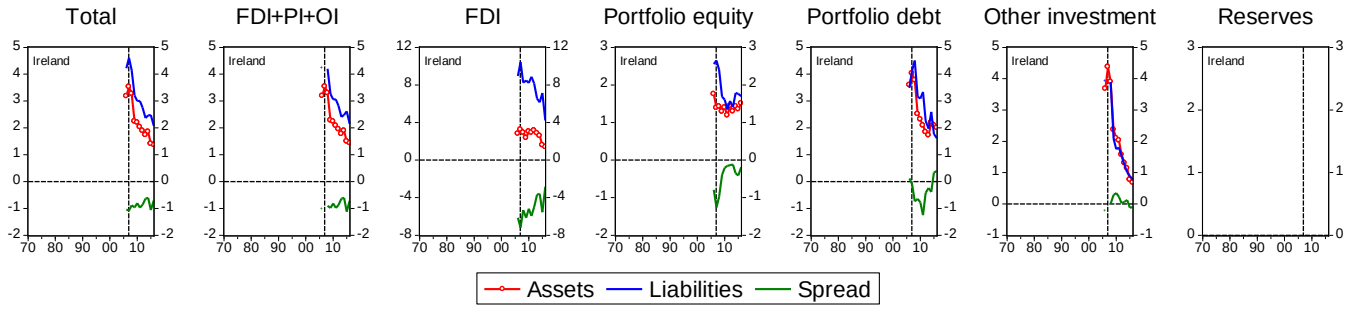
Net international investment position (% GDP)



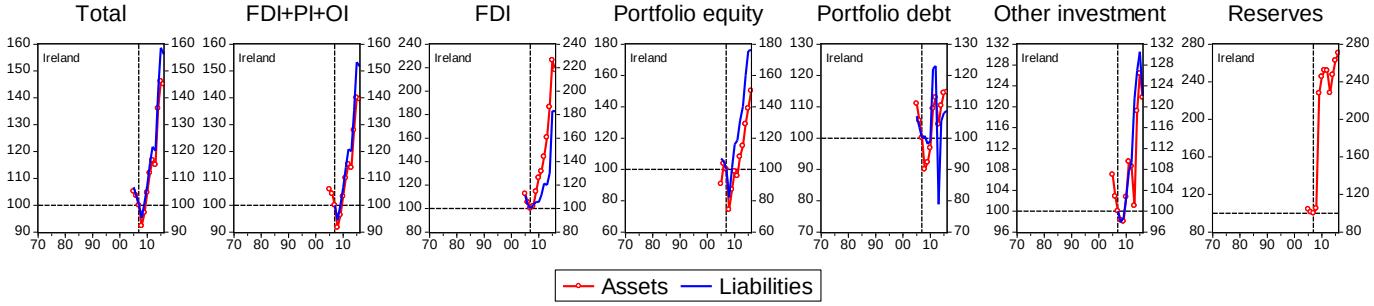
Flows and NIIP (% GDP)



Yield (%)

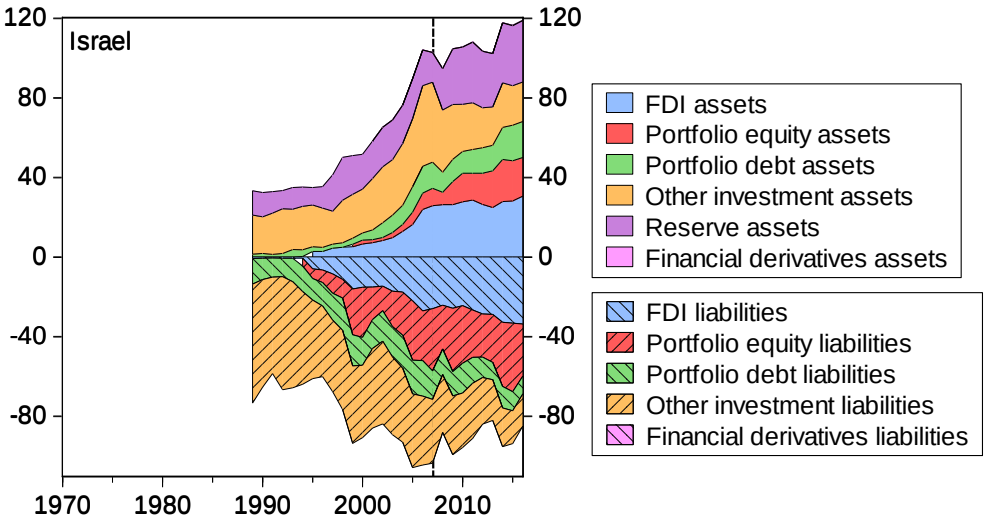


Revaluation index (2007=100)

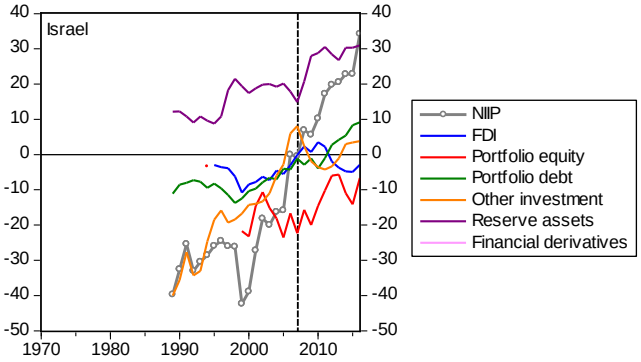


Israel

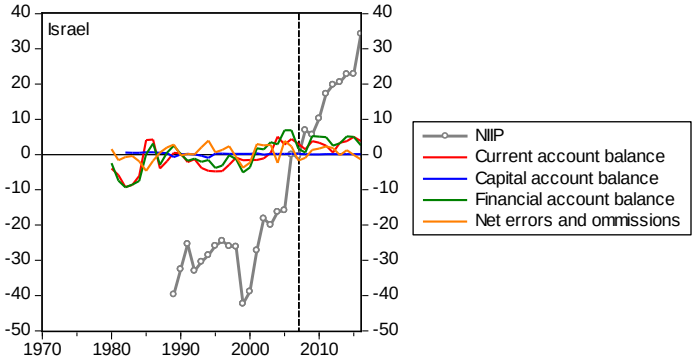
Gross international investment position (% GDP)



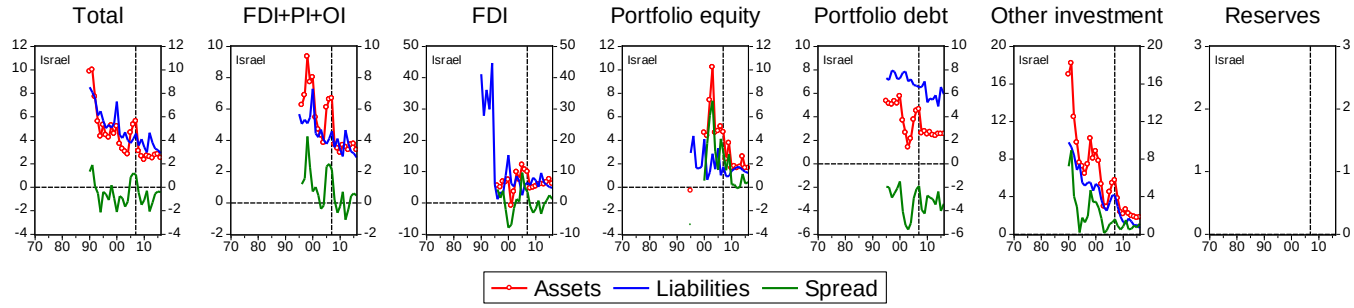
Net international investment position (% GDP)



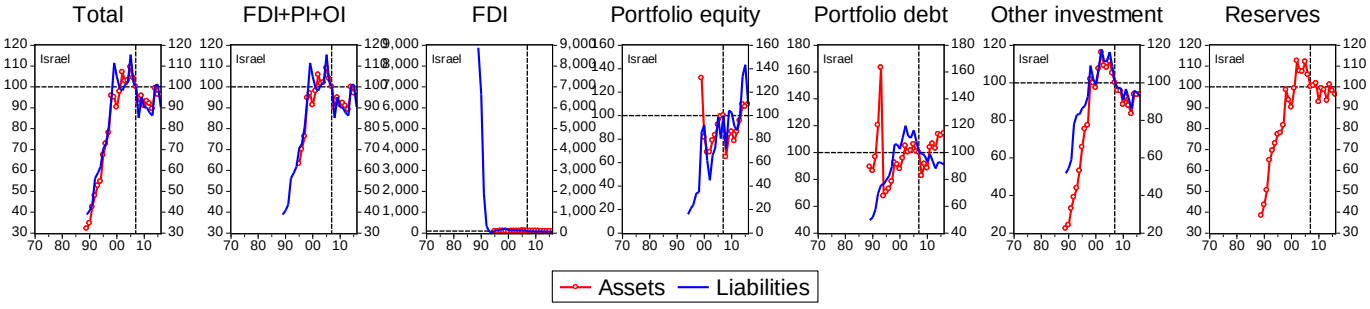
Flows and NIIP (% GDP)



Yield (%)

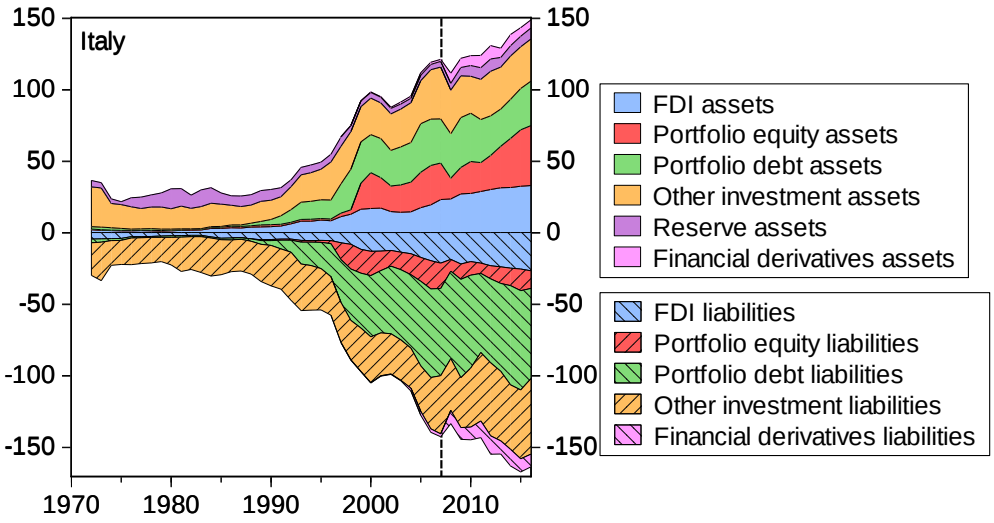


Revaluation index (2007=100)

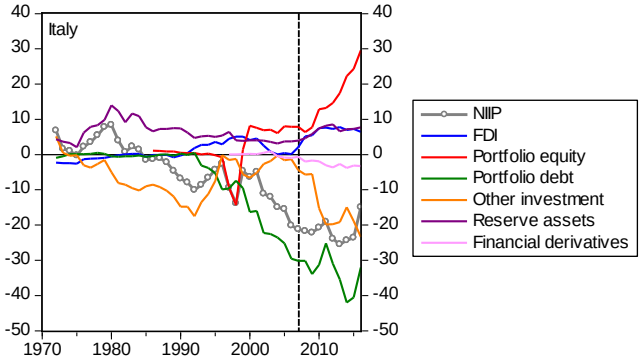


Italy

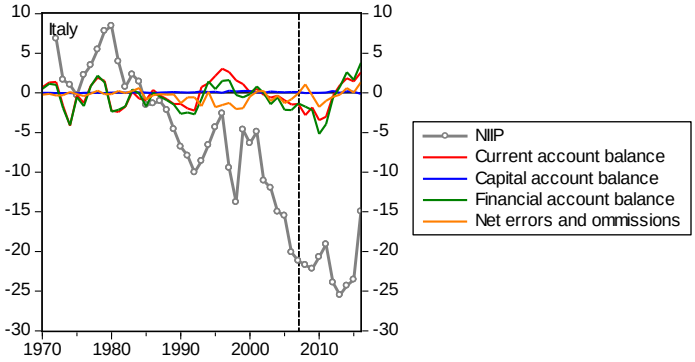
Gross international investment position (% GDP)



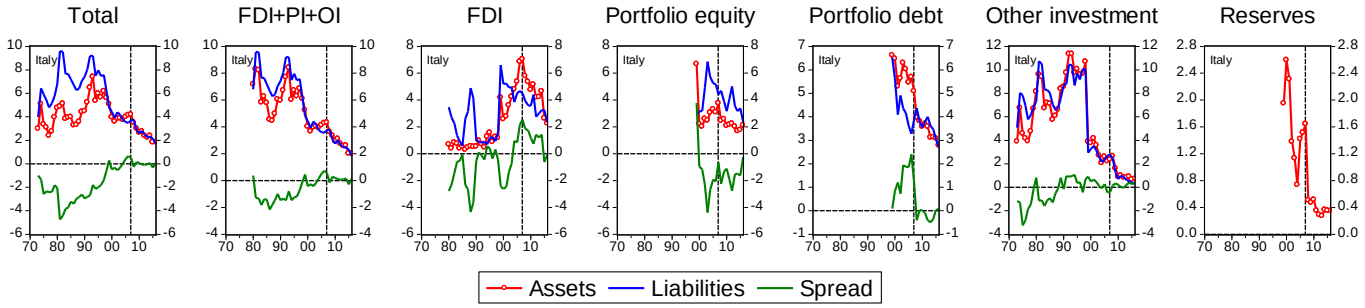
Net international investment position (% GDP)



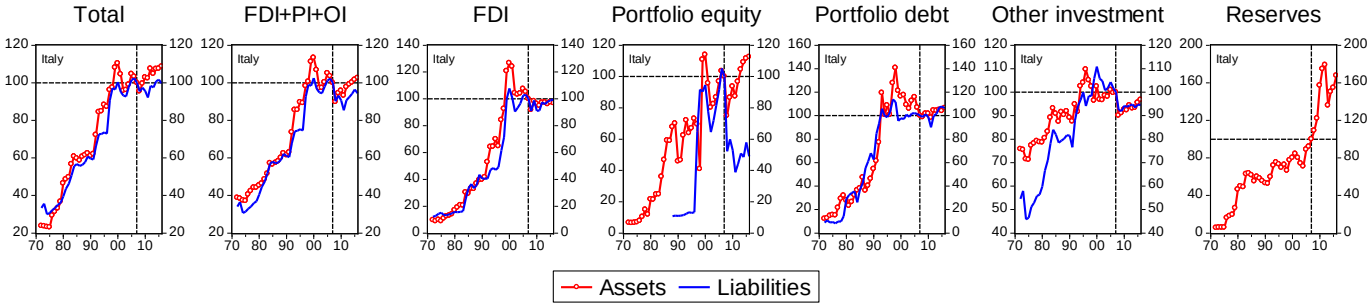
Flows and NIIP (% GDP)



Yield (%)

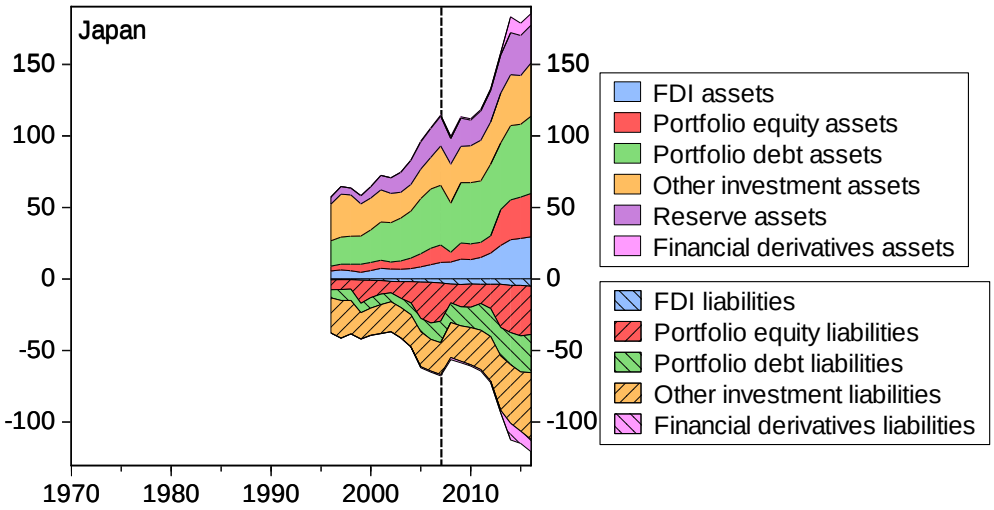


Revaluation index (2007=100)

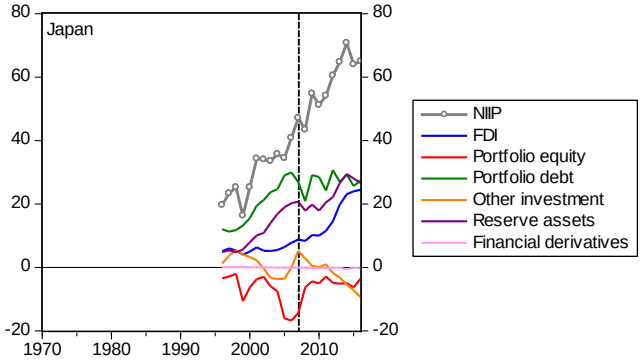


Japan

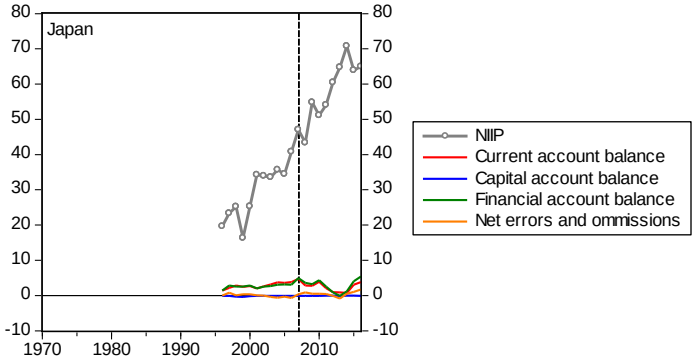
Gross international investment position (% GDP)



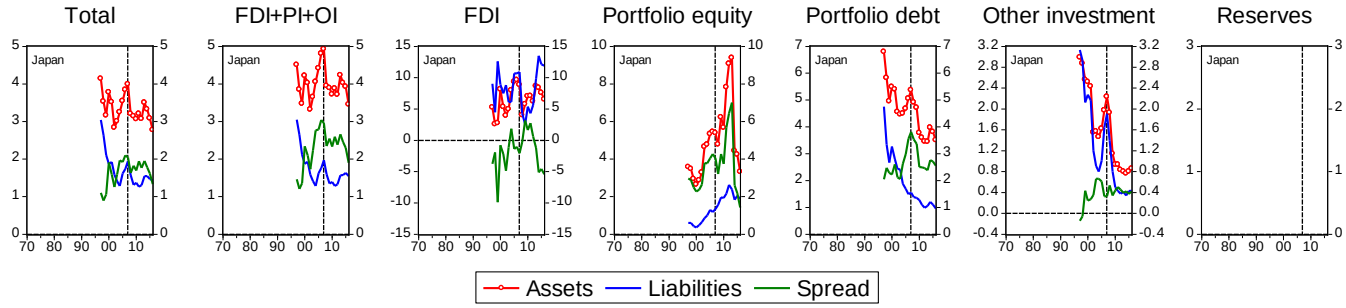
Net international investment position (% GDP)



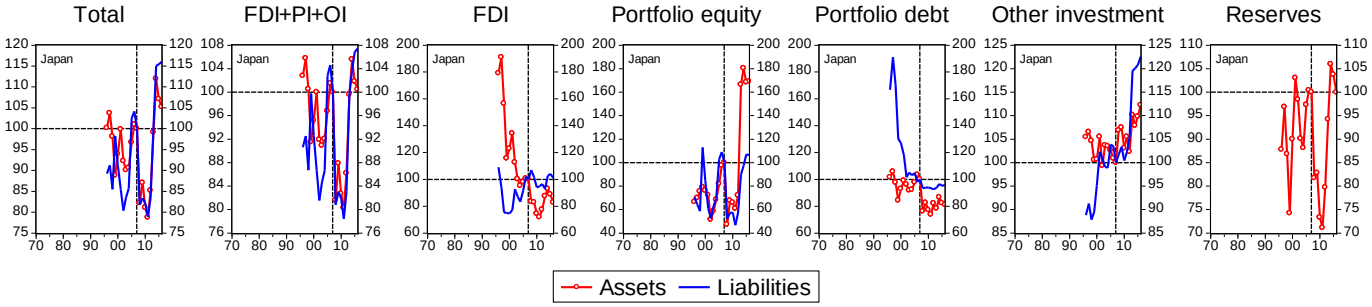
Flows and NIIP (% GDP)



Yield (%)

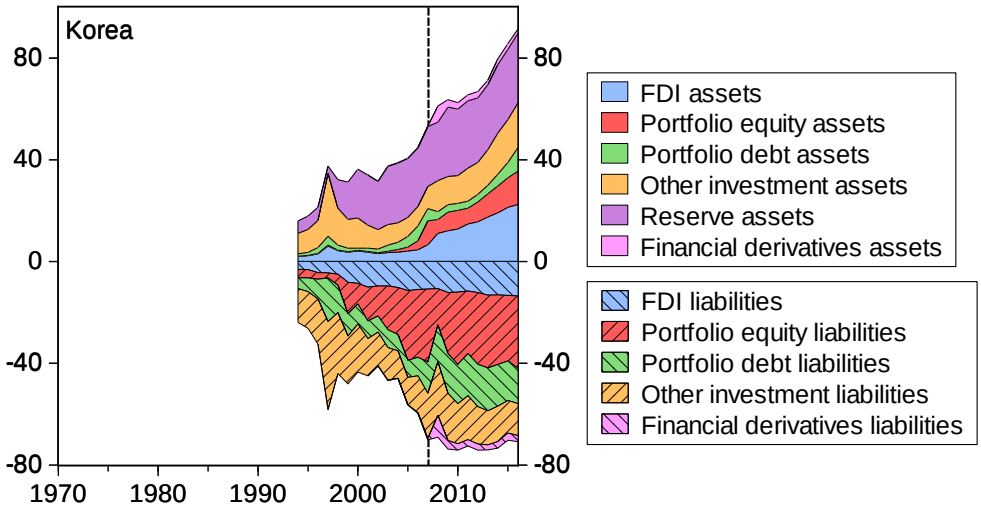


Revaluation index (2007=100)

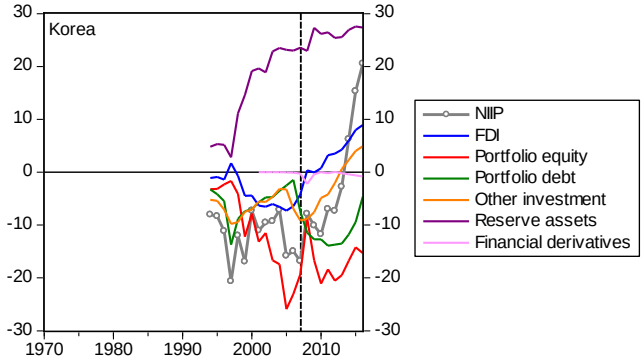


Korea

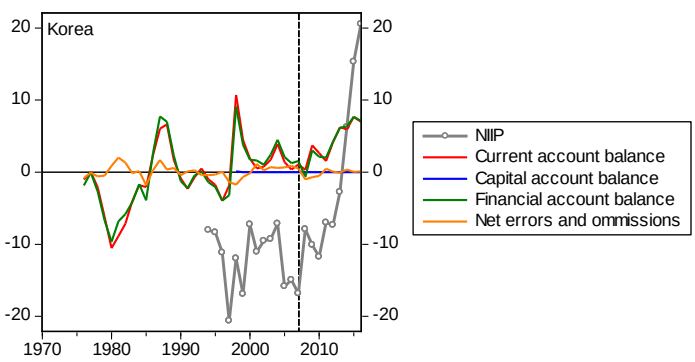
Gross international investment position (% GDP)



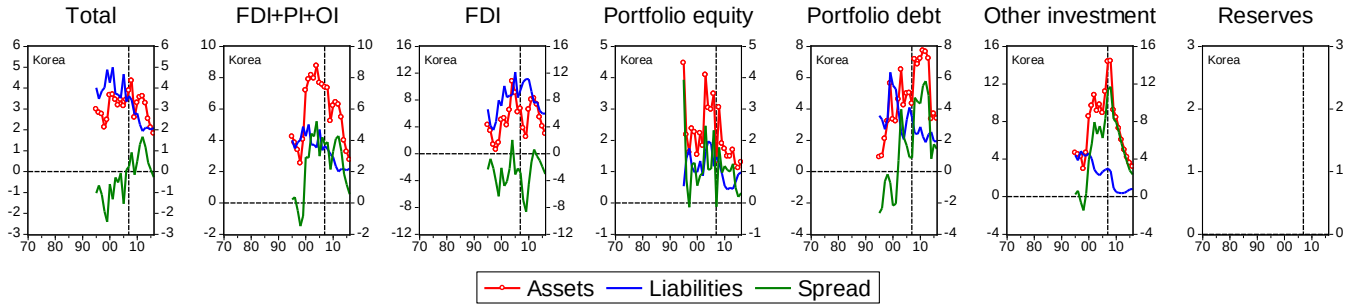
Net international investment position (% GDP)



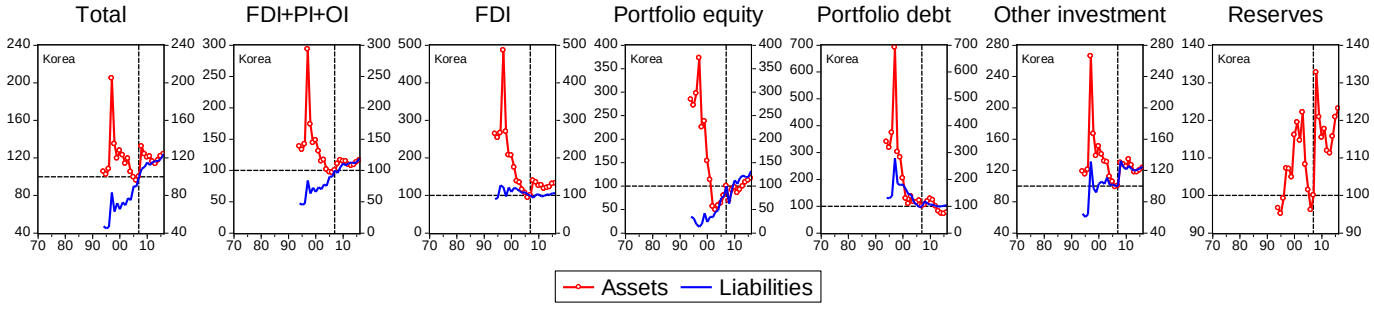
Flows and NIIP (% GDP)



Yield (%)

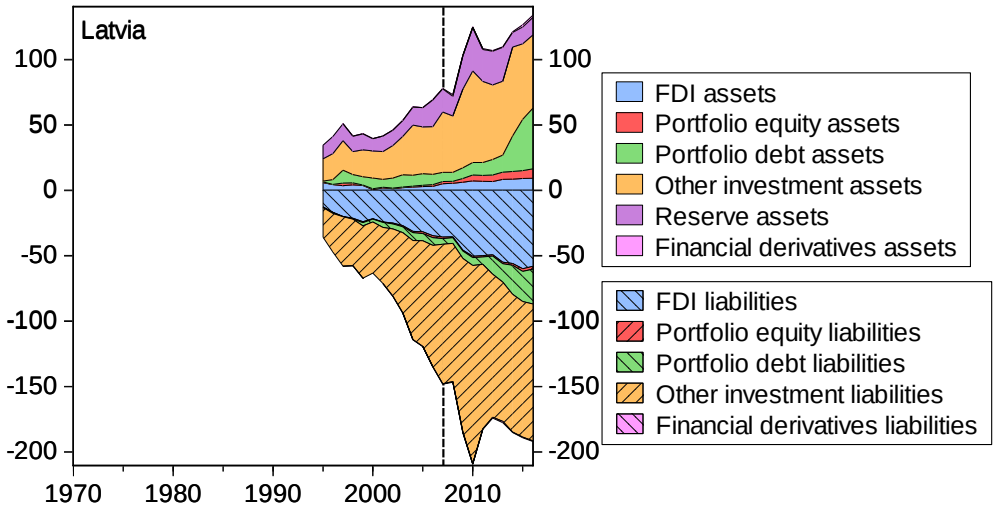


Revaluation index (2007=100)

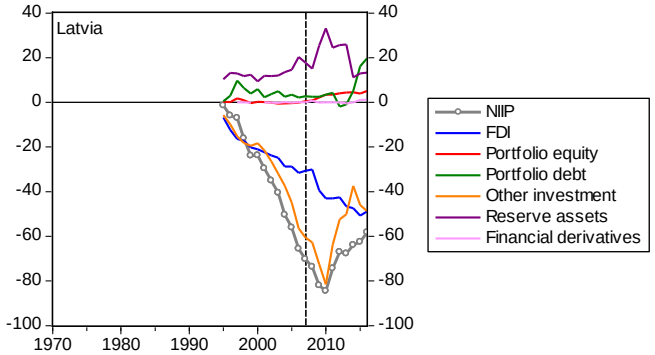


Latvia

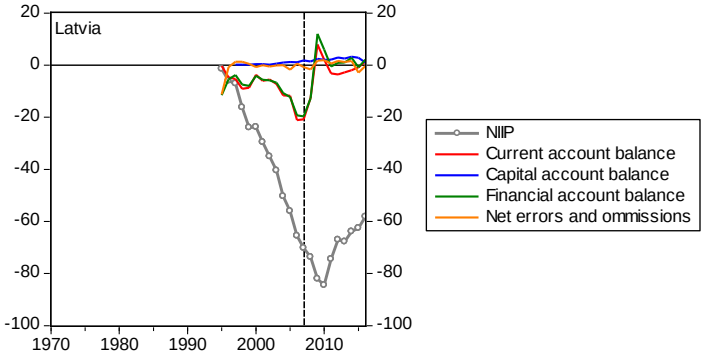
Gross international investment position (% GDP)



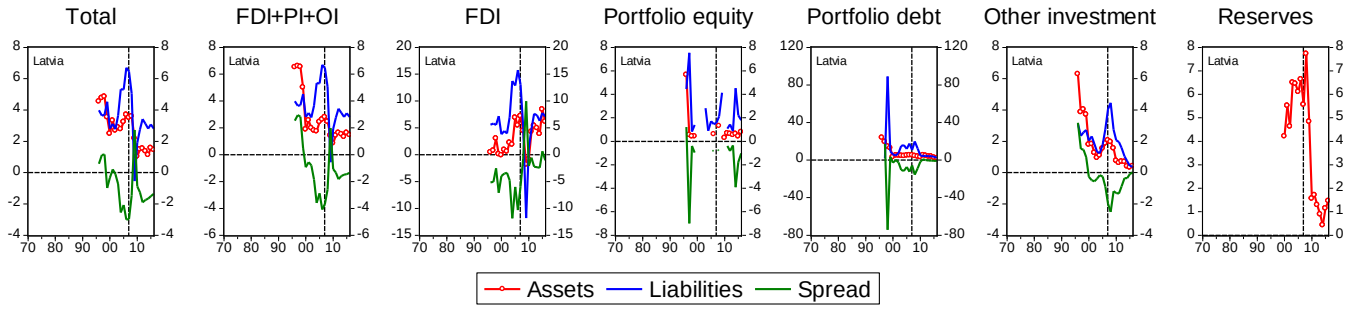
Net international investment position (% GDP)



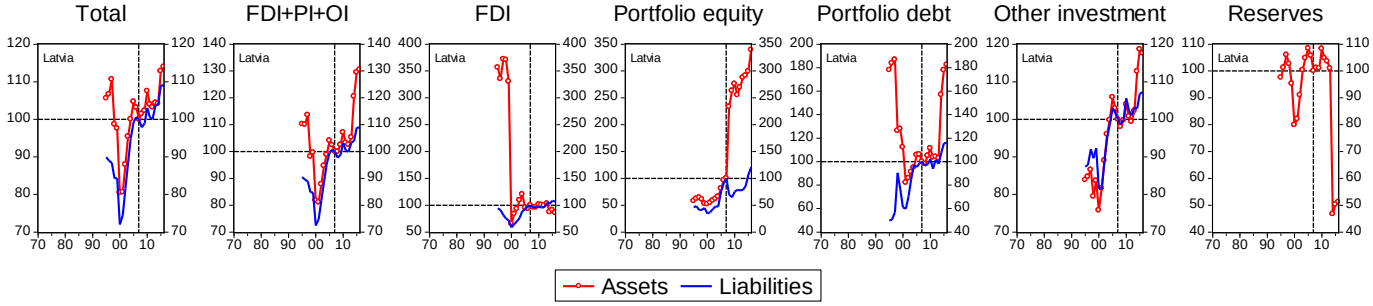
Flows and NIIP (% GDP)



Yield (%)

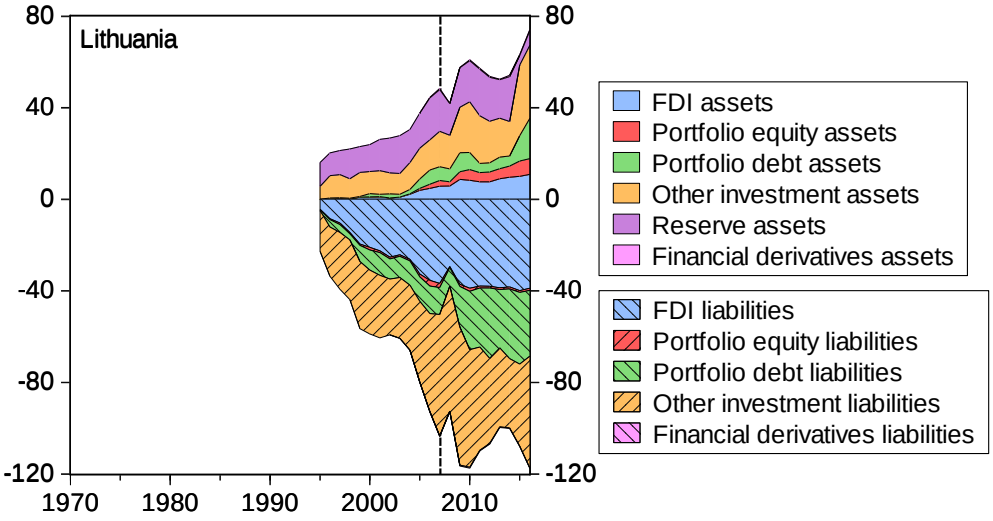


Revaluation index (2007=100)

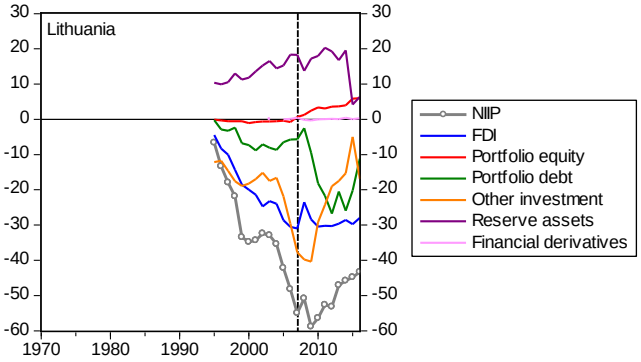


Lithuania

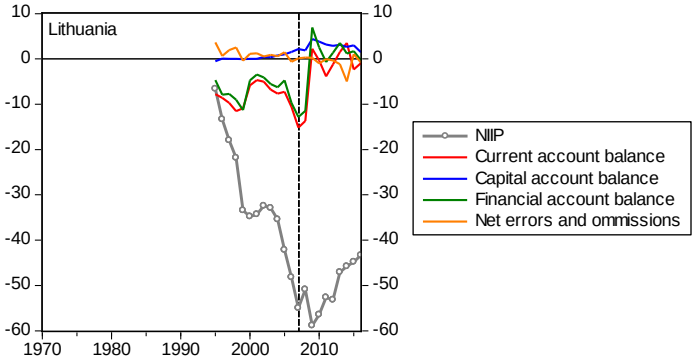
Gross international investment position (% GDP)



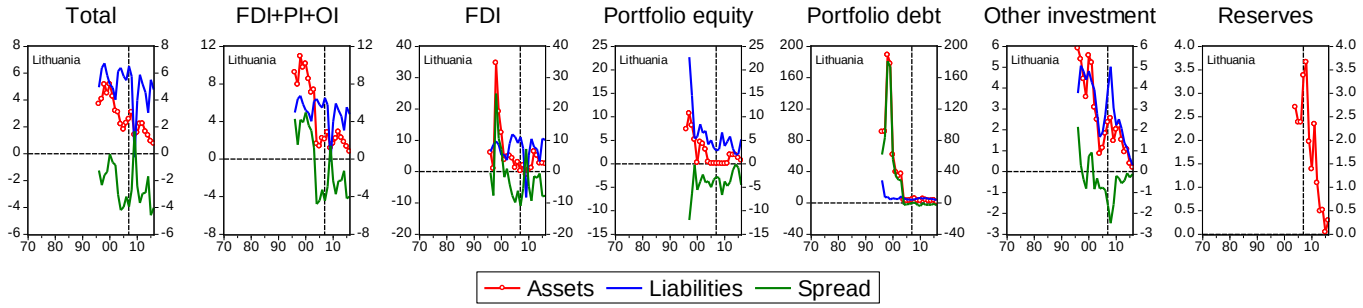
Net international investment position (% GDP)



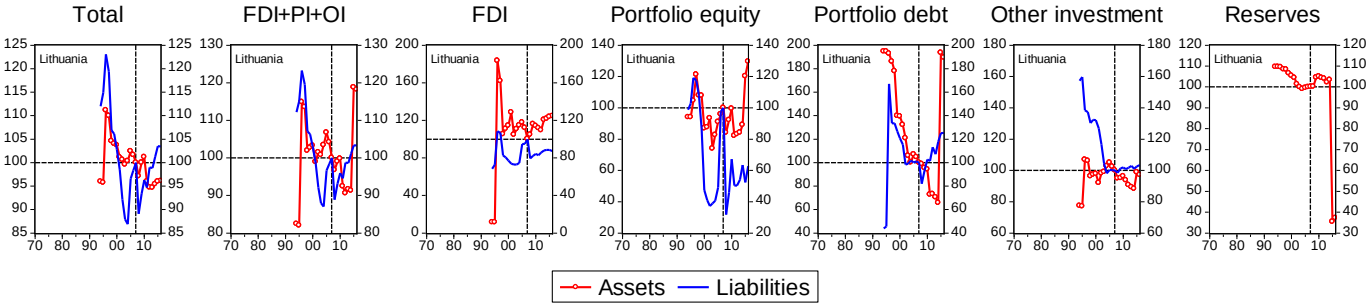
Flows and NIIP (% GDP)



Yield (%)

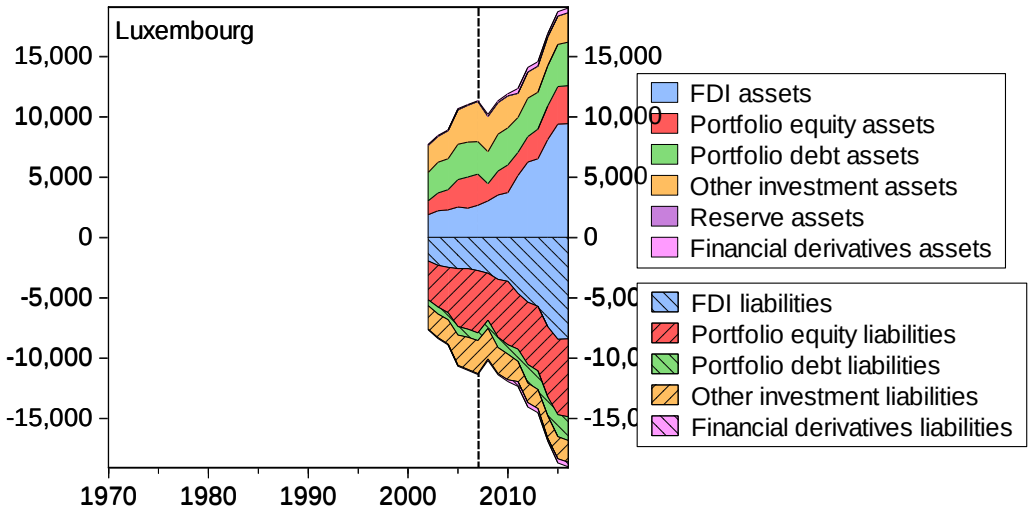


Revaluation index (2007=100)

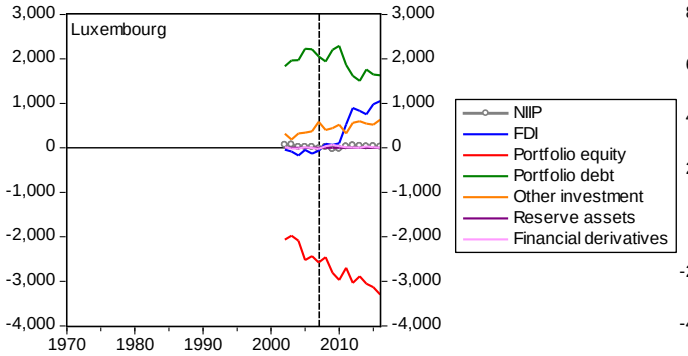


Luxembourg

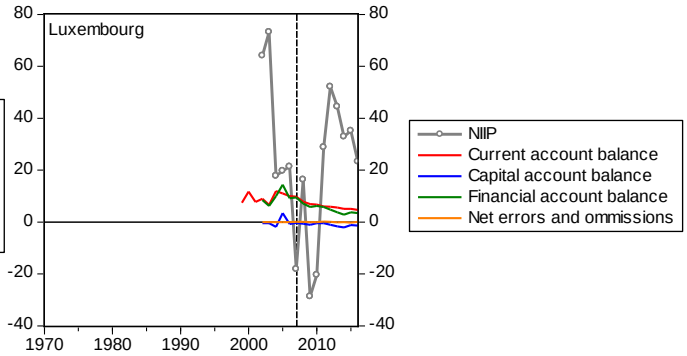
Gross international investment position (% GDP)



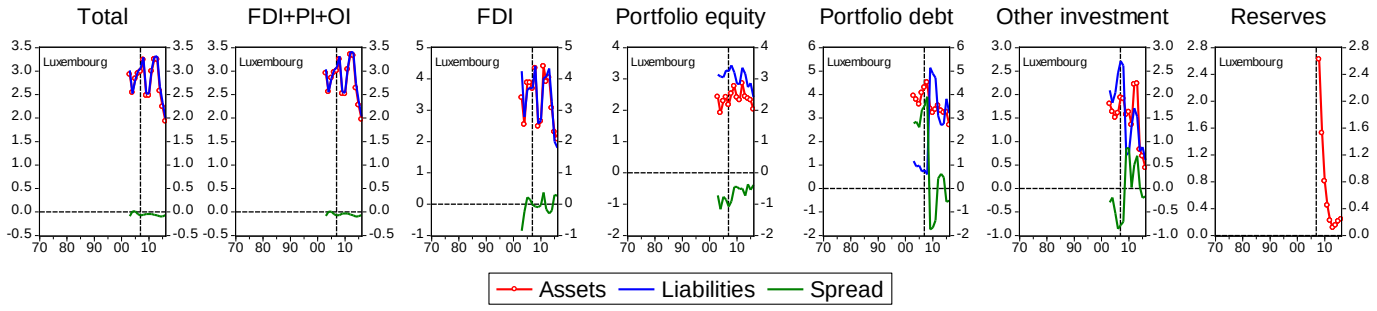
Net international investment position (% GDP)



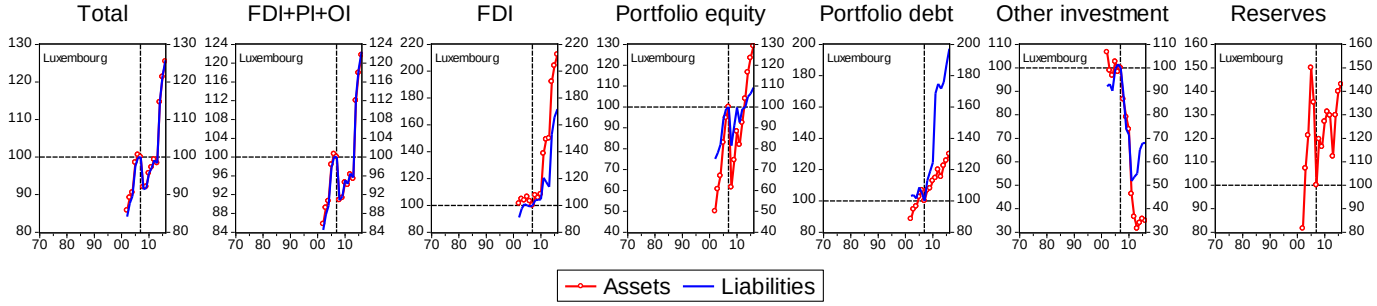
Flows and NIIP (% GDP)



Yield (%)

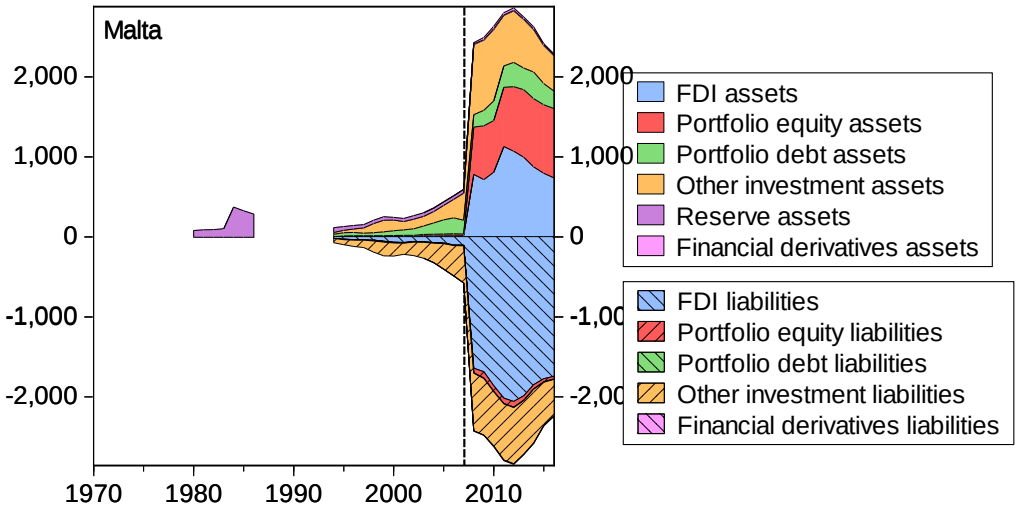


Revaluation index (2007=100)

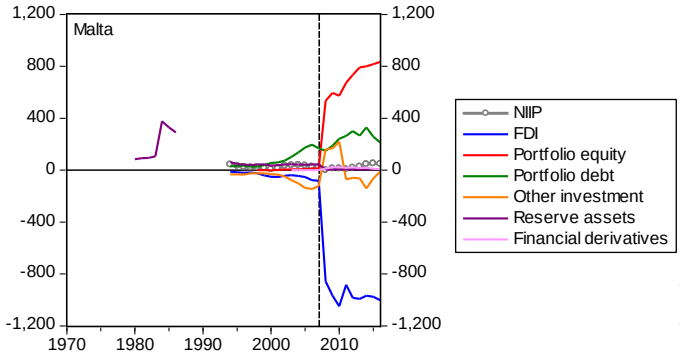


Malta

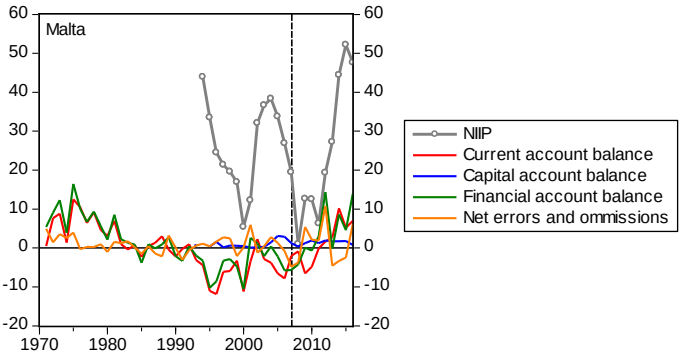
Gross international investment position (% GDP)



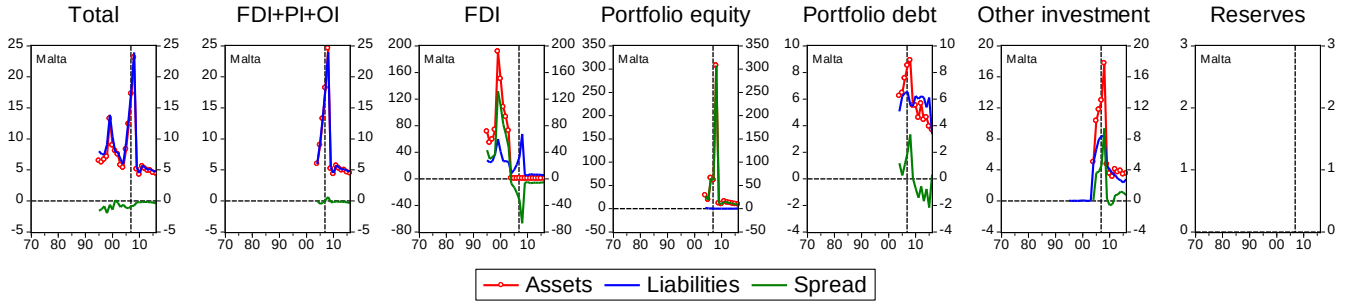
Net international investment position (% GDP)



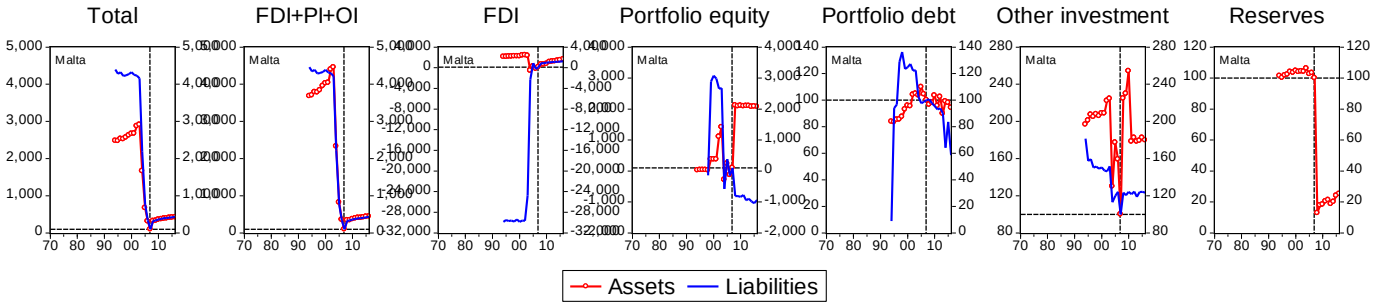
Flows and NIIP (% GDP)



Yield (%)

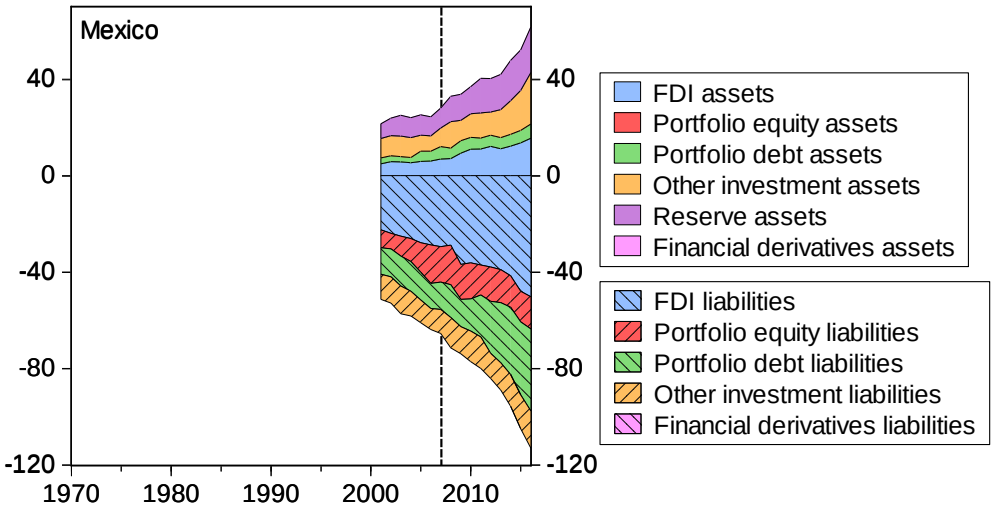


Revaluation index (2007=100)

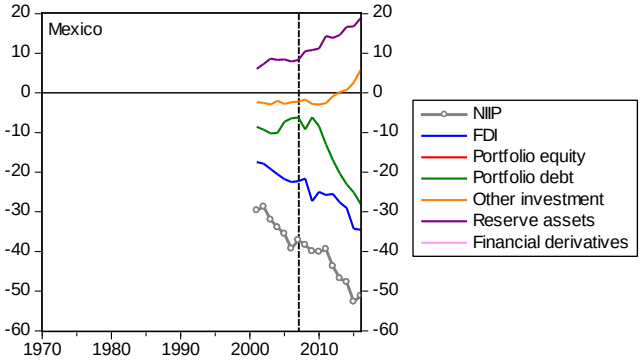


Mexico

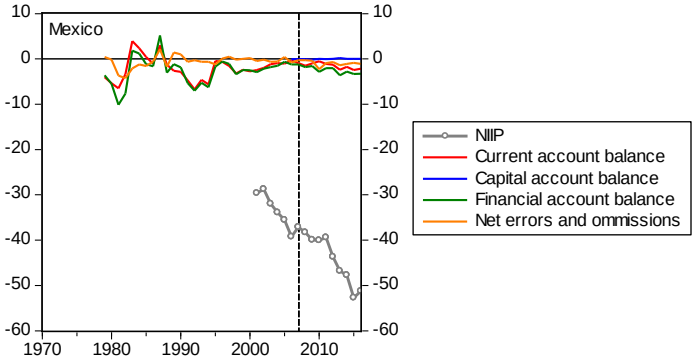
Gross international investment position (% GDP)



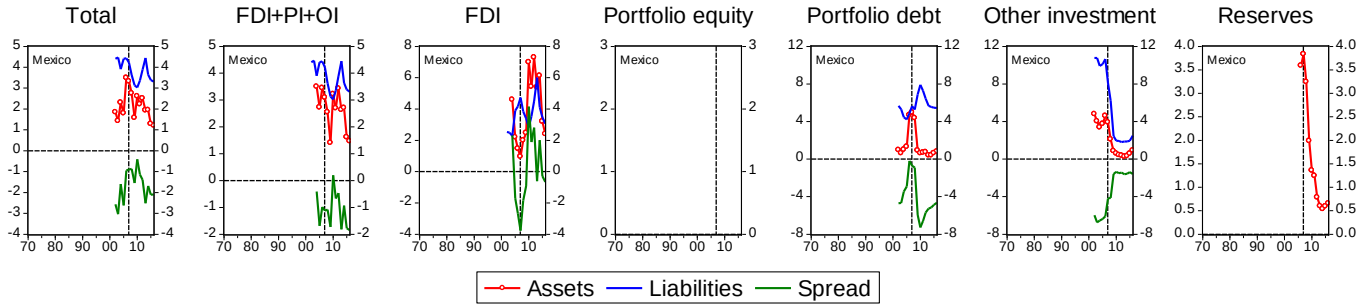
Net international investment position (% GDP)



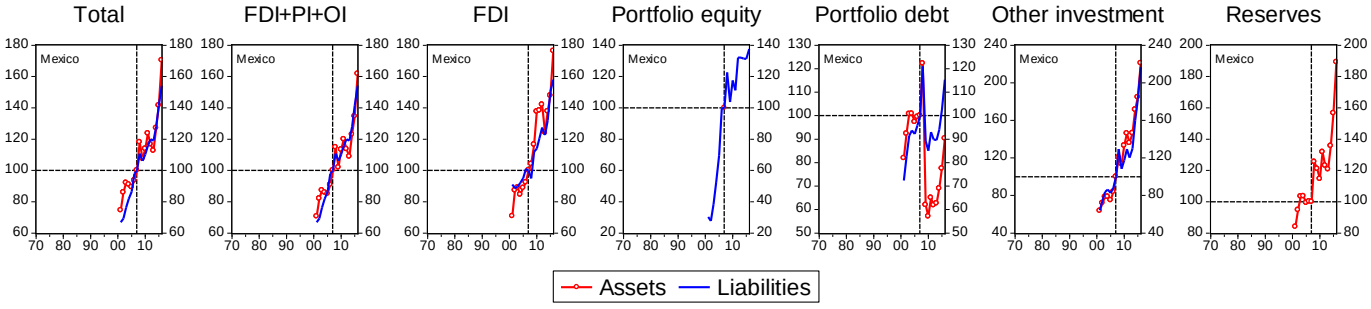
Flows and NIIP (% GDP)



Yield (%)

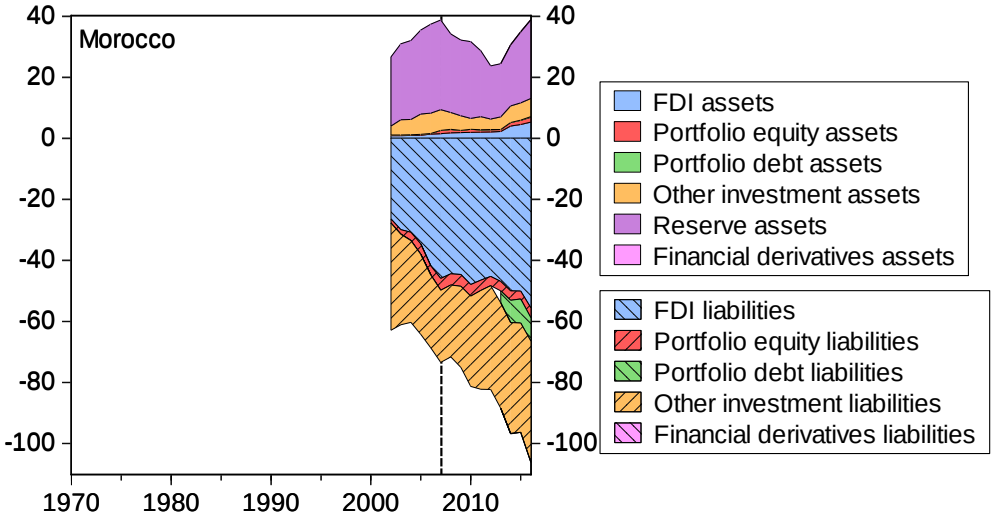


Revaluation index (2007=100)

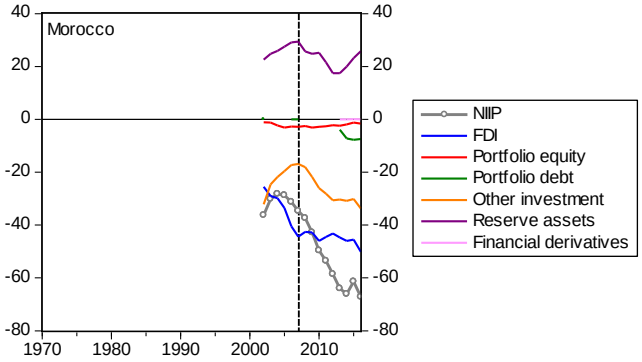


Morocco

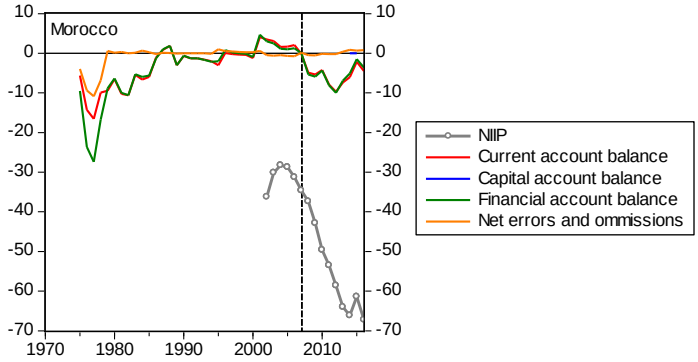
Gross international investment position (% GDP)



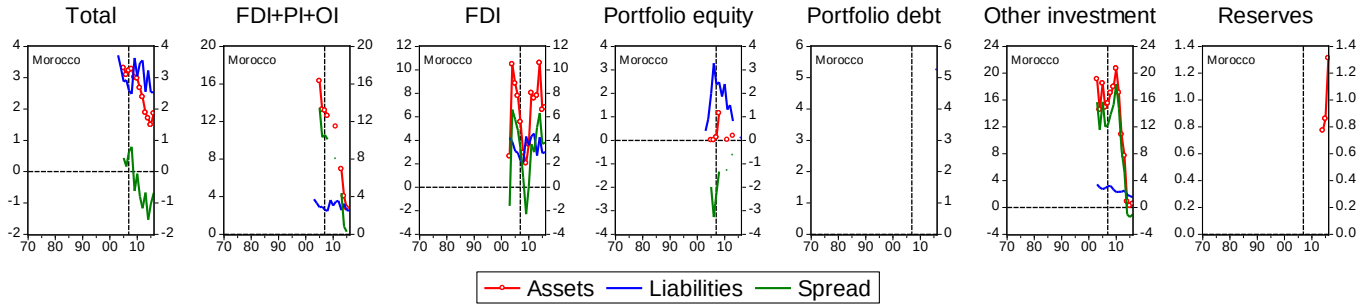
Net international investment position (% GDP)



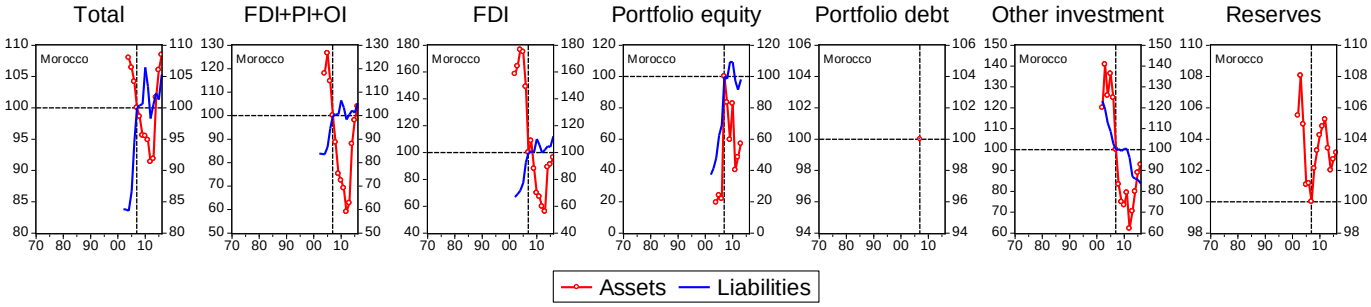
Flows and NIIP (% GDP)



Yield (%)

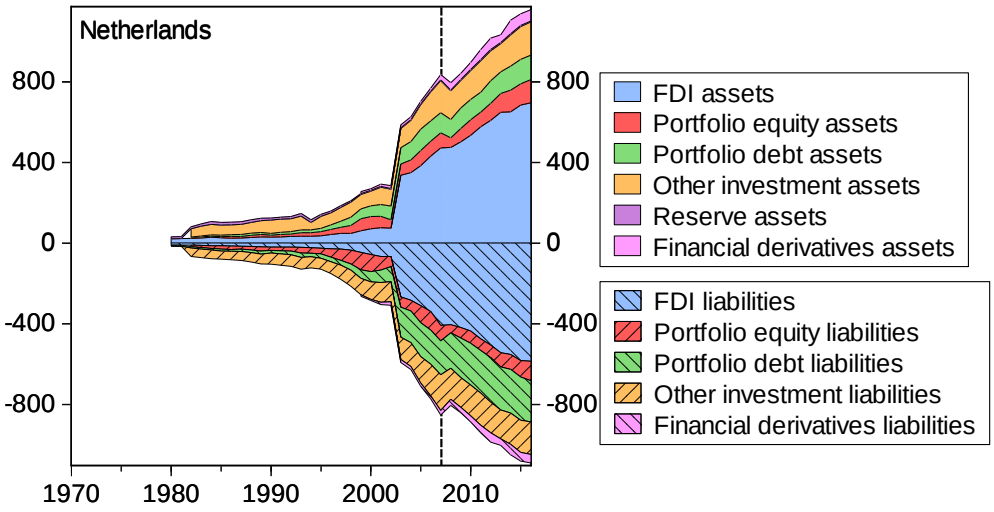


Revaluation index (2007=100)

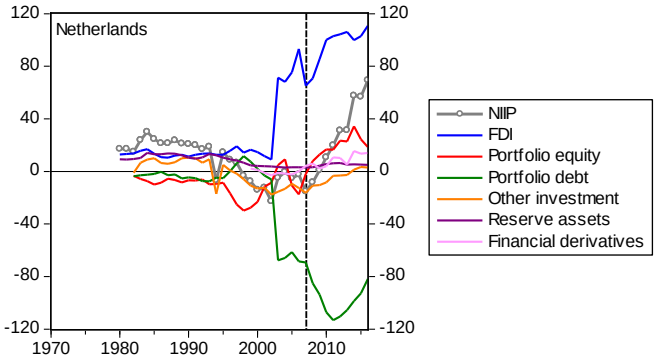


Netherlands

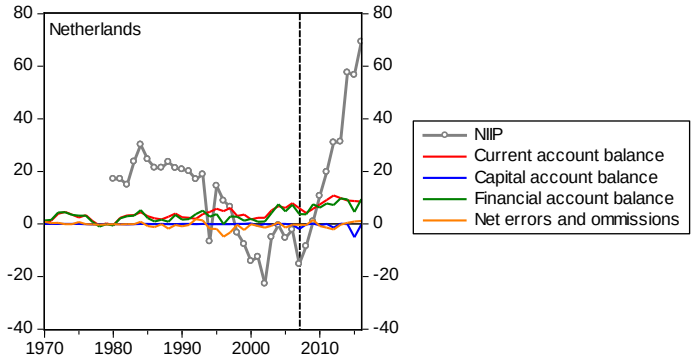
Gross international investment position (% GDP)



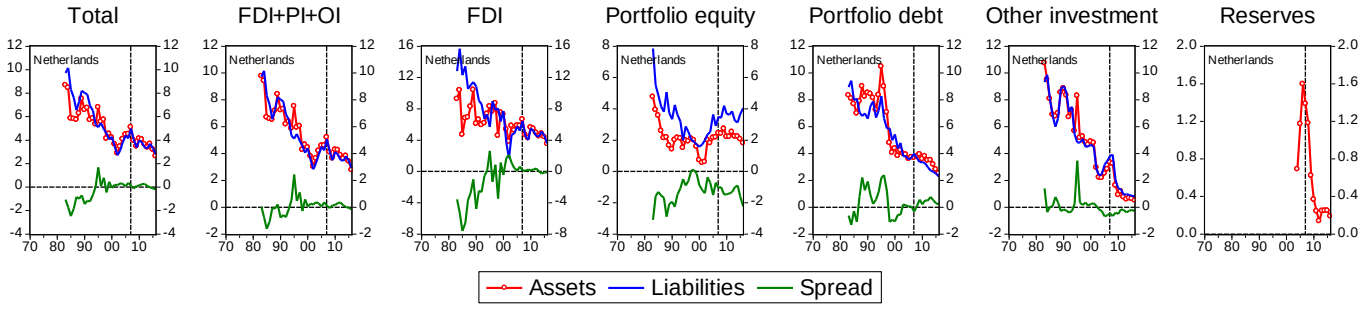
Net international investment position (% GDP)



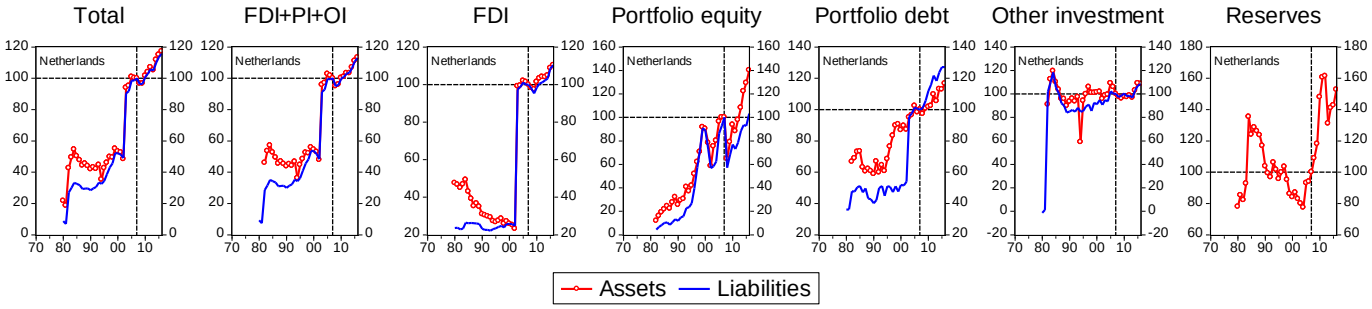
Flows and NIIP (% GDP)



Yield (%)

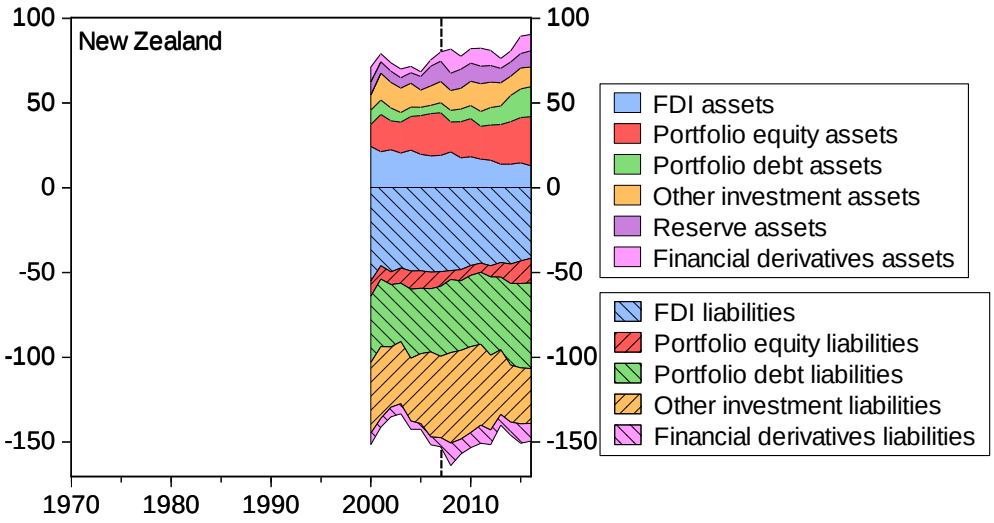


Revaluation index (2007=100)

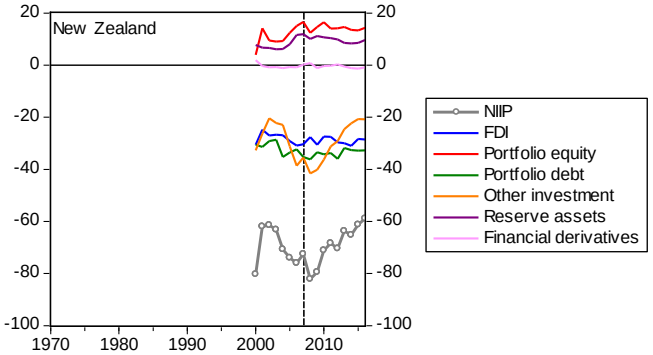


New Zealand

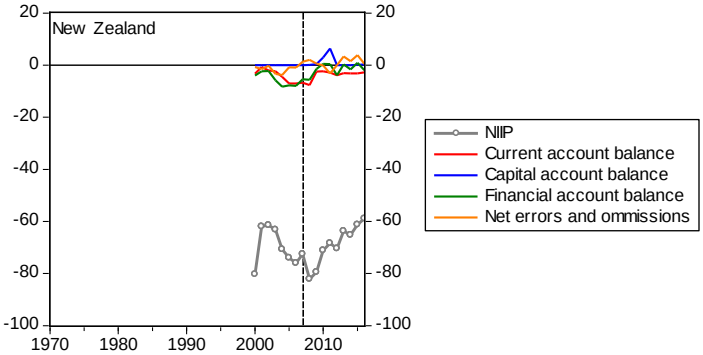
Gross international investment position (% GDP)



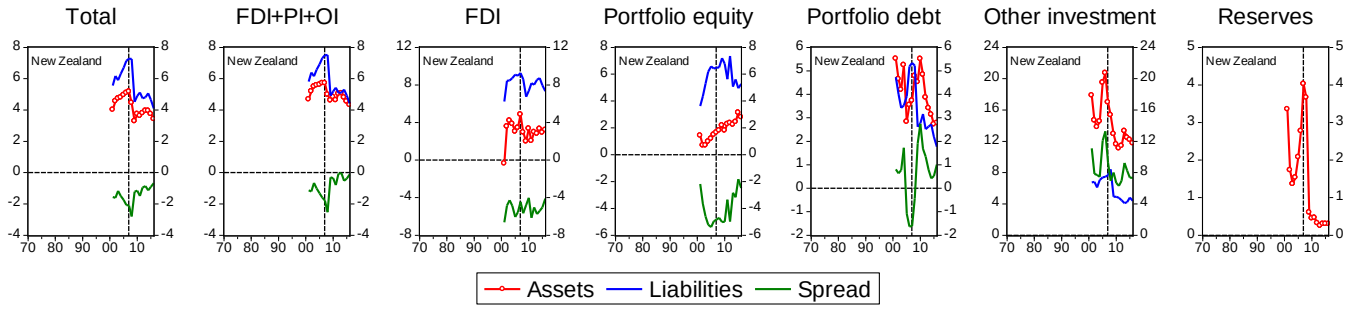
Net international investment position (% GDP)



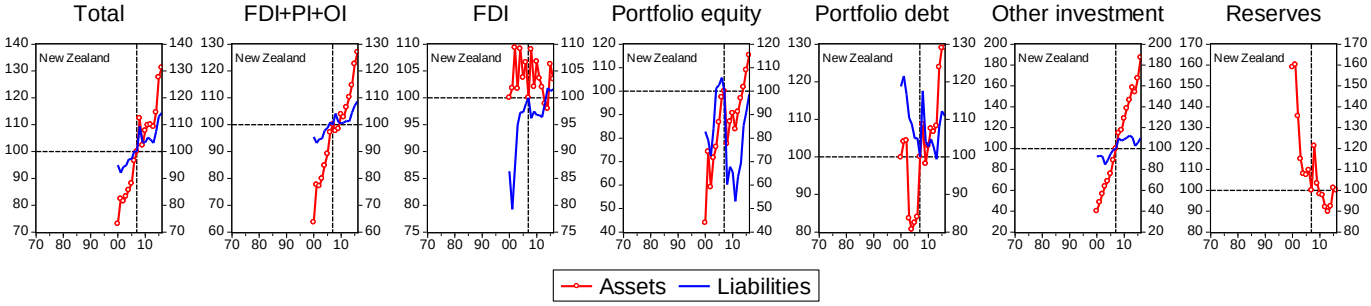
Flows and NIIP (% GDP)



Yield (%)

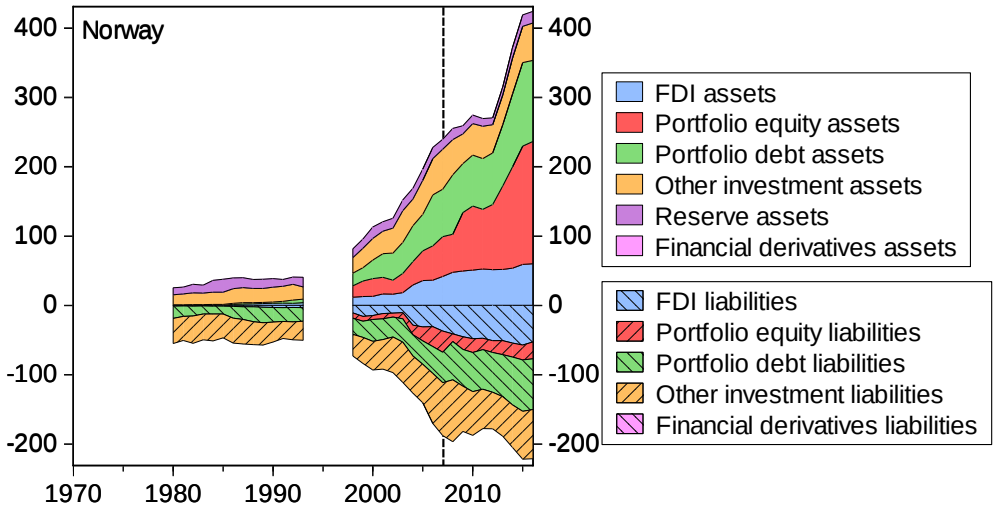


Revaluation index (2007=100)

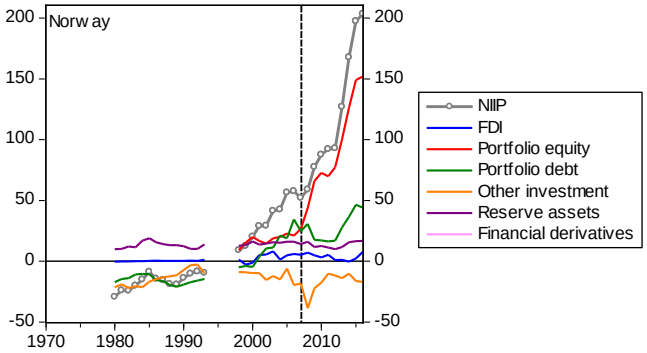


Norway

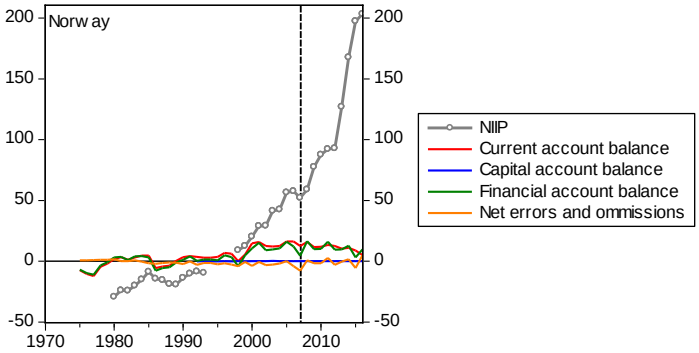
Gross international investment position (% GDP)



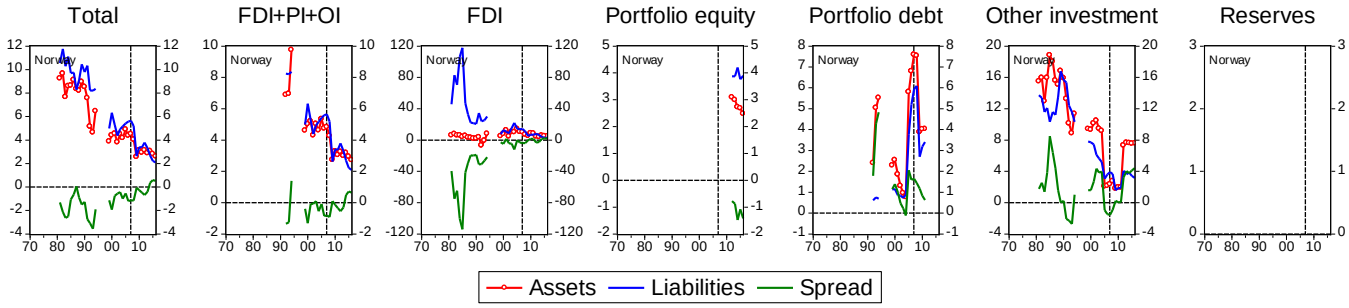
Net international investment position (% GDP)



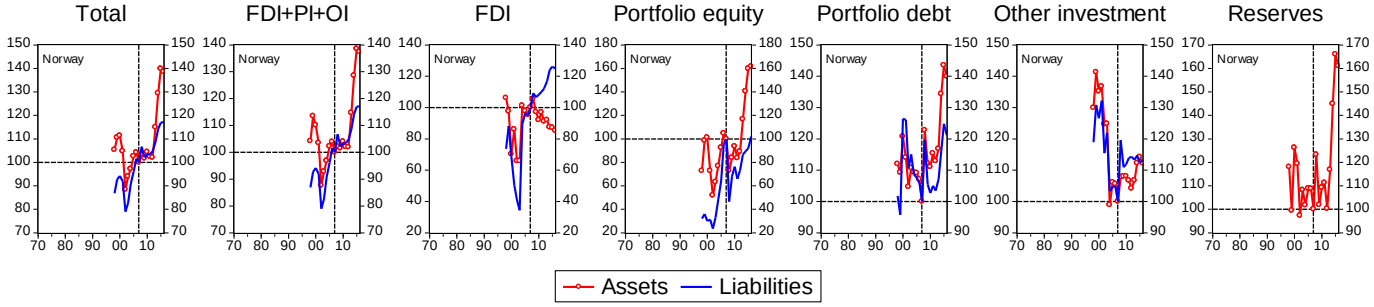
Flows and NIIP (% GDP)



Yield (%)

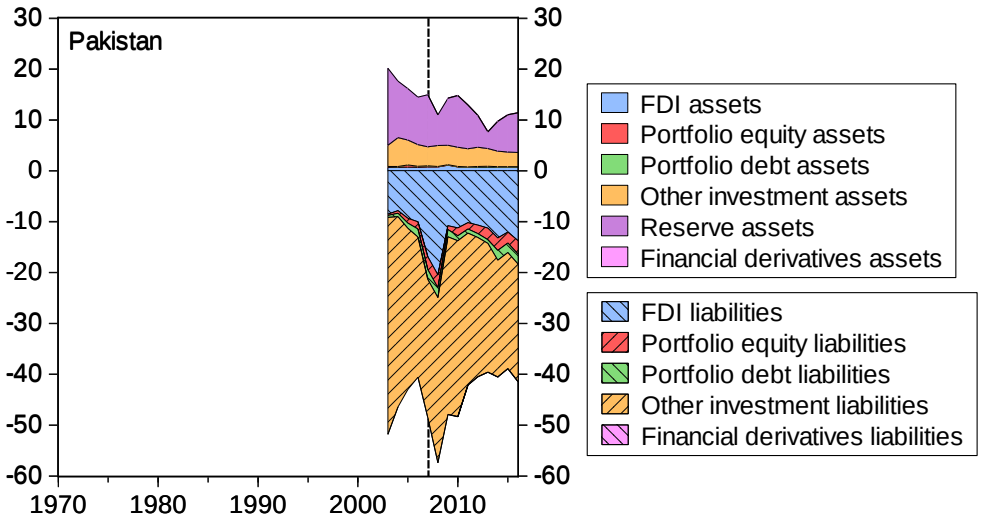


Revaluation index (2007=100)

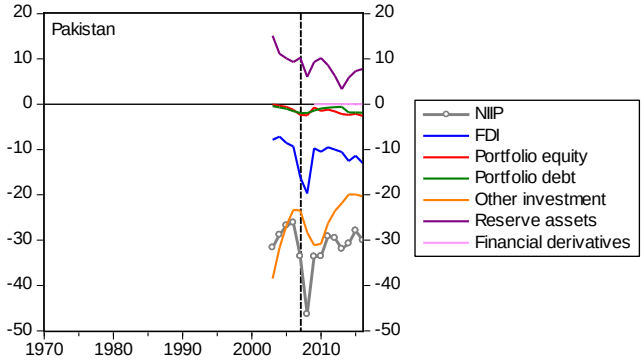


Pakistan

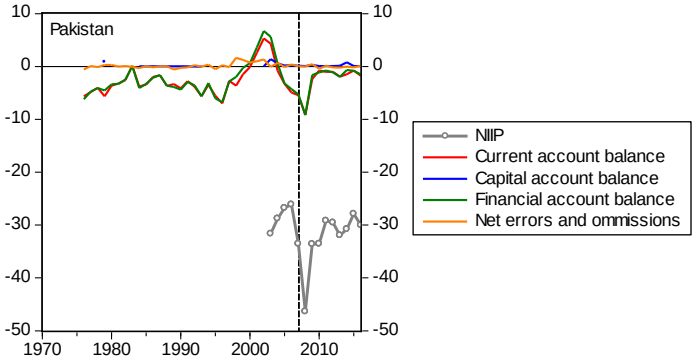
Gross international investment position (% GDP)



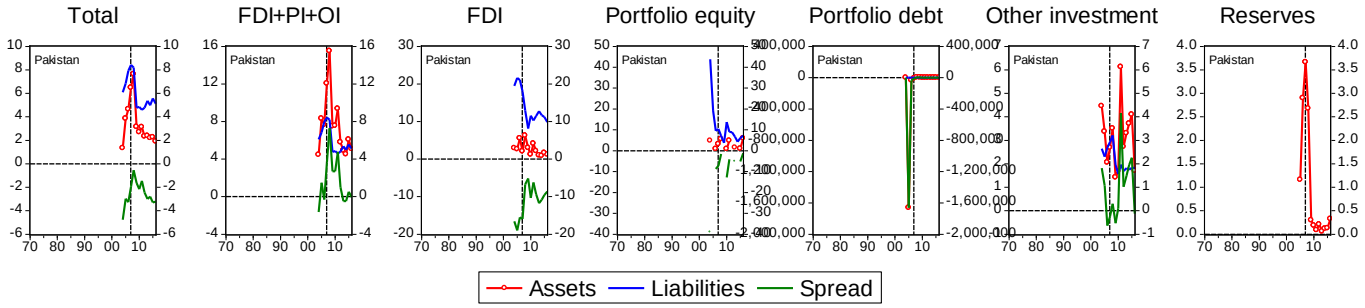
Net international investment position (% GDP)



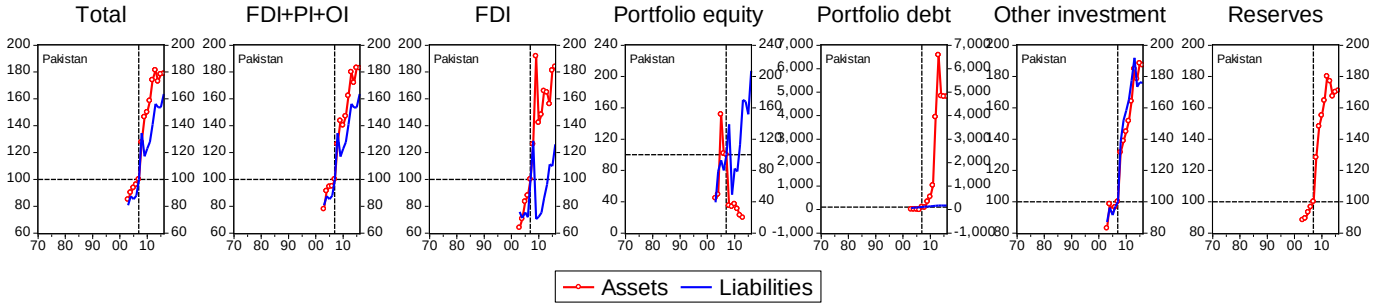
Flows and NIIP (% GDP)



Yield (%)

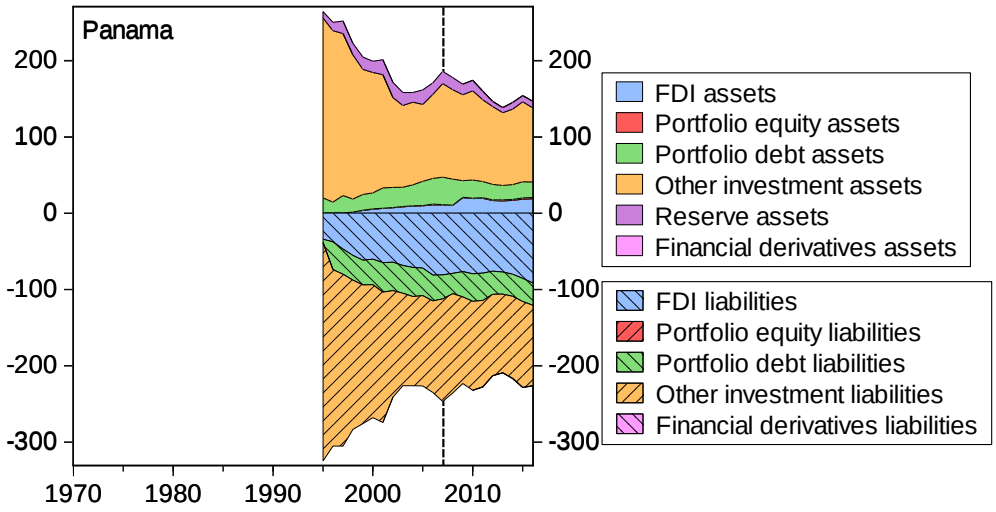


Revaluation index (2007=100)

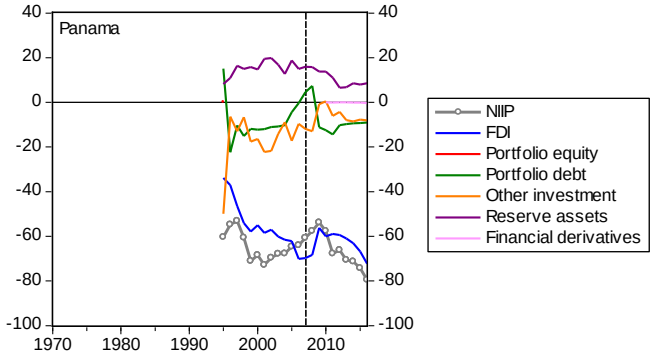


Panama

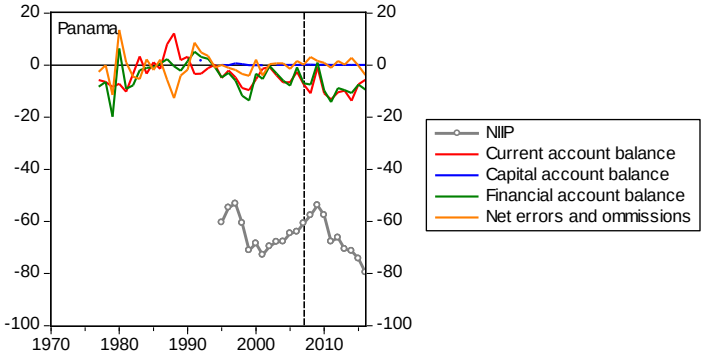
Gross international investment position (% GDP)



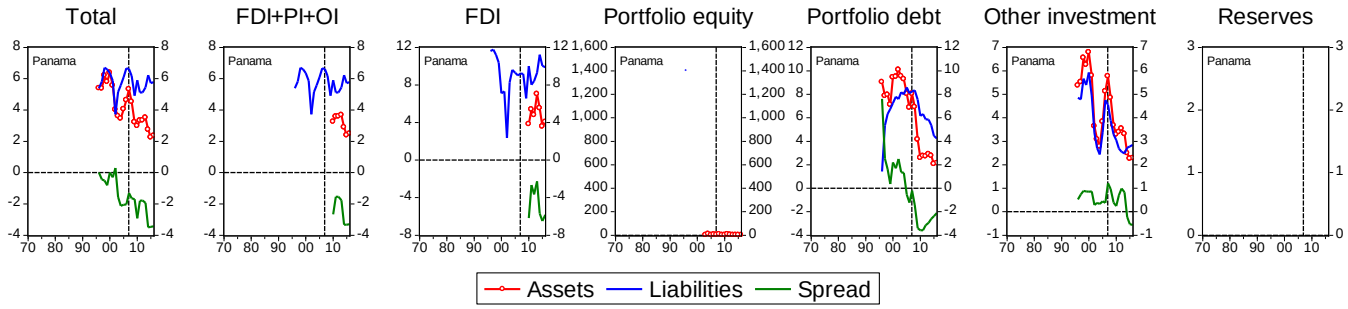
Net international investment position (% GDP)



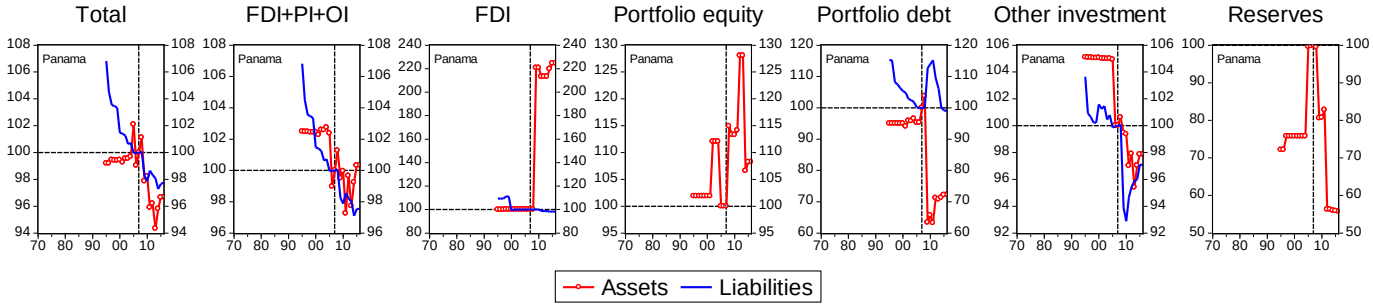
Flows and NIIP (% GDP)



Yield (%)

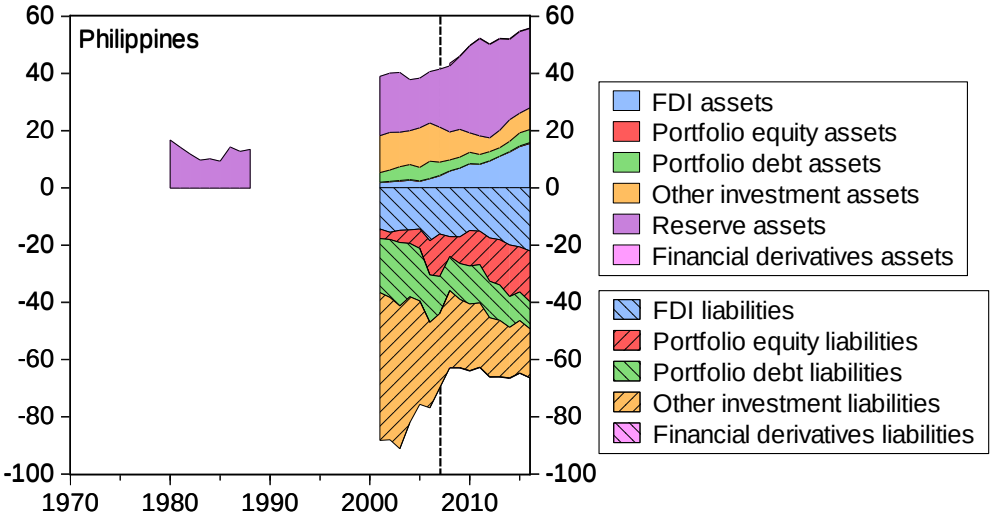


Revaluation index (2007=100)

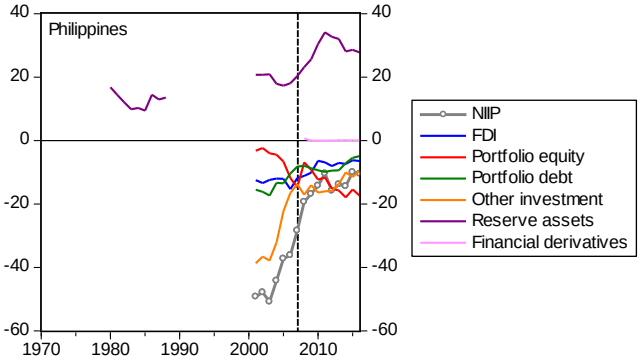


Philippines

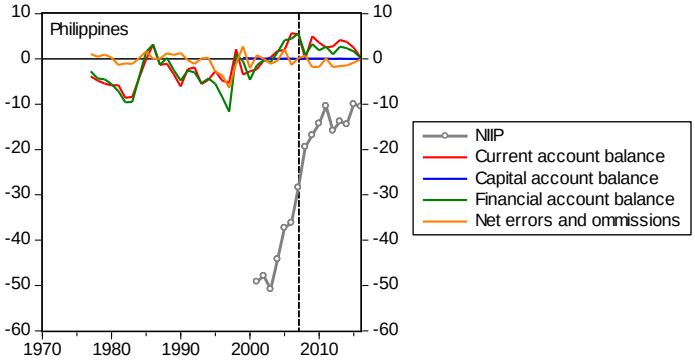
Gross international investment position (% GDP)



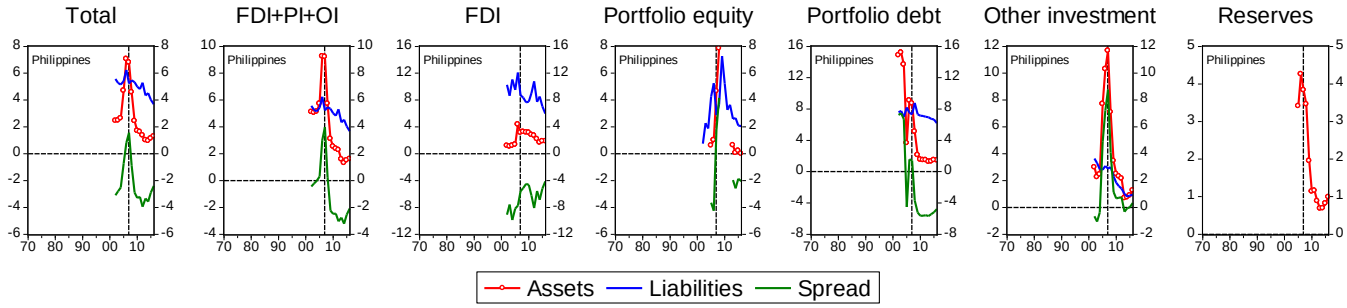
Net international investment position (% GDP)



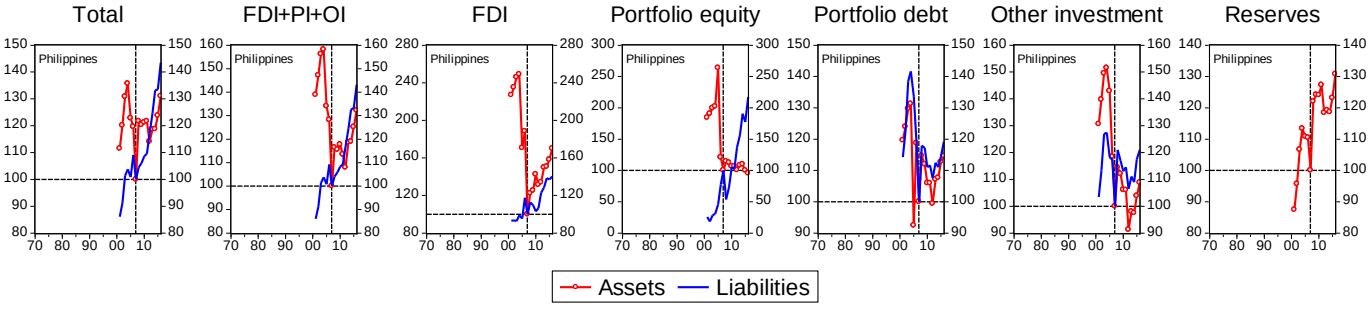
Flows and NIIP (% GDP)



Yield (%)

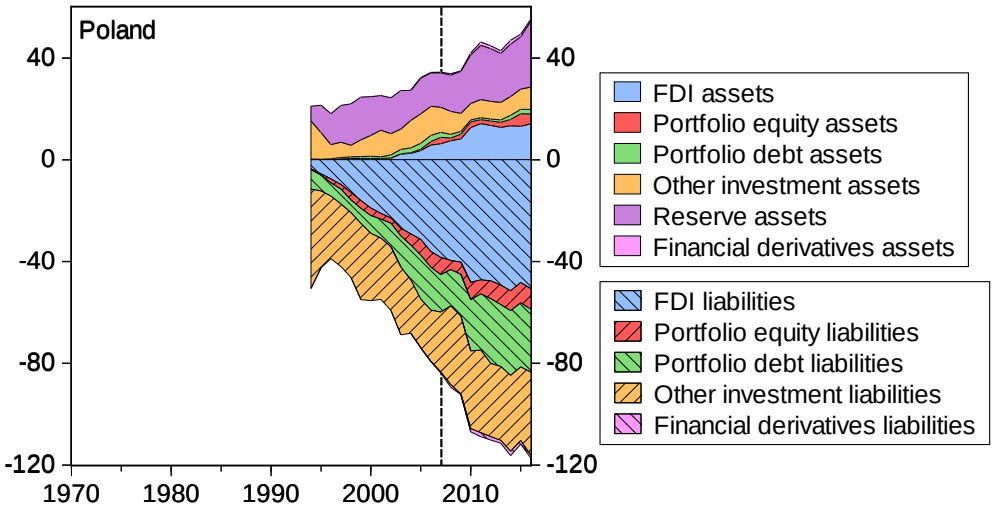


Revaluation index (2007=100)

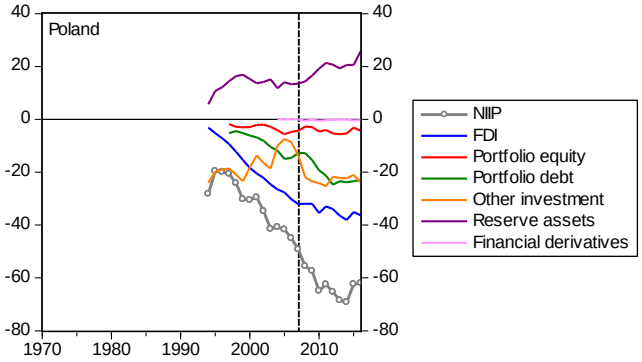


Poland

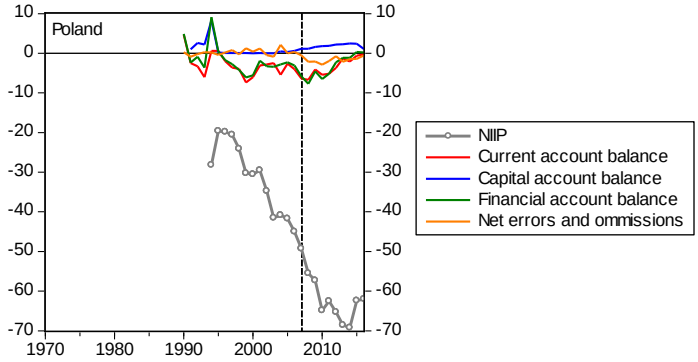
Gross international investment position (% GDP)



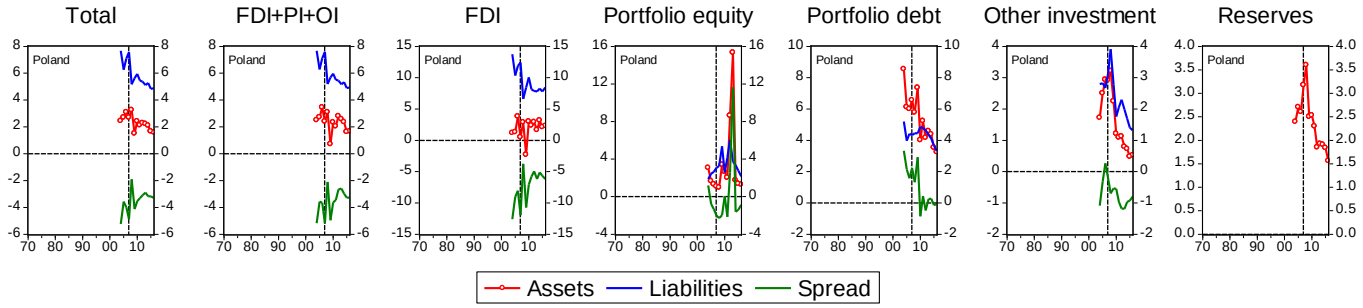
Net international investment position (% GDP)



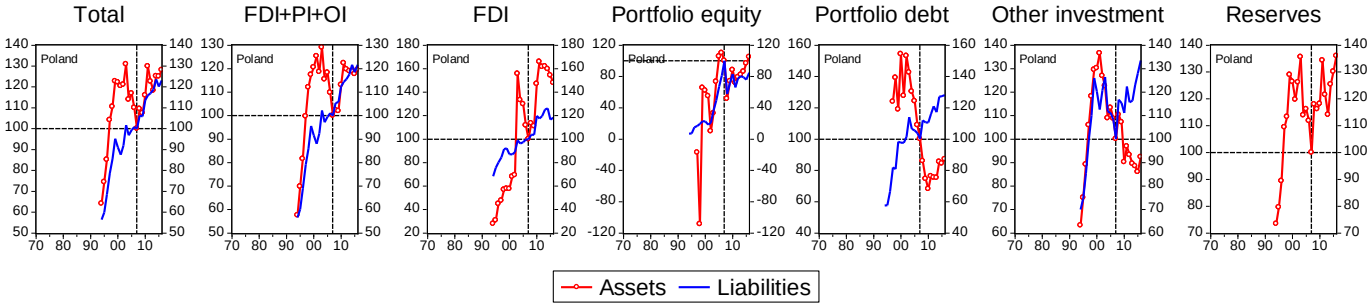
Flows and NIIP (% GDP)



Yield (%)

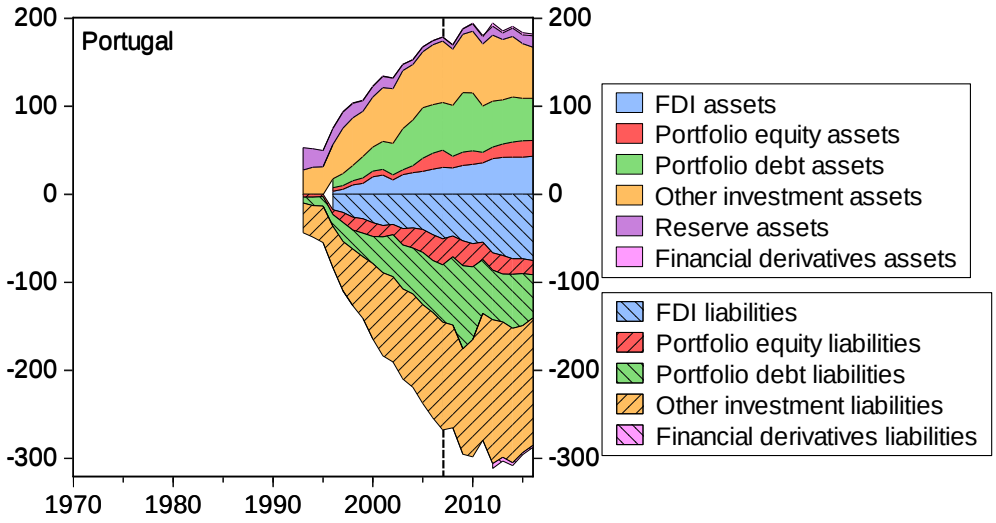


Revaluation index (2007=100)

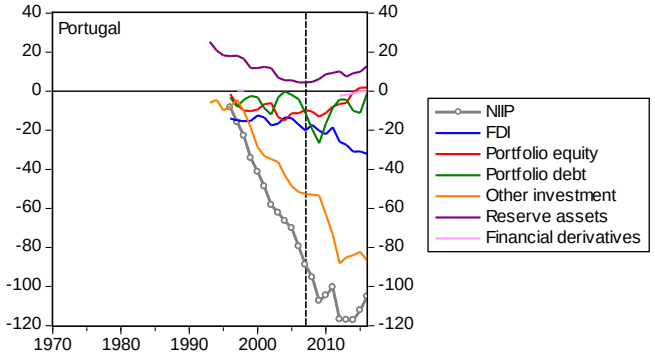


Portugal

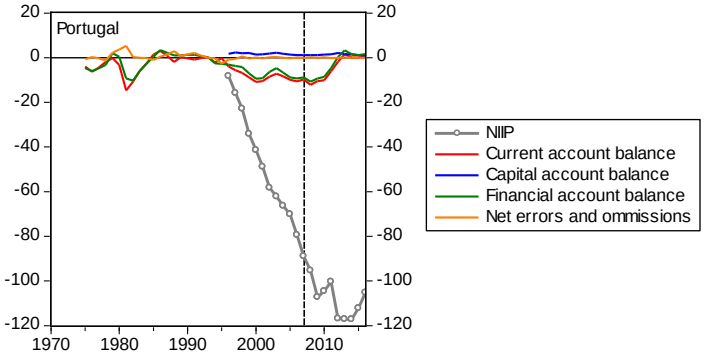
Gross international investment position (% GDP)



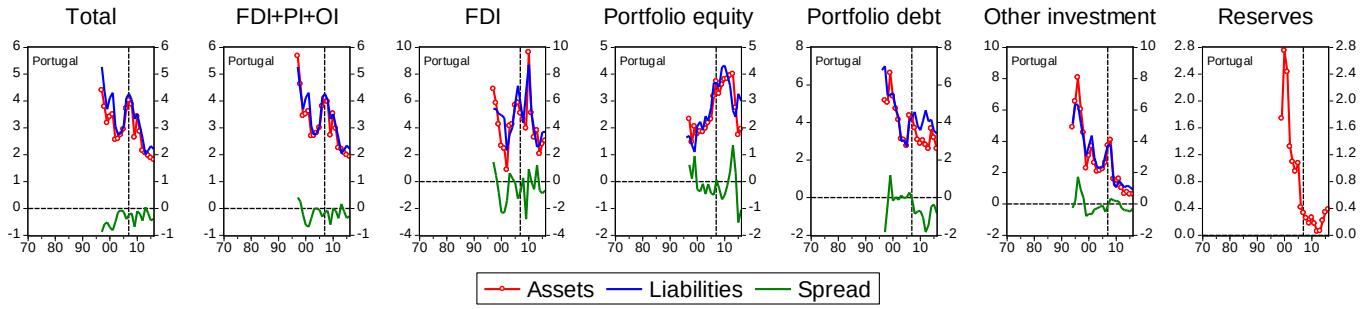
Net international investment position (% GDP)



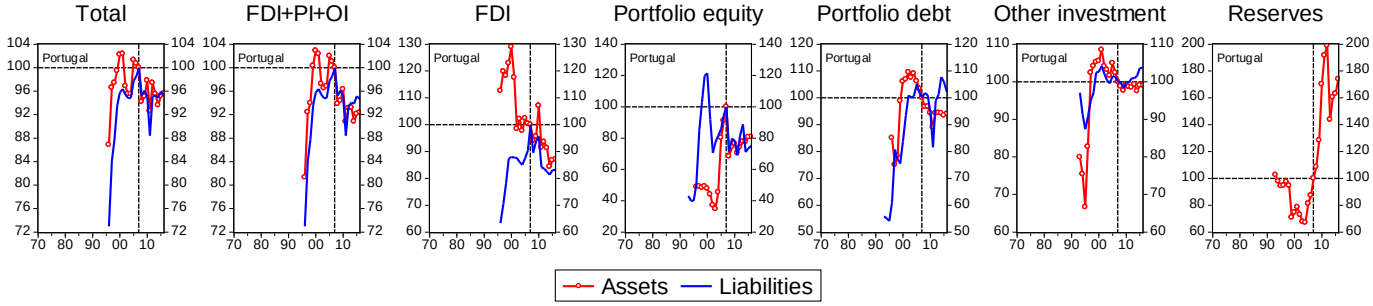
Flows and NIIP (% GDP)



Yield (%)

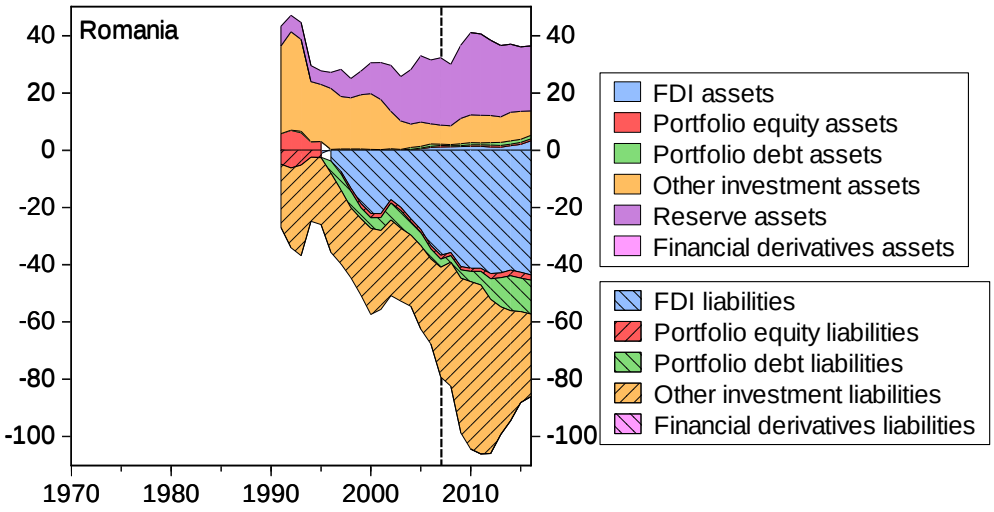


Revaluation index (2007=100)

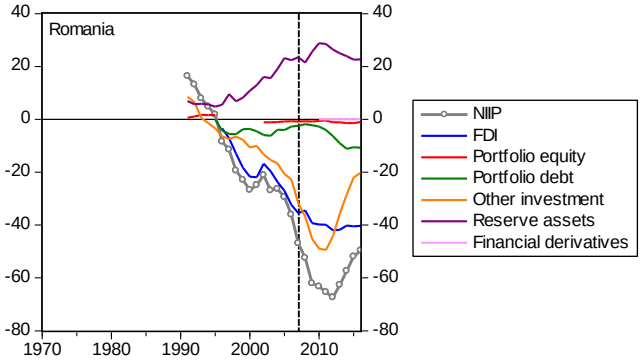


Romania

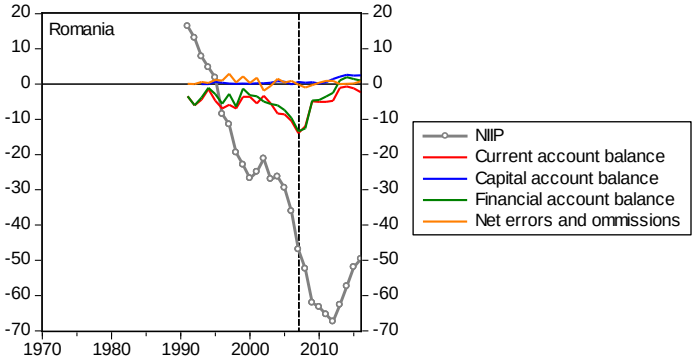
Gross international investment position (% GDP)



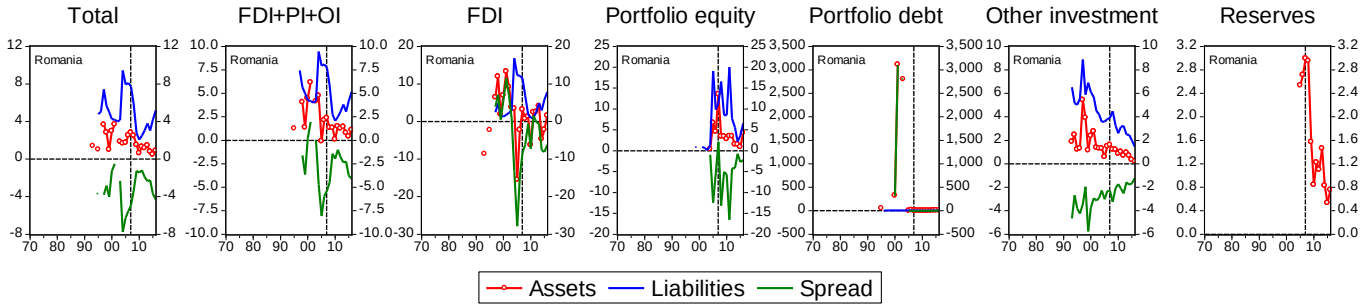
Net international investment position (% GDP)



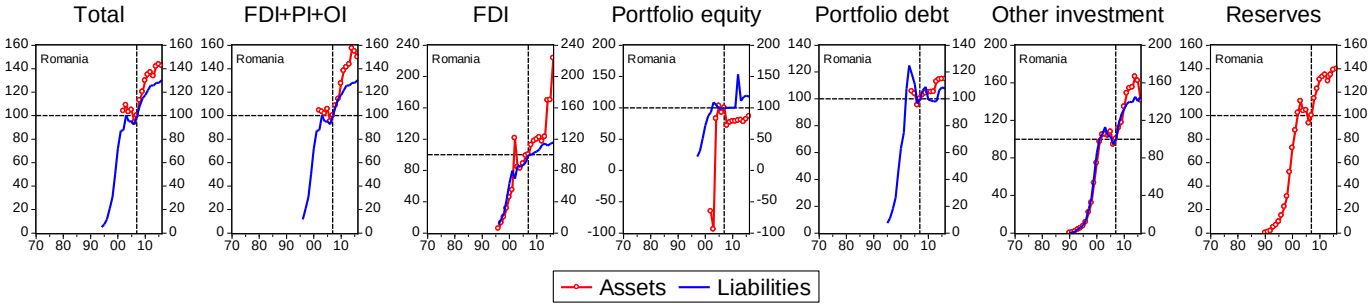
Flows and NIIP (% GDP)



Yield (%)

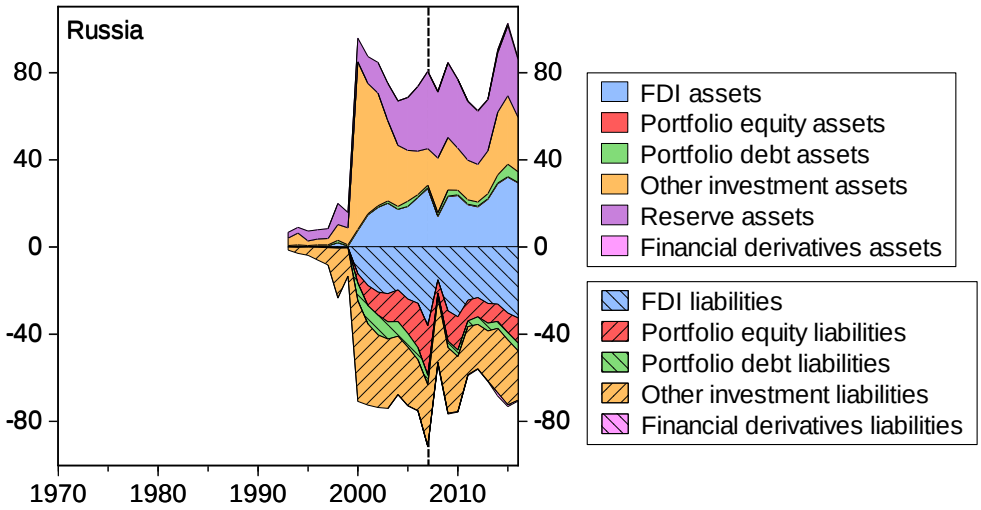


Revaluation index (2007=100)

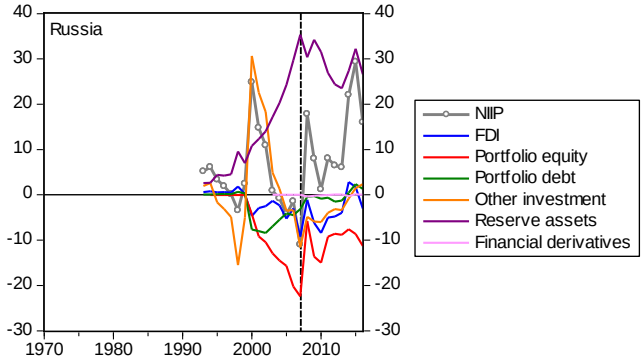


Russia

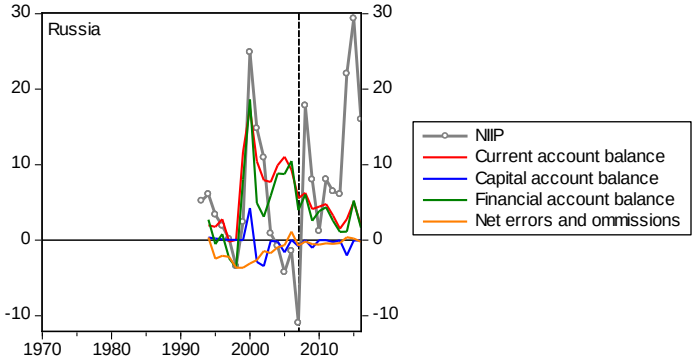
Gross international investment position (% GDP)



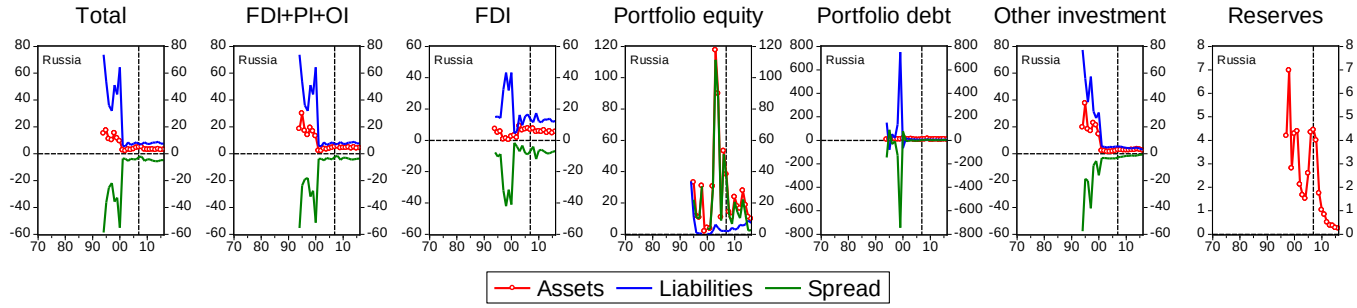
Net international investment position (% GDP)



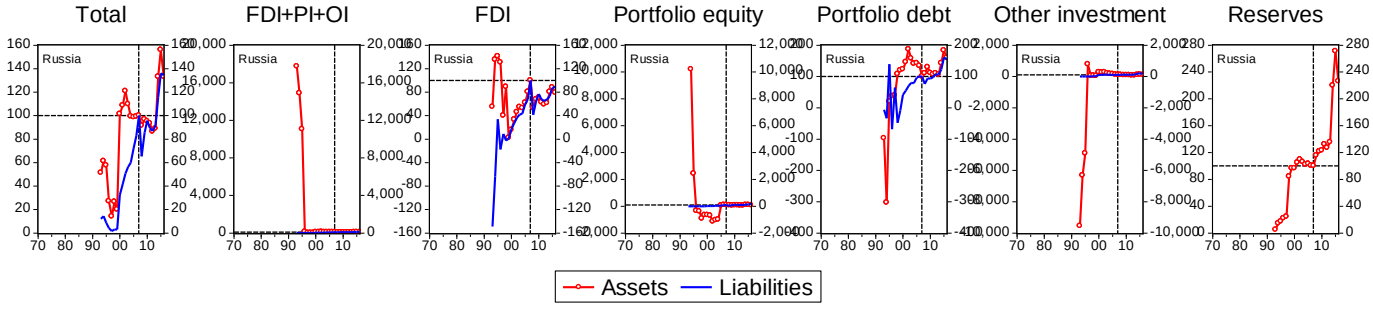
Flows and NIIP (% GDP)



Yield (%)

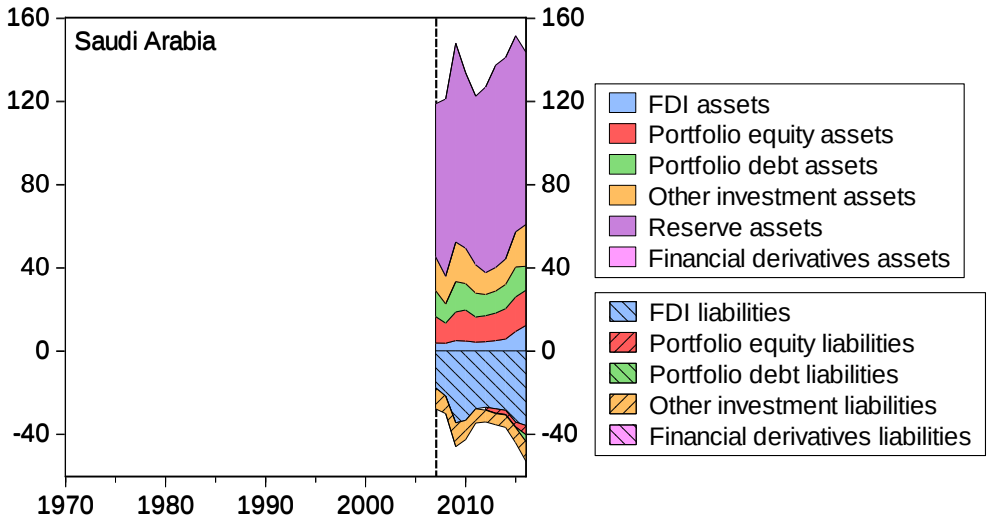


Revaluation index (2007=100)

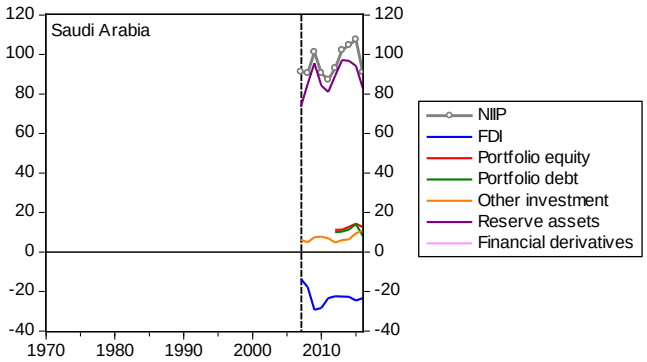


Saudi Arabia

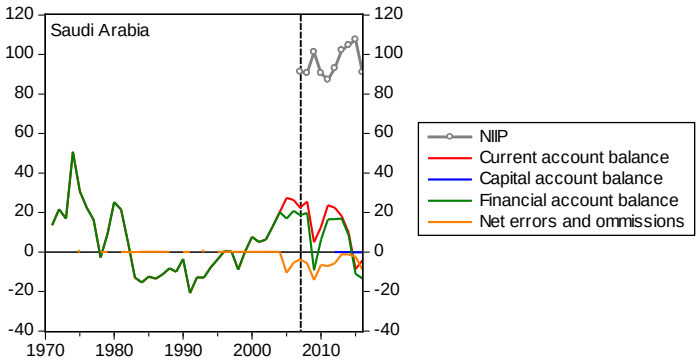
Gross international investment position (% GDP)



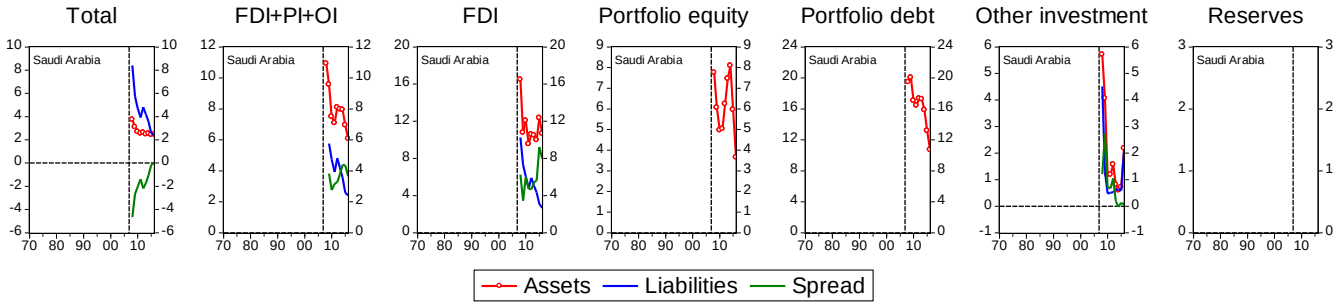
Net international investment position (% GDP)



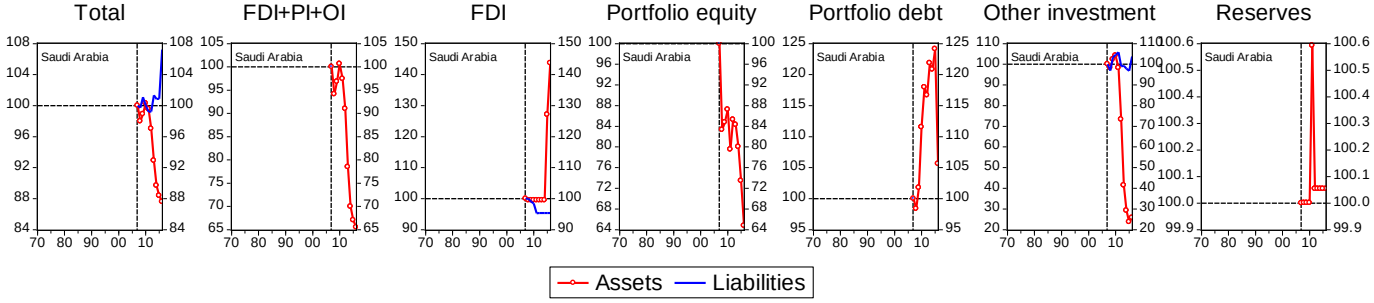
Flows and NIIP (% GDP)



Yield (%)

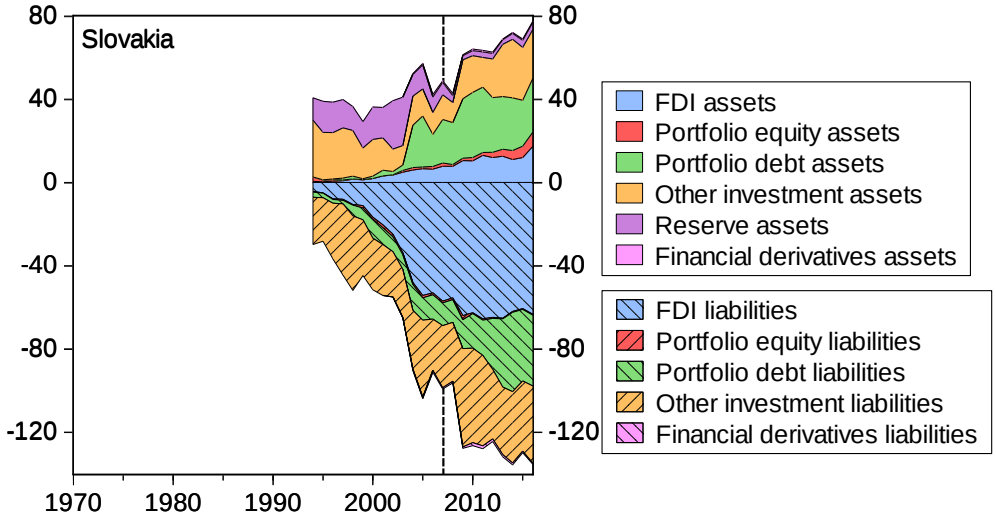


Revaluation index (2007=100)

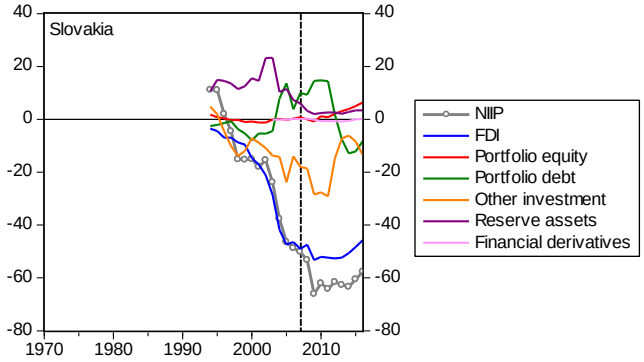


Slovakia

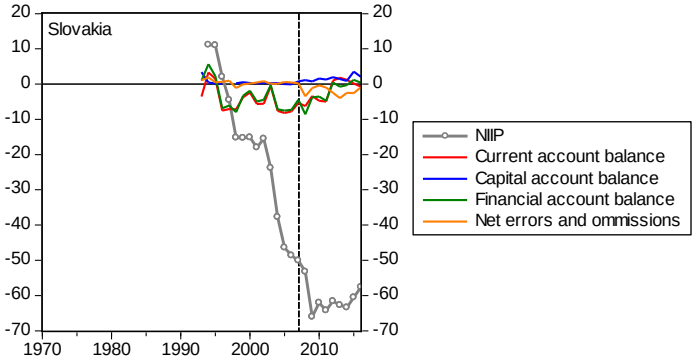
Gross international investment position (% GDP)



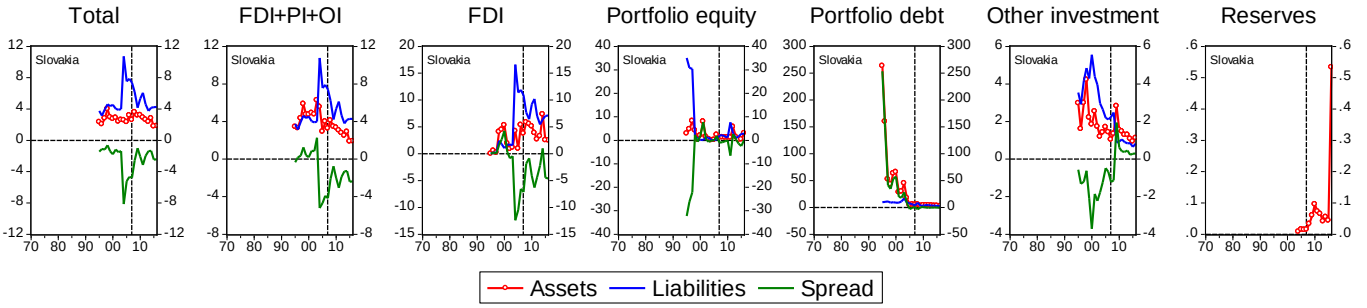
Net international investment position (% GDP)



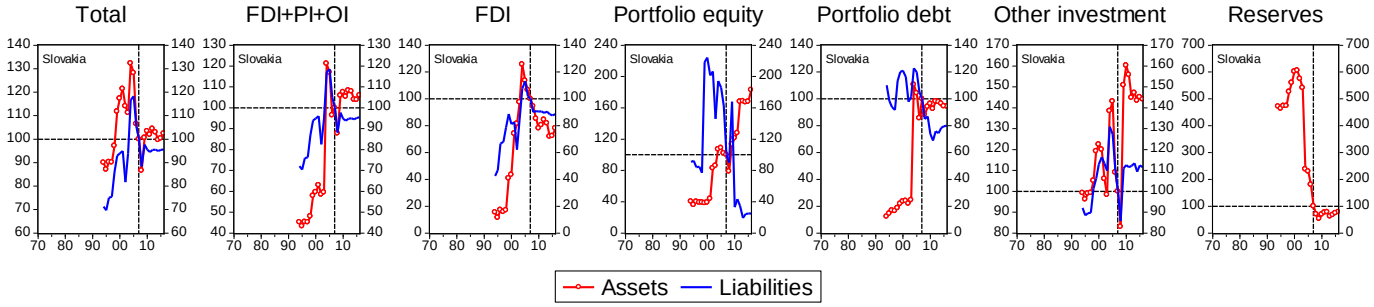
Flows and NIIP (% GDP)



Yield (%)

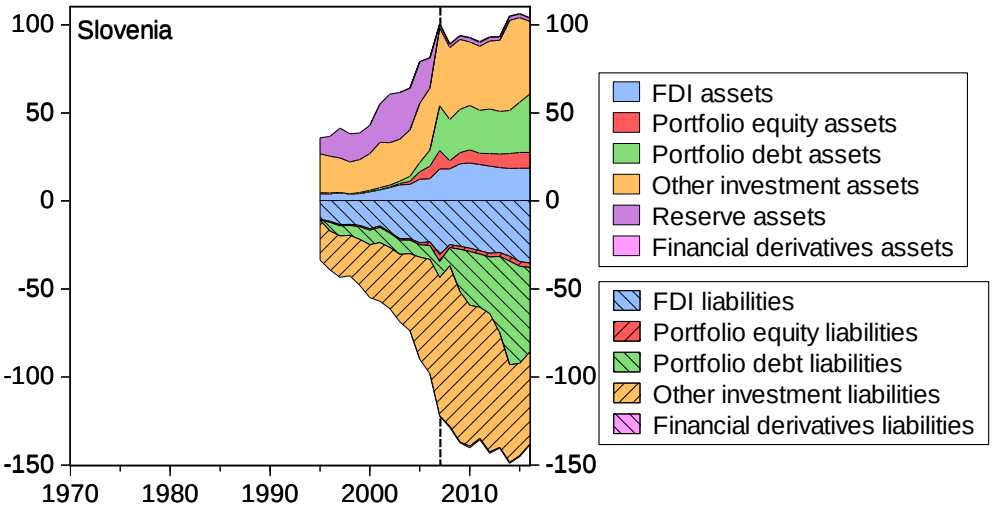


Revaluation index (2007=100)

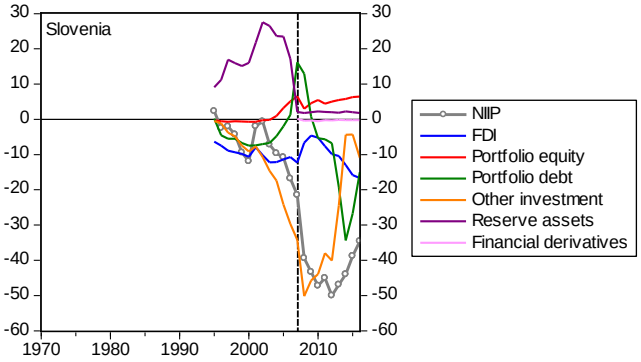


Slovenia

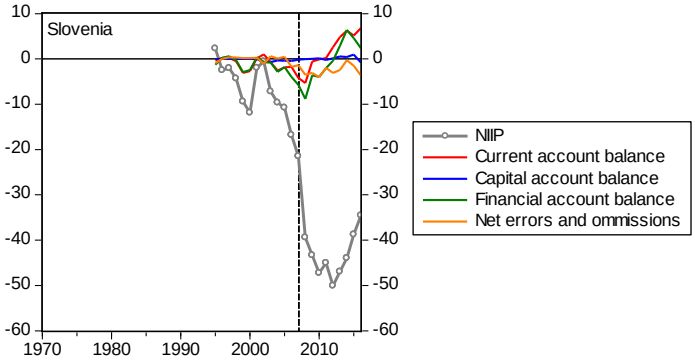
Gross international investment position (% GDP)



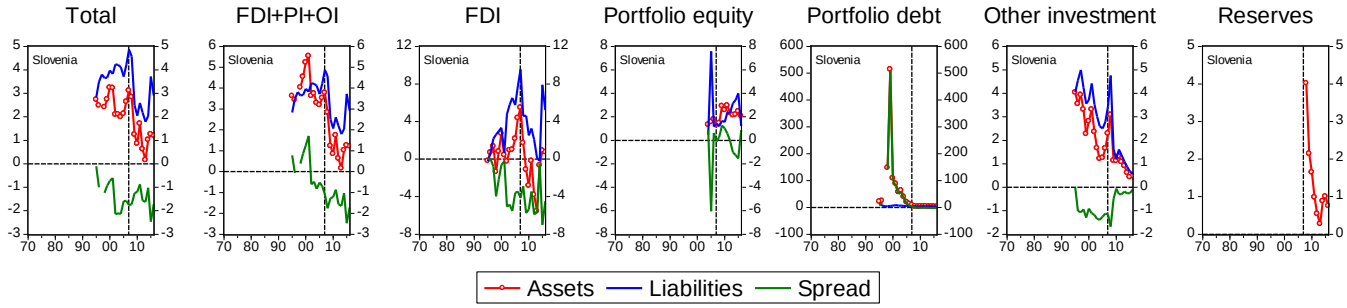
Net international investment position (% GDP)



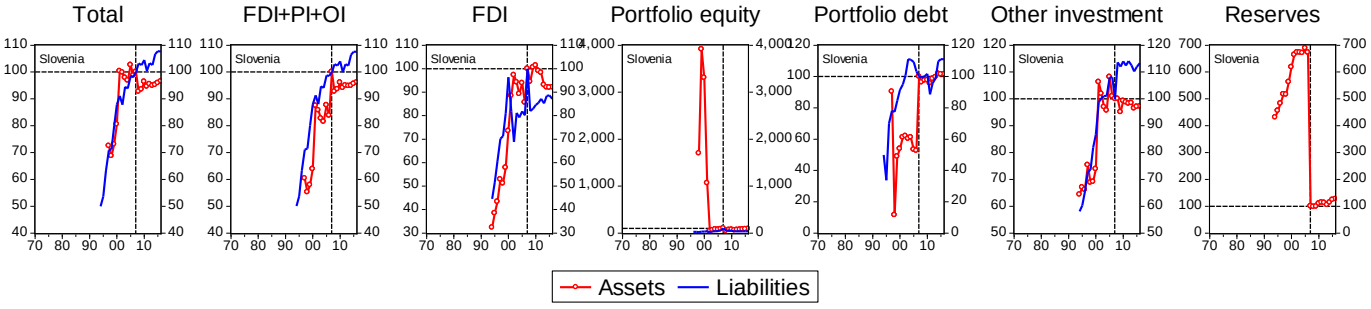
Flows and NIIP (% GDP)



Yield (%)

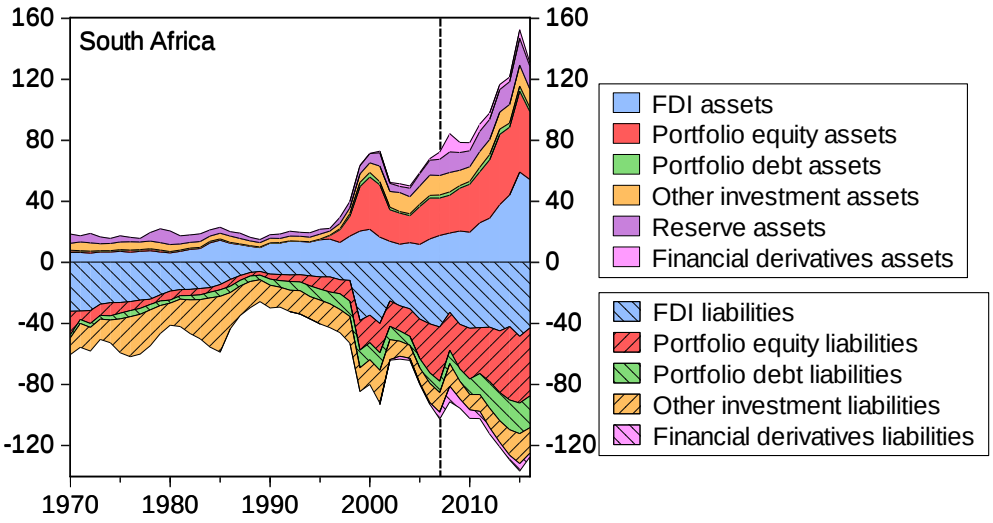


Revaluation index (2007=100)

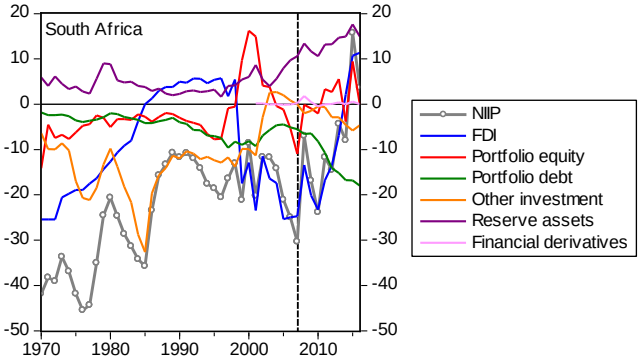


South Africa

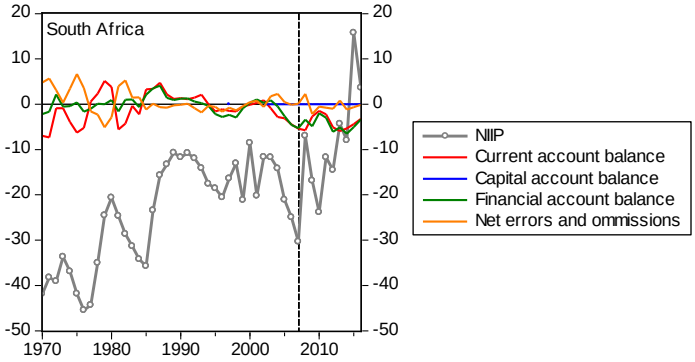
Gross international investment position (% GDP)



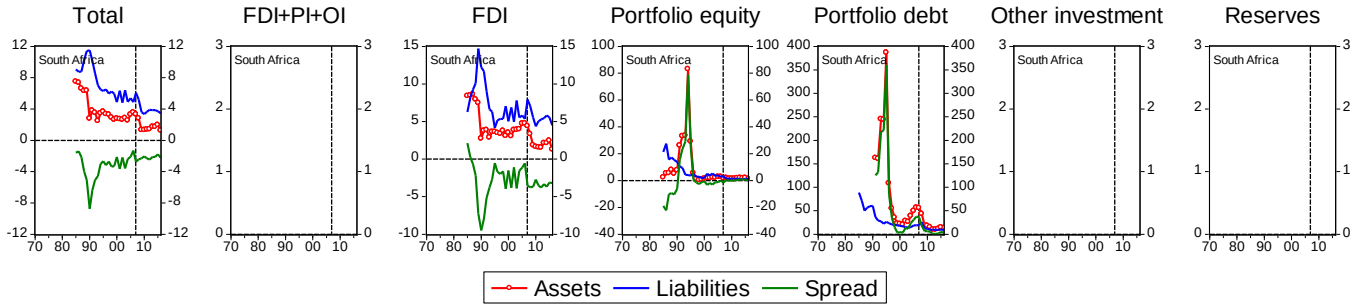
Net international investment position (% GDP)



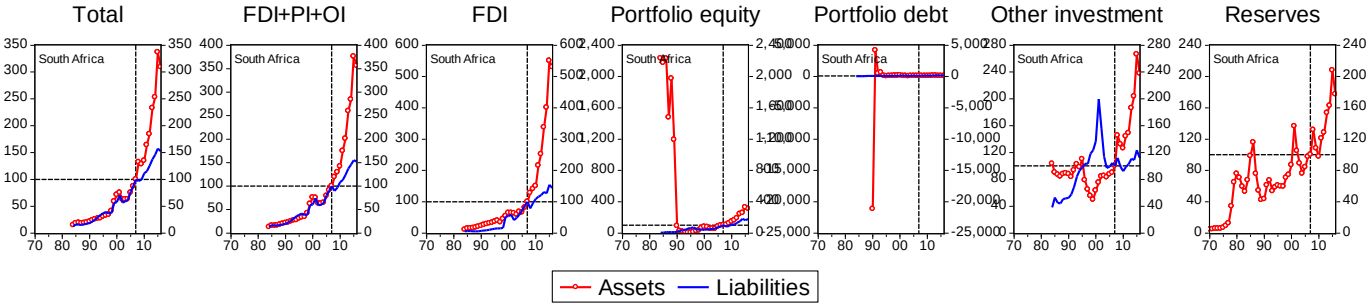
Flows and NIIP (% GDP)



Yield (%)

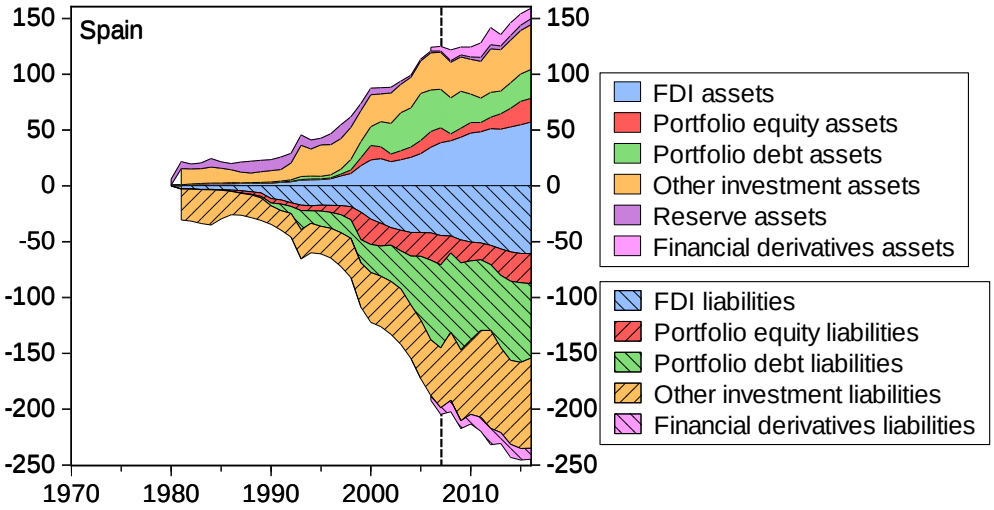


Revaluation index (2007=100)

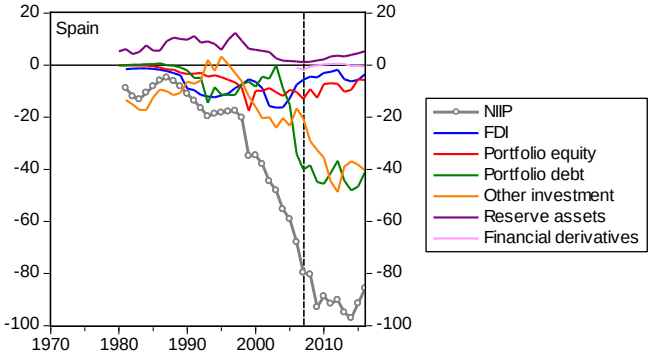


Spain

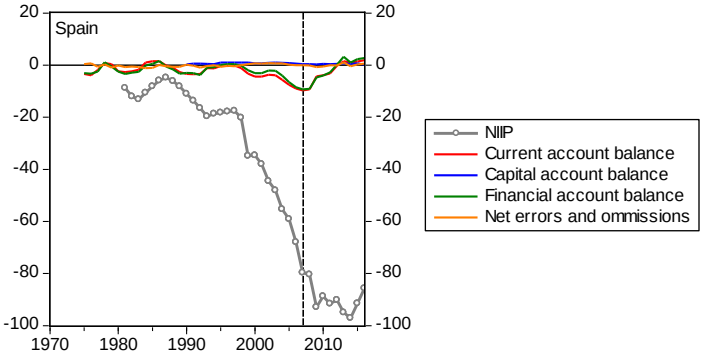
Gross international investment position (% GDP)



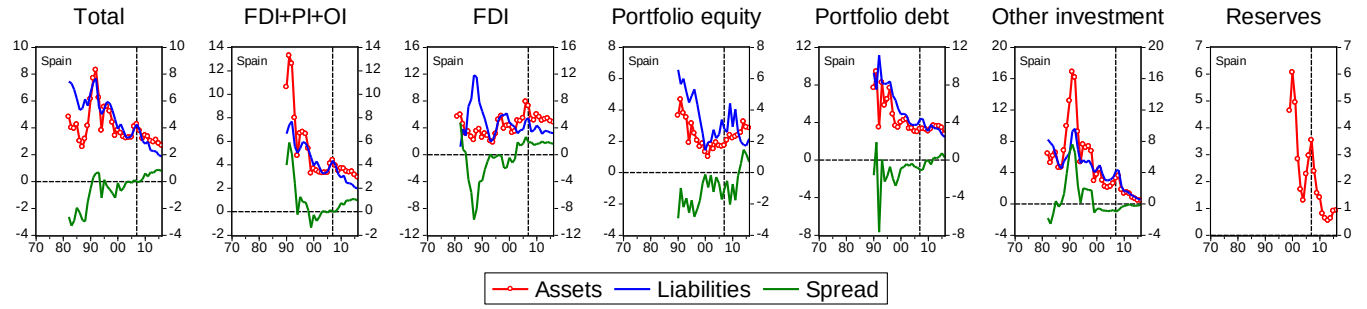
Net international investment position (% GDP)



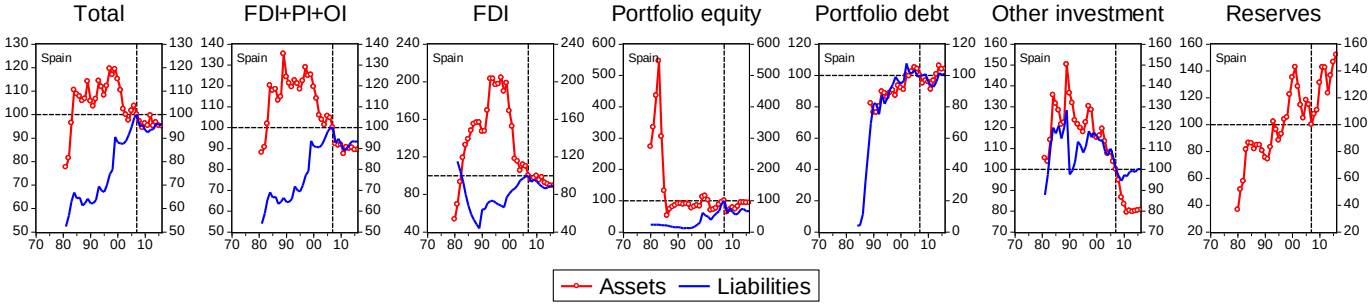
Flows and NIIP (% GDP)



Yield (%)

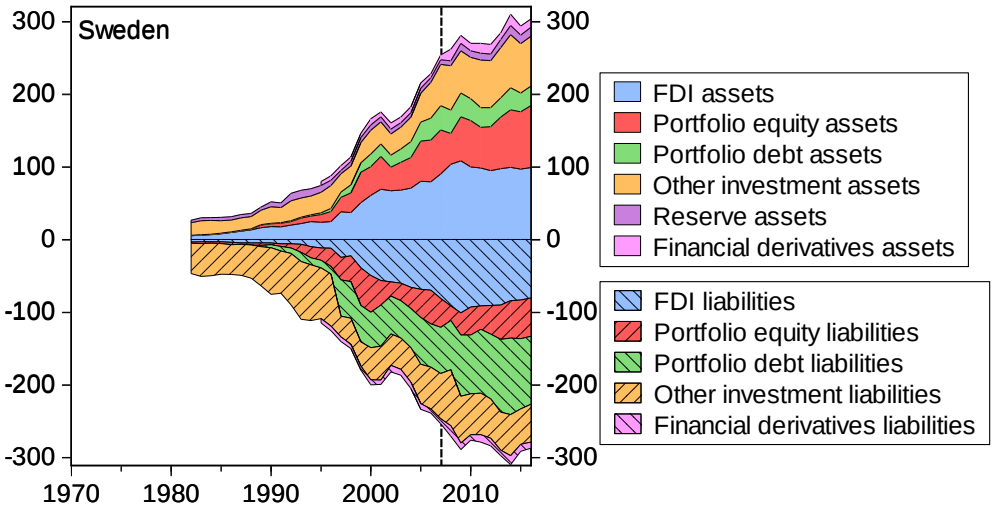


Revaluation index (2007=100)

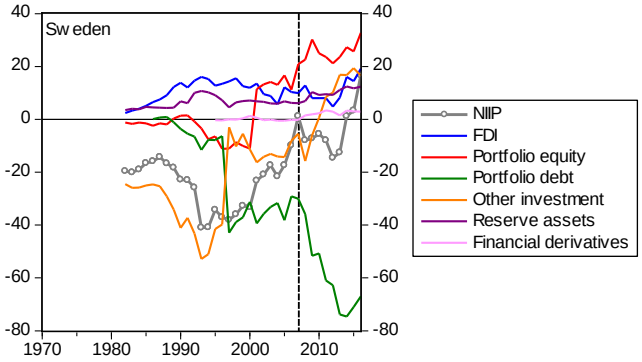


Sweden

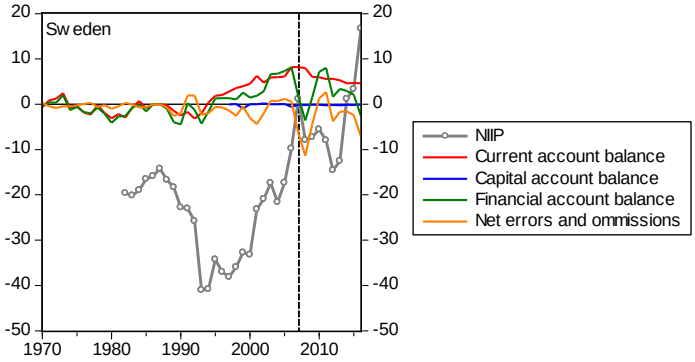
Gross international investment position (% GDP)



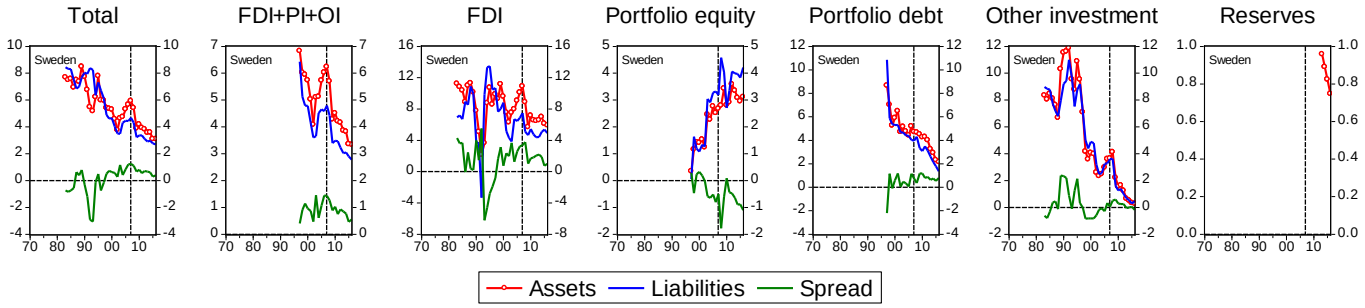
Net international investment position (% GDP)



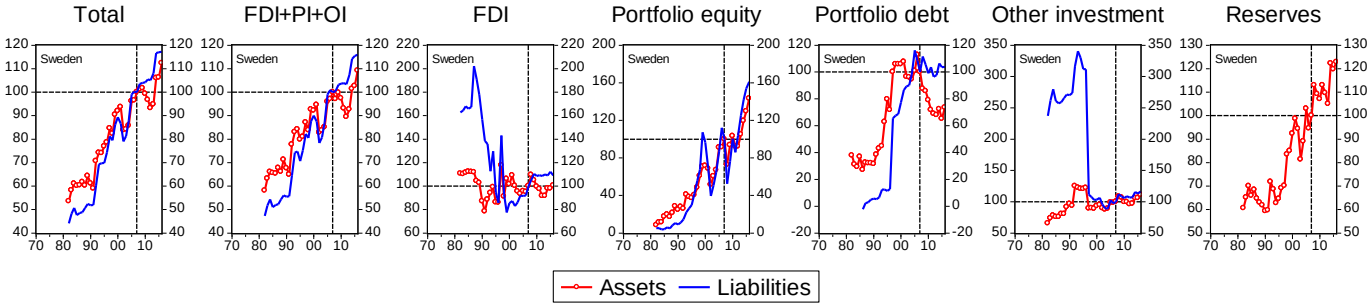
Flows and NIIP (% GDP)



Yield (%)

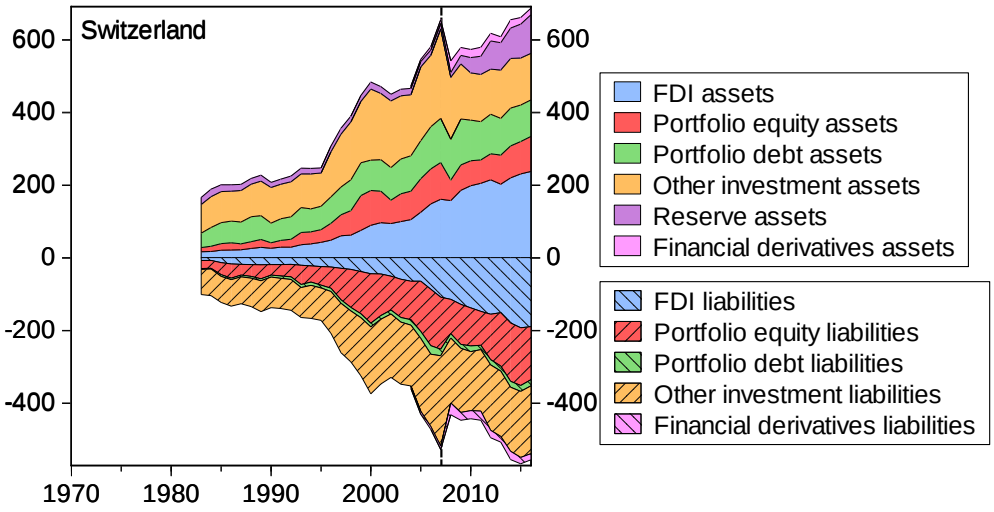


Revaluation index (2007=100)

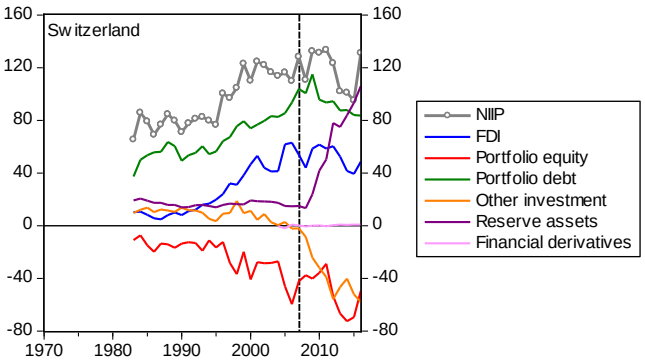


Switzerland

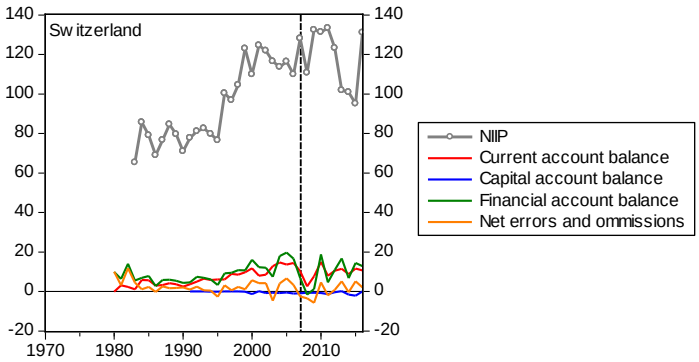
Gross international investment position (% GDP)



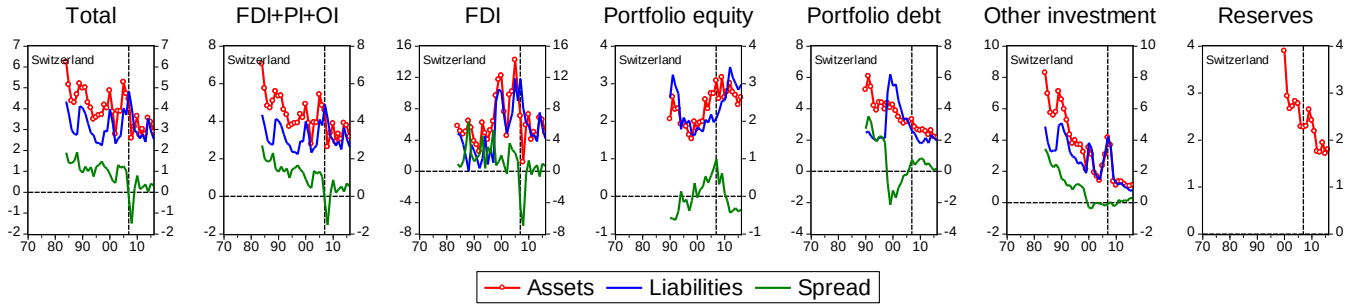
Net international investment position (% GDP)



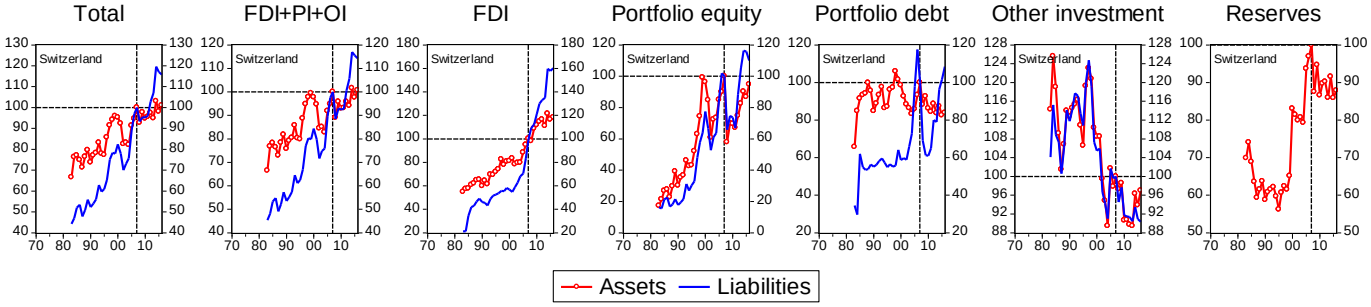
Flows and NIIP (% GDP)



Yield (%)

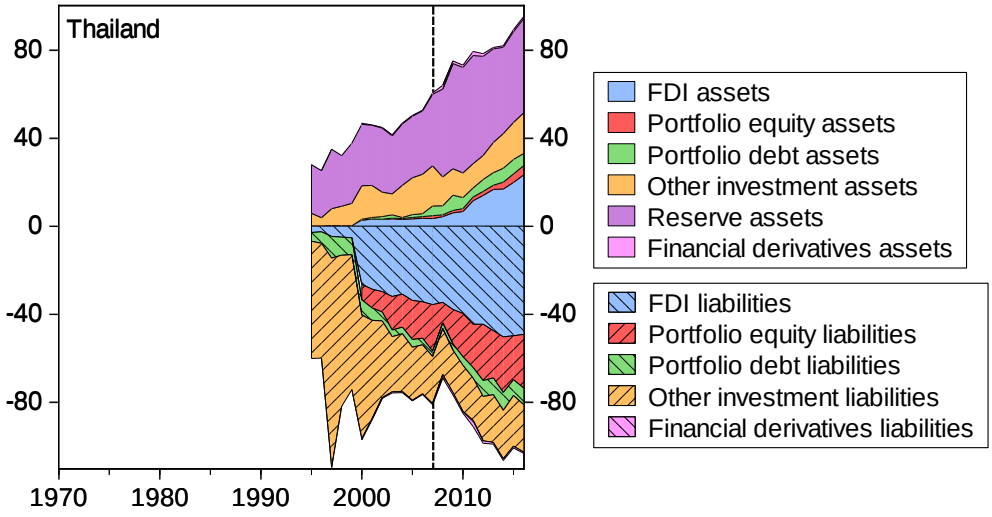


Revaluation index (2007=100)

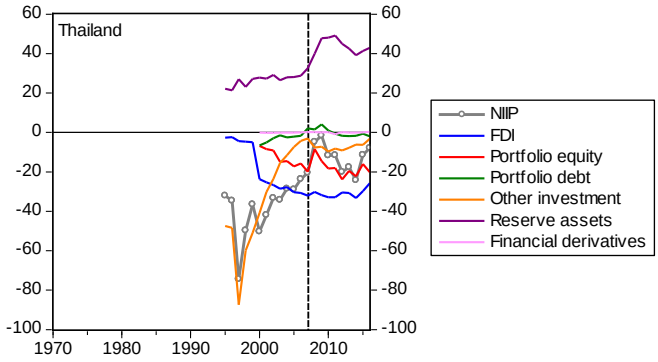


Thailand

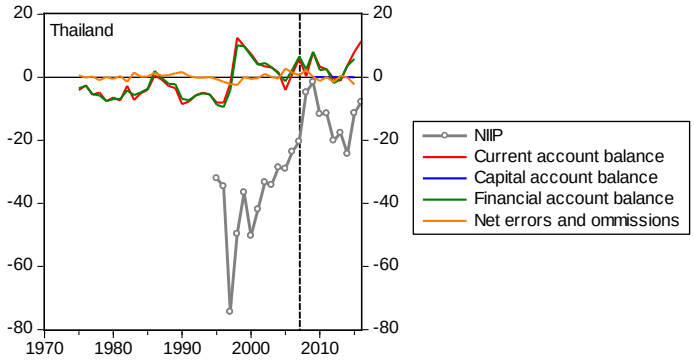
Gross international investment position (% GDP)



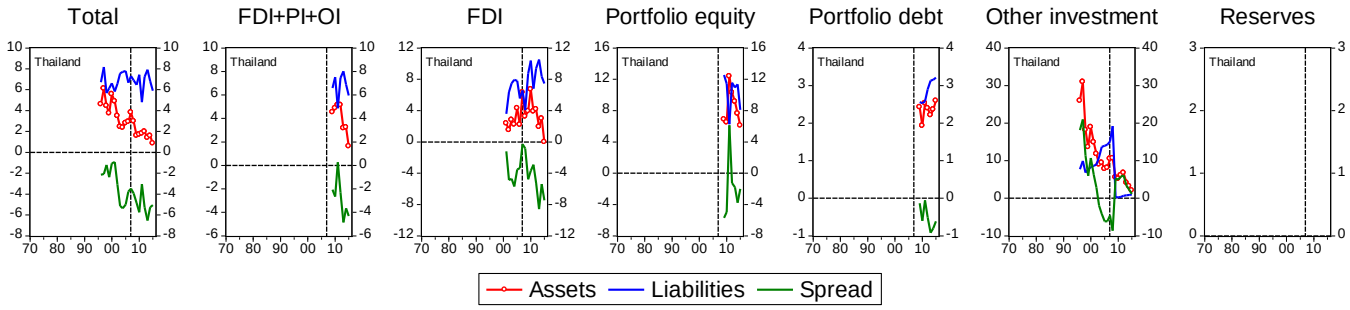
Net international investment position (% GDP)



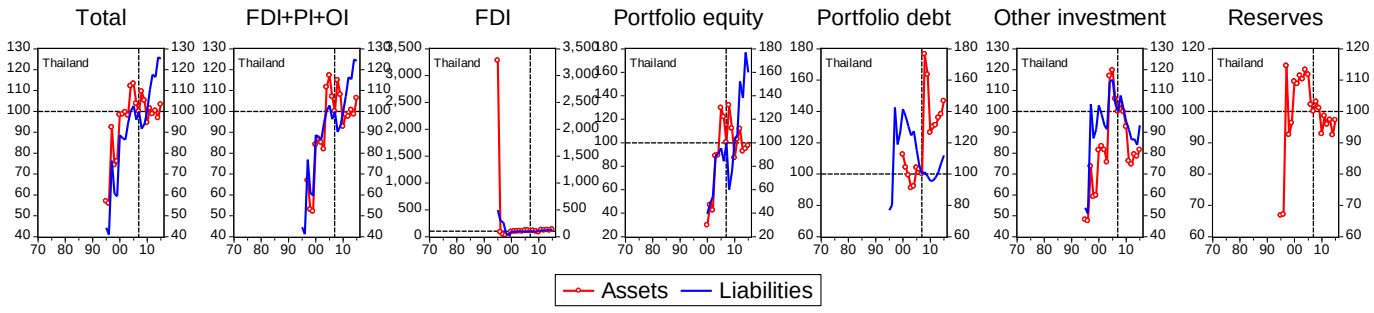
Flows and NIIP (% GDP)



Yield (%)

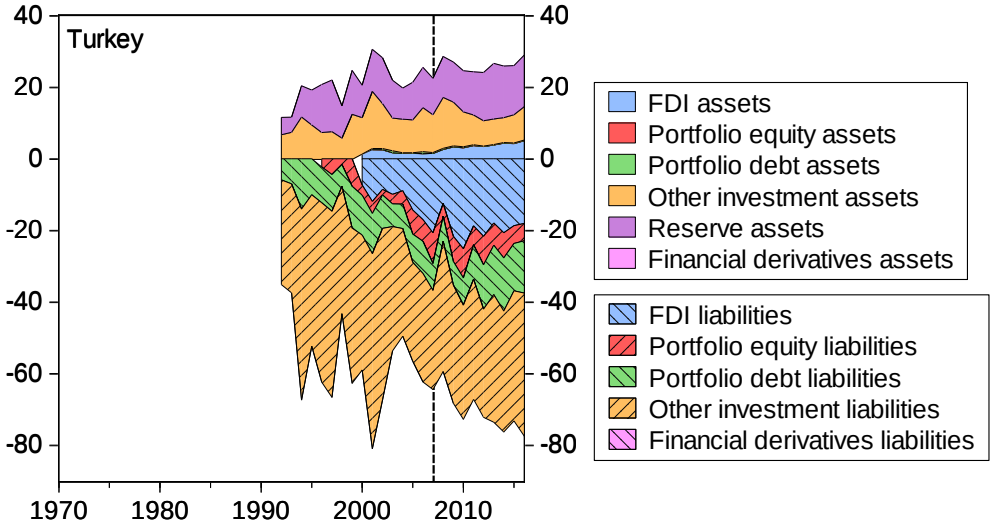


Revaluation index (2007=100)

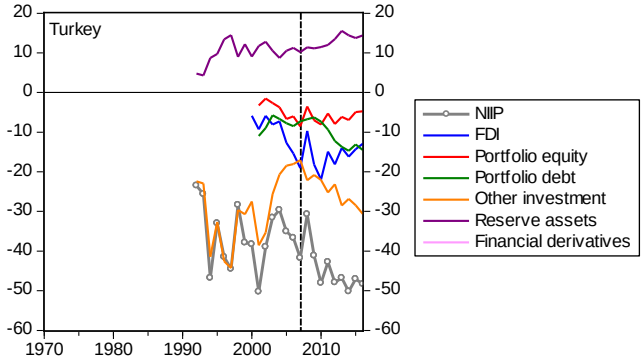


Turkey

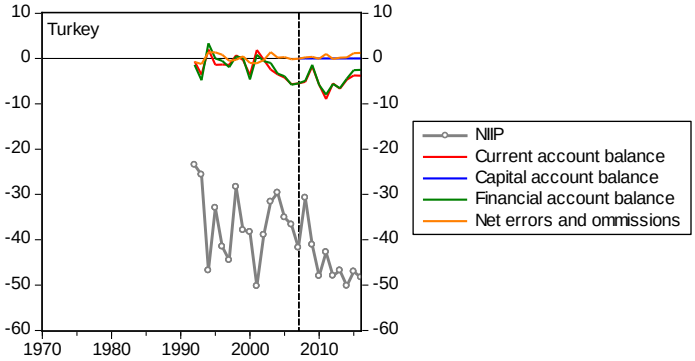
Gross international investment position (% GDP)



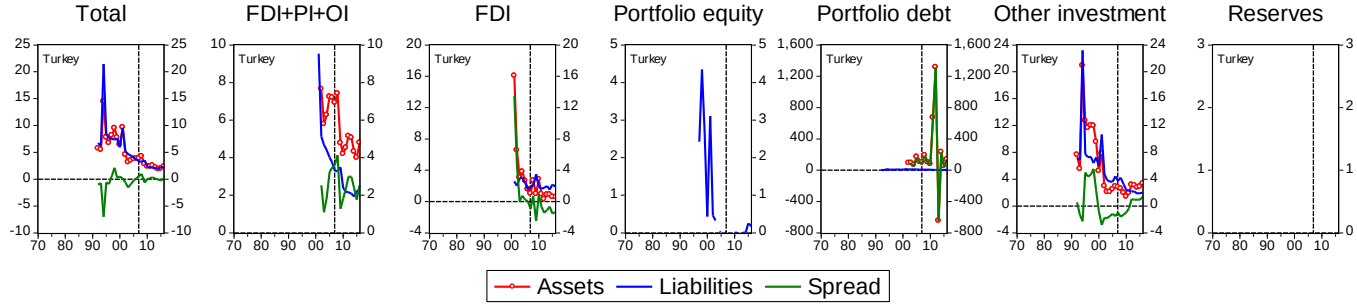
Net international investment position (% GDP)



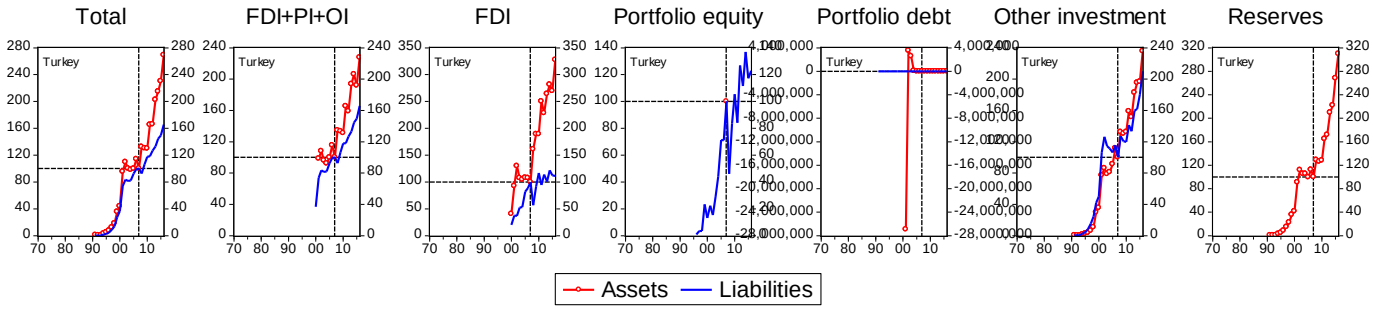
Flows and NIIP (% GDP)



Yield (%)

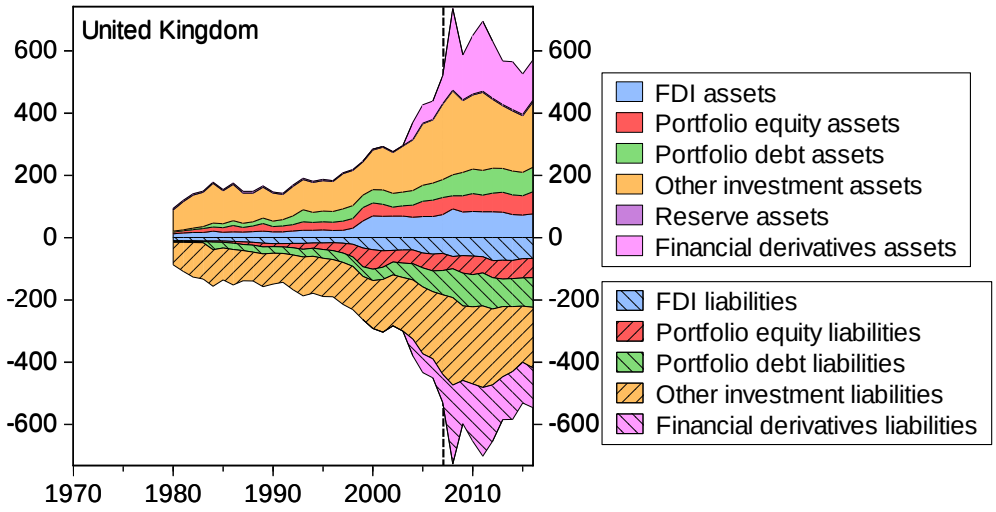


Revaluation index (2007=100)

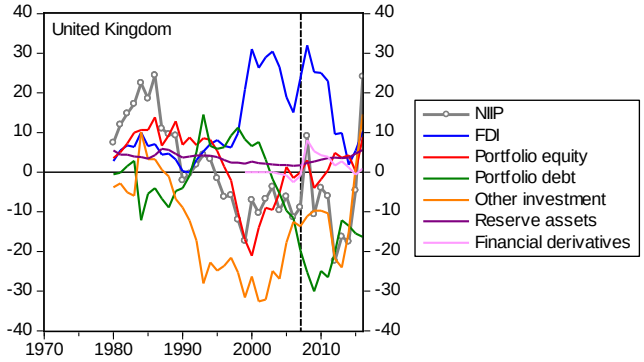


United Kingdom

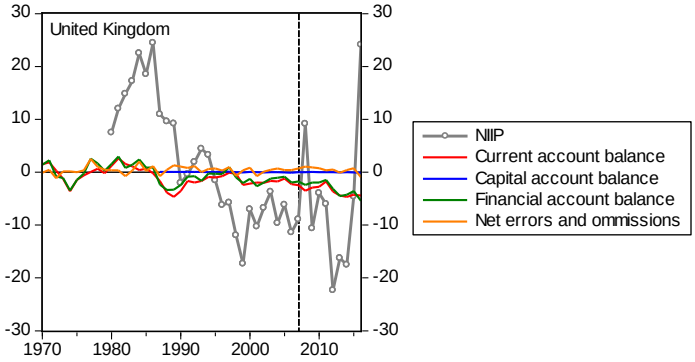
Gross international investment position (% GDP)



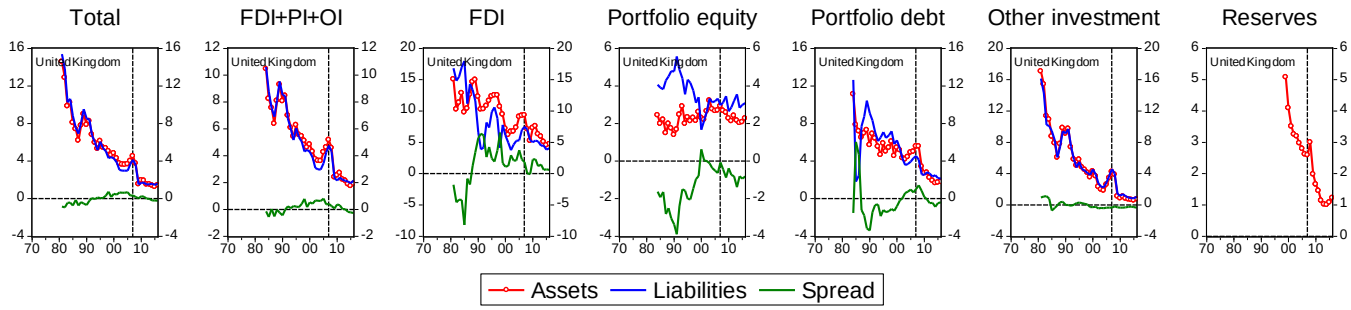
Net international investment position (% GDP)



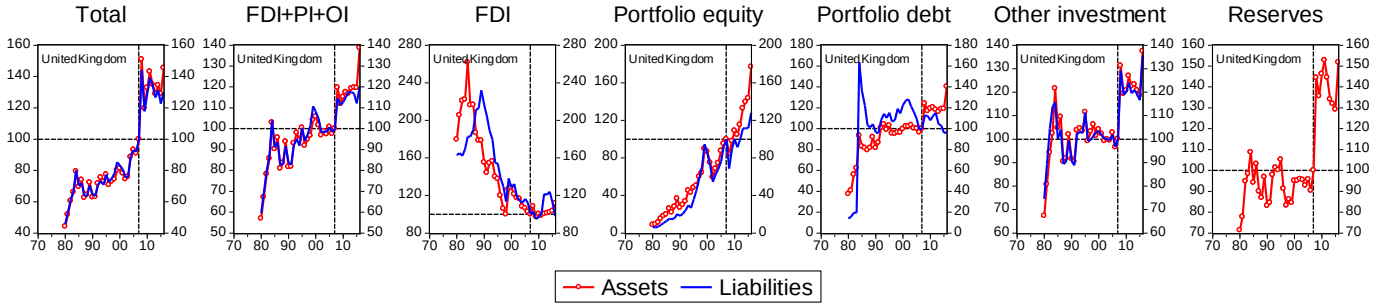
Flows and NIIP (% GDP)



Yield (%)

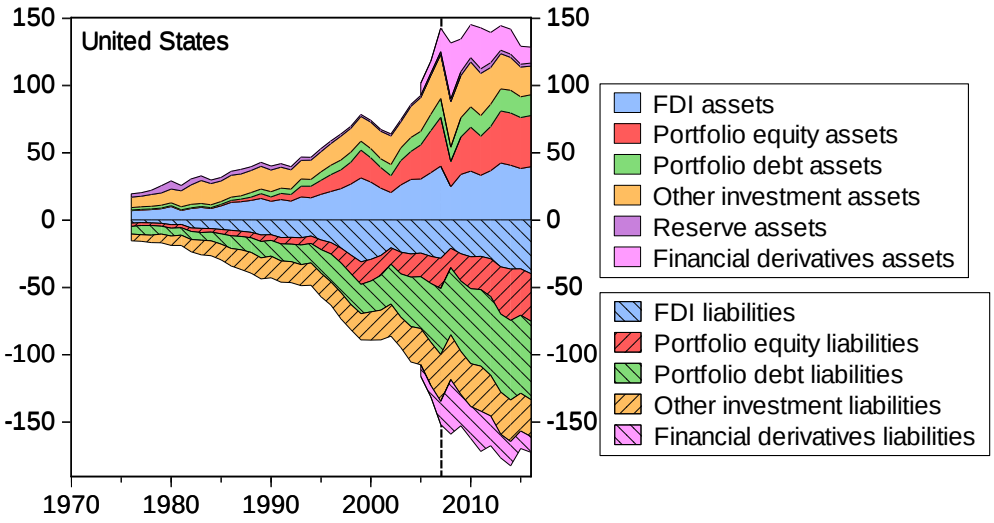


Revaluation index (2007=100)

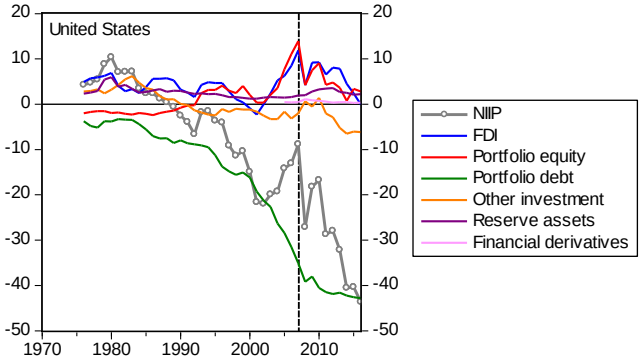


United States

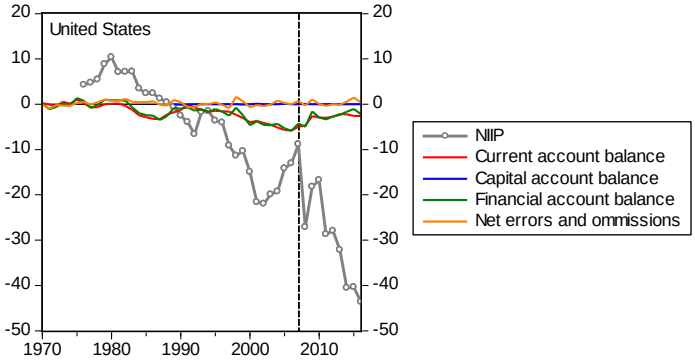
Gross international investment position (% GDP)



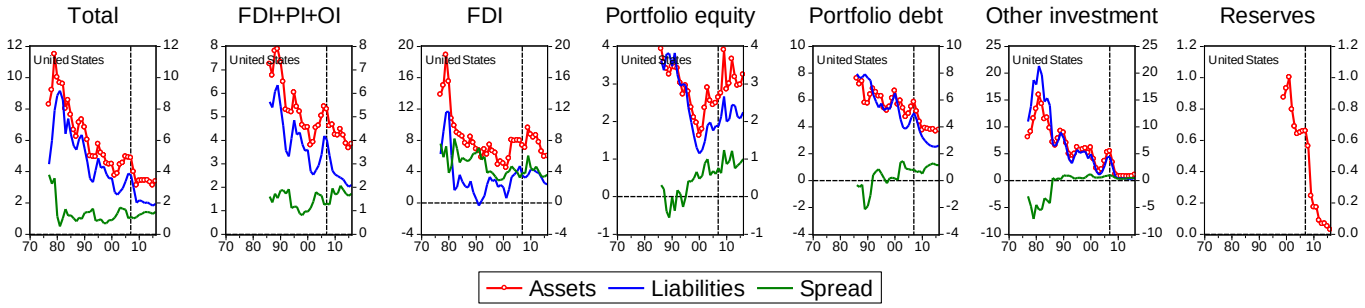
Net international investment position (% GDP)



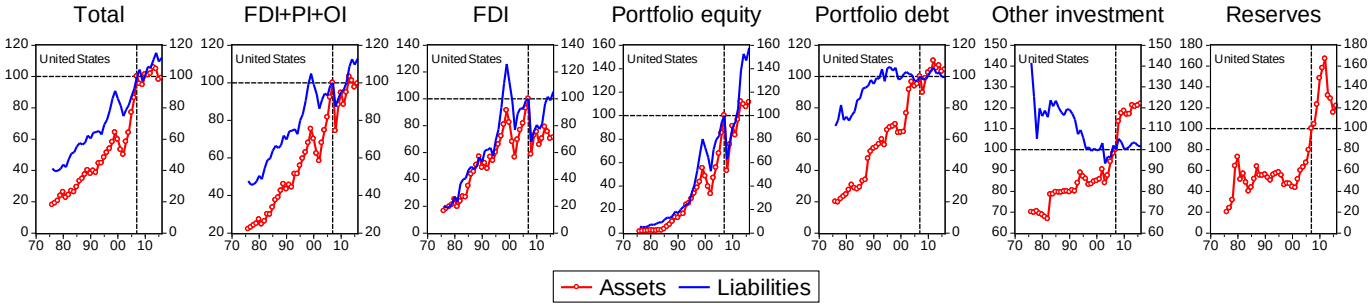
Flows and NIIP (% GDP)



Yield (%)

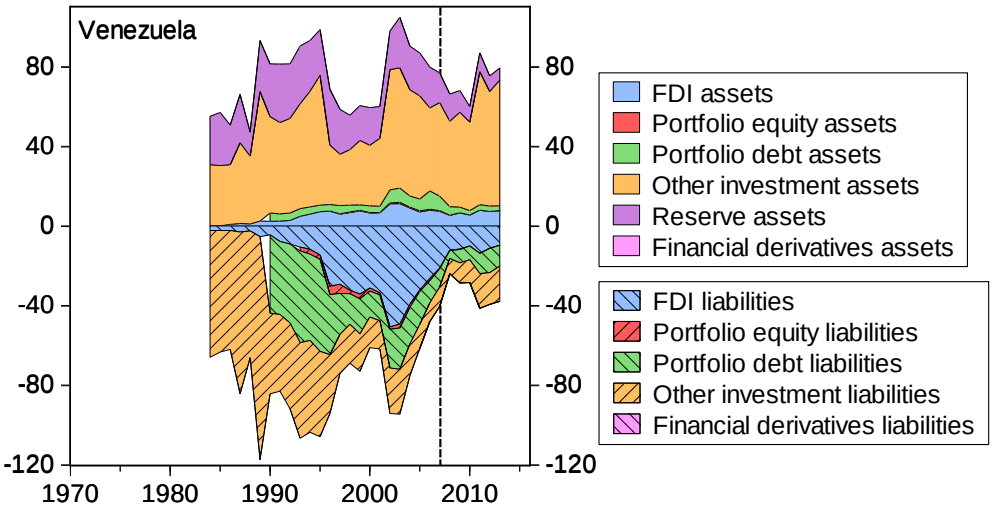


Revaluation index (2007=100)

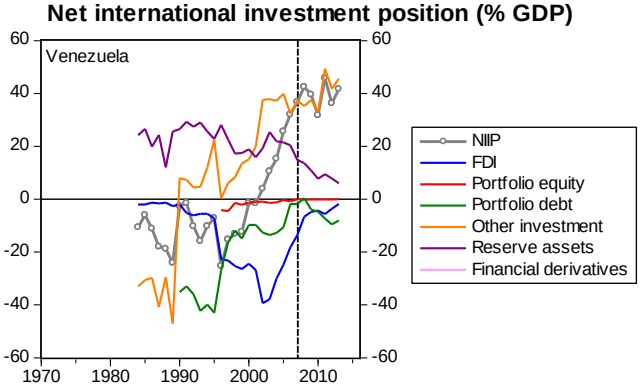


Venezuela

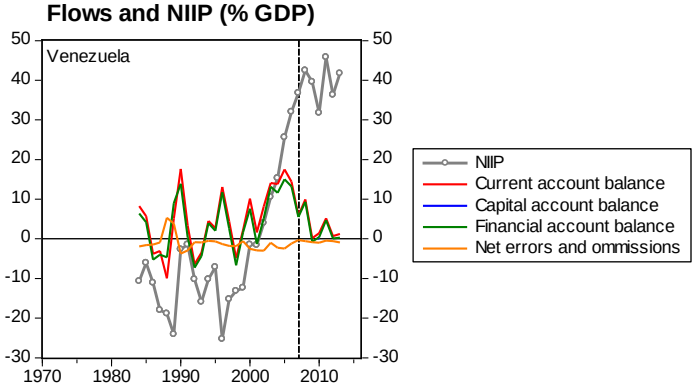
Gross international investment position (% GDP)



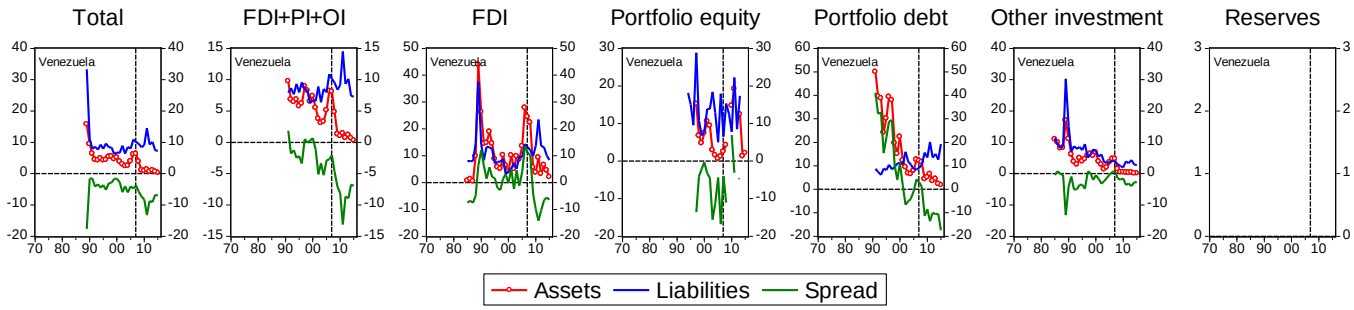
Net international investment position (% GDP)



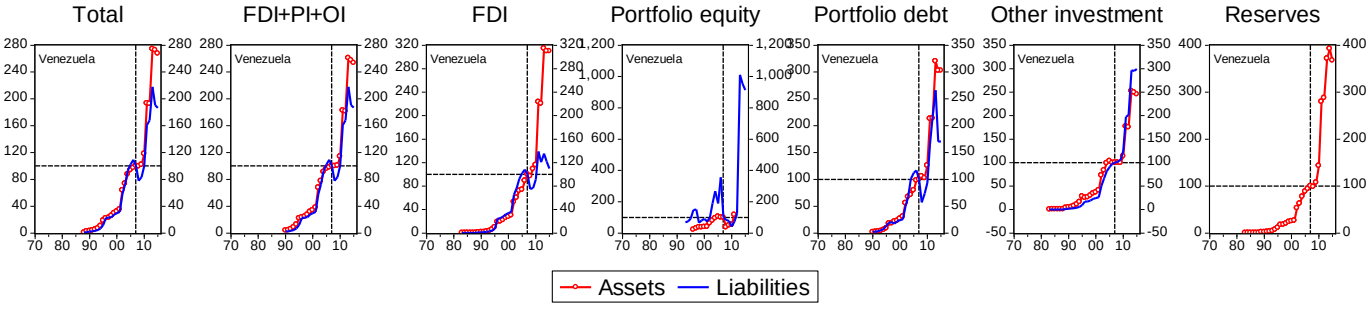
Flows and NIIP (% GDP)



Yield (%)



Revaluation index (2007=100)



Bruegel, Rue de la Charité 33, B-1210 Brussels
(+32) 2 227 4210
info@bruegel.org
www.bruegel.org