

Chapter II

The Balance of Payments

II.1 Definitions and Rules

II.1.1 Overview

The balance of payments reports all economic transactions that take place between domestic and foreign residents during a specific time period. While balance of payments data as such do not reveal any causal mechanisms, a firm grasp of the definitions and structural relationships of this accounting framework is of crucial importance for a correct interpretation and, ultimately, explanation of observed phenomena. This is why this book starts with an introduction to the most important principles underlying the balance of payments.¹

The transactions reported in the balance of payments may be subdivided into three basic categories: the first group comprises transactions reflecting the international trade in *goods* and *services*, as well as payments associated with the supply of *factors of production* (e.g. capital or labor) or *financial resources*, the second group of transactions reflects international *transfers*, i.e. the provision of resources that is not associated with any obvious material return, while the third category reflects the change of ownership of *assets*, with an “asset” representing any store of value that is associated with a claim on future payments – a bond, a share in a company, but also an internationally recognized means of payment (e.g. a liquid currency like the US dollar or gold).

The balance of payments consists of three accounts – the *current account*, the *capital account*, and the *financial account* – each of which reports a specific subset of the transactions mentioned above. In what follows, we will first describe the principles according to which observed transactions are assigned to the individual balance of payments accounts. After this, we will consider how these accounts are related to each other.

¹ Our presentation is based on the sixth edition of the International Monetary Fund’s *Balance of Payments and International Investment Position Manual* (IMF, 2009). The rules stipulated in this manual – the “*BPM6*” – have now been adopted by most institutions in charge of publishing the balance of payments (usually countries’ central banks). The changes associated with the transition from BPM5 to BPM6 were substantial. Nevertheless, you are likely to meet fellow students, practitioners and academics who will refer to the old (BPM5) framework for quite a while.

Goods: Exports (fob) ²	1180.1	
Goods: Imports (fob)	916.9	
Balance		263.2
Services: Exports (fob)	238.5	
Services: Imports (fob)	268.7	
Balance		-30.2
Primary income: Receipts	194.8	
Primary income: Expenditure	131.1	
Balance		63.7
Secondary income: Receipts	64.1	
Secondary income: Expenditure	103.6	
Balance		-39.5
Balance of the current account		257.2
Balance of the capital account		-0.2
Net direct investment		56.4
Net portfolio investment		199.1
Net financial derivatives and employee stock options		25.8
Net other investment		-53.3
Reserve assets		-2.2
Net financial account		225.8
Net errors and omissions		-31.2

Table 2.1: Germany's balance of payments in 2015. All numbers are in billions of Euros. Source: Deutsche Bundesbank (Balance of payments statistics June 2016).

² The abbreviation *fob (free on board)* indicates that transaction values are reported net of trade costs – i.e. at the border of the exporting country. Whenever values are reported *cif (cost, insurance, and freight)*, this indicates that trade costs are included and that the numbers reported refer to prices at the border of the importing country.

II.1.2 The Current Account

Transactions that reflect the international trade in goods and services or the remuneration of factors of production and financial resources are reported in the current account. Moreover, the current account reports *current transfers*, i.e. resources “that are provided by one party without anything of economic value being supplied as a direct return to that party” (IMF 2009:9). For each of these categories (goods and services trade, international income flows, current transfers) there is a separate sub-account. Adding up the balances on these sub-accounts yields the *current account balance*.

Transactions referring to the international sale and purchase of goods and services are reported in the *goods and services account*. Sales to foreign residents, i.e. *exports*, are entered as *credits*, while purchases from foreign residents, i.e. *imports*, are reported as *debits*. Throughout the rest of this book, we will often refer to the balance on the goods and services account as *net exports*.³ Table 2.1 follows standard practice and splits the goods and services account into its goods and services components. In 2015, the value of German goods exports amounted to 1180.1 billion Euros, while the value of goods imports amounted to 916.9 billion Euros. By contrast, the value of German services exports in 2015 was smaller than the value of services imports. A typical example for a services import is the payment for a foreign hotel room by a domestic tourist. In fact, expenses associated with travelling abroad have dominated German services imports in the recent past. However, due to technological innovations – most notably, the advent of the internet – and the dismantling of administrative barriers, other international services transactions have gained in importance. Box 2.1 sheds light on the different components of recent German services exports and imports.

Box 2.1: Germany's Services Exports and Imports

Figure B2.1 shows various subcomponents of Germany's services exports and imports, averaged over the years 2011 to 2015. While most of the services categories are self-explaining, some of them deserve further explanation: the export and import of *manufacturing services* reflects the existence of *global value chains*, with firms delegating certain stages of the production process to their own affiliates or independent contractors abroad. *Other business services* encompass the work of architects, business consultants etc. It is apparent that, in the period considered, transport and

³ The difference between *goods exports* and *goods imports* is sometimes called the *trade balance*, with a *trade surplus* (deficit) indicating that the value of goods exports exceeds (falls short of) the value of goods imports.

travel services as well as other business services and telecommunications, computer and information services were the dominant categories among Germany’s services exports and imports. Moreover, the negative net exports of services are obviously driven by the Germans’ urge to travel abroad. At the same time, the graph reveals that there are some services categories – e.g. financial services – for which Germany’s exports exceeded its imports in the years 2011 to 2015.

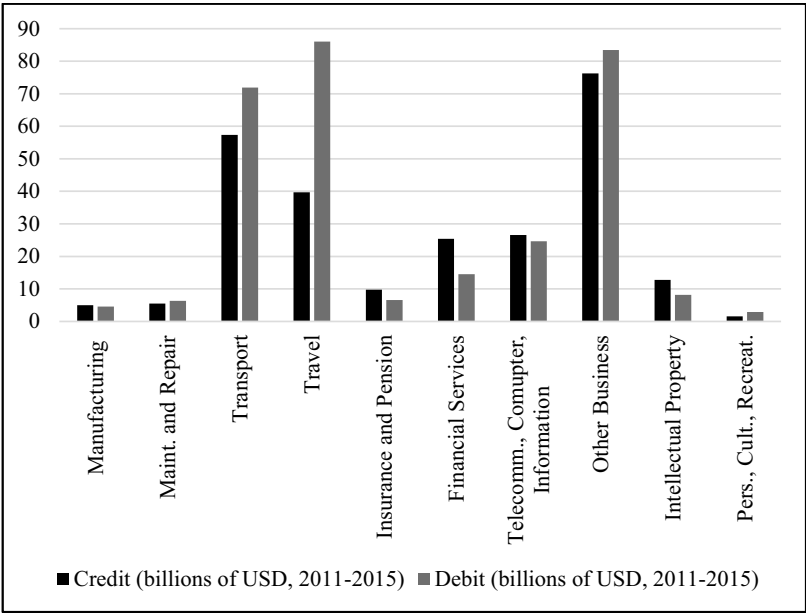


Figure B2.1: Components of Germany’s services exports (credit) and imports (debit). Average values for the years 2011 – 2015 (billions of US dollars). Source: IMF (Balance of Payments Statistics)

The second sub-account of the current account, the *primary income account*, reports international payments that result from the fact that domestic residents supply labor, physical or financial capital, or nonproduced nonfinancial assets to residents of other countries and vice versa.⁴ In all these cases, payments received from abroad are reported as credits, payments made to the rest of the

⁴ The concept of residence is extensively discussed in the Balance of Payments Manual (IMF 2009:70-79). In brief, a person is a “domestic resident” – regardless of her/his citizenship – if she/he takes residence in a country for at least one year. Firms are usually residents of the economy where they are registered. Examples of “nonproduced nonfinancial assets” are natural resources, contracts, leases and licenses, or marketing assets.

world are reported as debits. For example, if a person lives in France, but is employed in Switzerland, the salary payments she receives enter the **compensation of employees** section of the French (Swiss) primary income account as a credit (debit). Conversely, if the German government makes interest payments on bonds held by a US resident, these payments enter the German (US) primary income account as a debit (credit). Finally, if the Italian subsidiary of a British multinational firm earns a profit, this is reported in the British (Italian) primary income account as a credit (debit). Note that, in the latter two cases, it is not the sale or purchase of the underlying assets – the German government bond or the shares of the Italian subsidiary – that is reported in the primary income account, but the investment income associated with the possession of these assets. Table 2.1 shows that, in 2015, the balance of the German primary income account was strongly positive. A closer look at the data (not reported in the table) documents that the lion's share of this surplus was due to investment income earned on foreign assets. The net compensation of employees received by German residents was also positive, but rather small.

The third part of the current account is the **secondary income account**, which reports transfers received from the rest of the world as credits, and transfers given to the rest of the world as debits. A part of these transfers are payments between governments or institutions, such as bilateral or multilateral **development aid**. Another part reflects cross-border aid payments of non-governmental organizations. Finally, the secondary income account also includes **personal transfers** sent by individuals residing in one country to individuals residing in another country. Although personal transfers are not necessarily associated with international migration, the dominant position within this category are so-called **workers' remittances** – i.e. payments made by immigrants to individuals in their country of origin. Table 2.1 documents that the balance on Germany's secondary income account in 2015 was negative, i.e. transfers sent abroad exceeded transfers received from the rest of the world by 39.5 billion Euros. A closer look at the data (not reported in the table) reveals that the largest part of this difference is due to public transfers. Net personal transfers received were negative, but rather small. However, as we show in Box 2.2, cross-border payments associated with the migration of individuals are a very important component of the current account for many developing countries and emerging markets.

Box 2.2: The Importance of Personal Transfers in Developing Countries

For some developing countries, the emigration of their labor force is an important part of reality and has considerable effects both on domestic la-

bor markets and on the level and distribution of income. As we have outlined above, the money sent home by these migrants is reported as “personal transfers” in the secondary income account. Figure B2.2 documents that these personal transfers can be immense. For some countries, they amounted to double-digit percentages of gross domestic product (GDP) in the years from 2010 to 2014. This has important implications: first, the motivation behind personal transfers differs from the – usually profit-maximizing – objective that drives most other cross-border financial flows. In addition, there is some evidence that personal transfers are negatively correlated with the GDP growth of the recipient country, but positively correlated with the GDP growth of the sending country, generating a particular channel of international business-cycle transmission. Finally, large inflows of personal transfers may raise the living standard of the individual recipients, but may also have non-desirable macroeconomic side-effects like an appreciation of the domestic currency, or a rising price level.

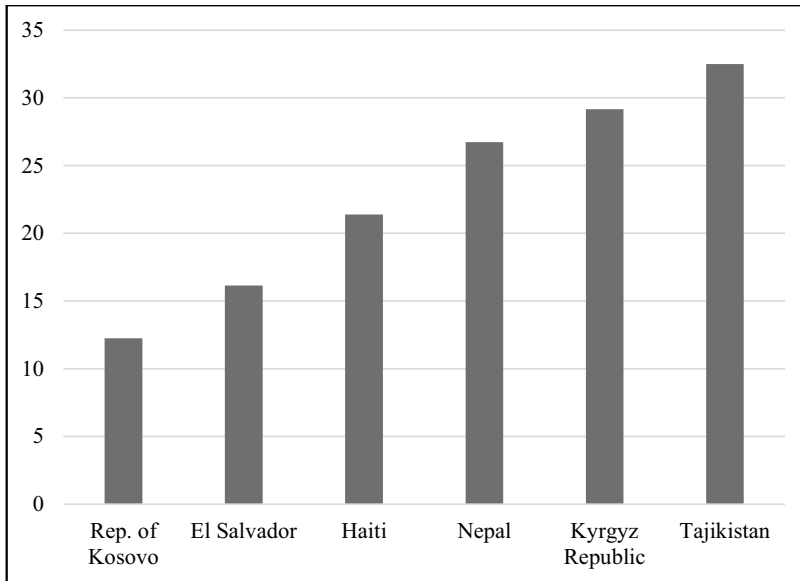


Figure B2.2: Personal transfers received as a percentage share of GDP, averages for the years 2010 – 2014. Source: International Monetary Fund (Balance of Payments Statistics) and World Bank (World Development Indicators).

Table 2.1 shows that, in 2015, Germany was running a current account surplus. This surplus was mainly driven by positive net exports of goods, but the positive balance of the primary income account also played an important role.

While Table 2.1 offers a snapshot of Germany's balance of payments in 2015, Figure 2.1 shows how the different components of that country's current account has evolved over recent decades.

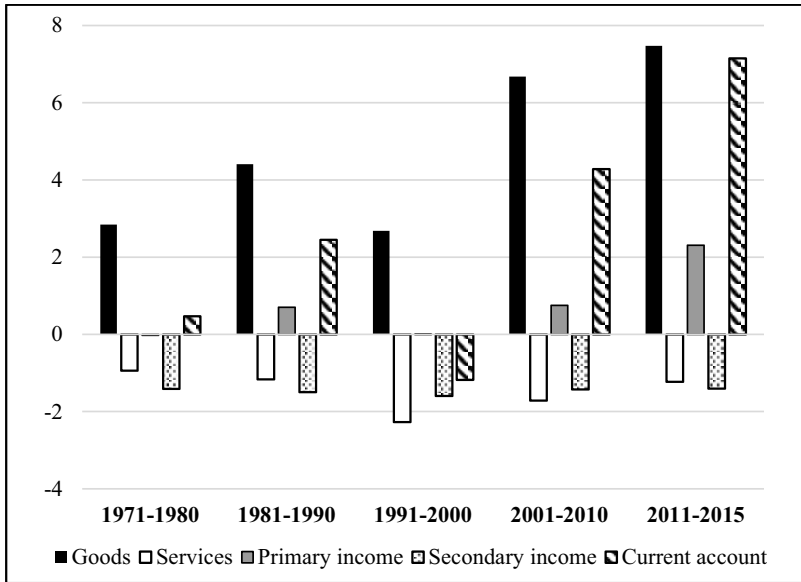


Figure 2.1: Components of the German current account (in percent of GDP)
Source: IMF (Balance of Payments Statistics) for 1971 through 1990, Deutsche Bundesbank for 1991 through 2015. The IMF's data were compiled according to BPM5.

As we see in this figure, a positive difference between goods exports and goods imports are not a novelty in Germany – nor is the fact that the value of services exports falls short of services imports, and that the balance on the secondary income account is negative. Conversely, the balance on primary income, though never negative, has grown substantially in recent years. Note also that the combination of relatively low net exports of goods and services, a zero balance on the primary income account coupled with a strongly negative secondary income balance resulted in current account deficits during the 1990s.

Figure 2.2 extends our view beyond the boundaries of Germany and shows the recent composition of the current account for the USA, China, the Czech Republic and the Philippines. All numbers are expressed relative to GDP (in

percent) and averaged over the 2010-2014 period. Apparently, the current account deficit run by the United States in these years reflected a large difference between goods imports and exports, which was only partly compensated by a surplus of services exports over imports and a positive balance on primary income. In the same time interval, China exhibited the opposite constellation: a large surplus of goods exports over goods imports, combined with services and primary income deficits. In both countries, the balance on secondary income had the expected sign – negative in the USA with its considerable immigrant population and substantial aid payments, positive in China – but was not very large relative to GDP. Turning to the Czech Republic and the Philippines we see that a superficial view of the current account, which both practitioners and academics sometimes identify with net exports, can be highly misleading: in the Czech Republic, the current account deficits of the years 2010 to 2014 predominantly reflected a strongly negative balance on primary income, while exports of goods and services exports were, in fact, larger than imports. By contrast, the Philippines would have run a current account deficit if it were not for the strongly positive balance on the secondary income account, which mainly reflects the personal transfers sent home by a large expat community.

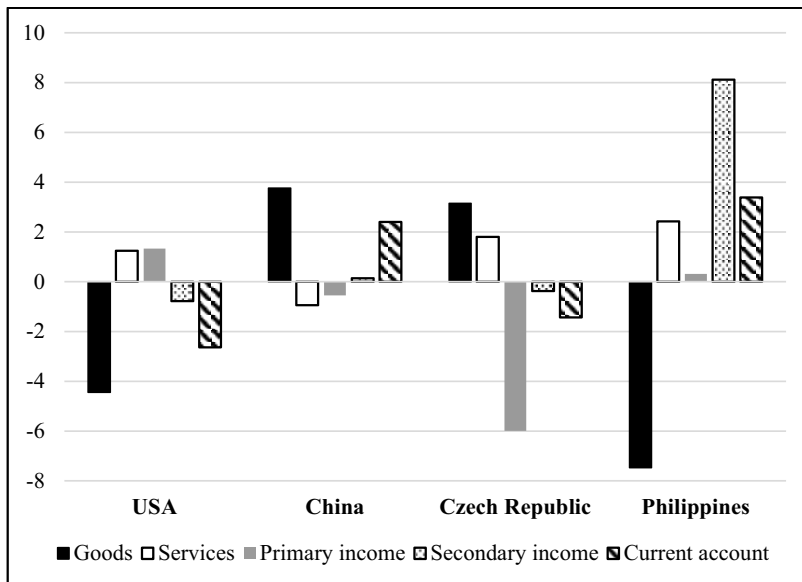


Figure 2.2: Components of the current account for selected countries (in percent of GDP, average values for the years 2010 – 2014). Source: IMF (Balance of Payments Statistics and International Financial Statistics).

II.1.3 The Capital Account

The capital account reports *capital transfers* and the *acquisition or disposal of nonproduced, nonfinancial assets*. Both types of transactions change a country's wealth position towards the rest of the world without being driven by residents' saving decisions. There is a subtle but important difference between "current transfers" reported in the secondary income account and "capital transfers" reported in the capital account: "Current transfers directly affect the level of disposable income and influence the consumption of goods and services" (IMF 2009:209). By contrast, a "capital transfer results in a commensurate change in the stocks of assets of one or both parties to the transaction without affecting the saving of either party" (IMF 2009:209).⁵ A typical example for a capital transfer is *debt forgiveness*: if a private or public creditor in Germany voluntarily writes off claims against a debtor residing in another country, this enters the German capital account as a debit and the recipient country's capital account as a credit.

In a similar spirit, the acquisition and disposal of "nonproduced, nonfinancial assets" changes a country's stock of assets and liabilities vis-à-vis the rest of the world regardless of aggregate savings. This class of assets includes natural resources such as land, mineral rights, fishing rights, electromagnetic spectrum, leases and licenses, as well as marketing assets – e.g. brand names, trade marks or logos. If a domestic resident acquires these assets abroad, this is reported as a debit in the domestic capital account and as a credit in the other country's capital account. The difference between the total value of credit transactions and the total value of debit transactions gives the *capital account balance*. As documented by Table 2.1, Germany's capital account balance amounted to a mere -0.2 billion Euros in 2015. In fact, the capital account is a rather minor component of most countries' balance of payments. However, this does not hold for recipients of large capital transfers. In these countries, the capital account balance sometimes amounts to a double-digit percentage share of GDP.

II.1.4 The Financial Account

The financial account reports transactions that reflect the "acquisition of financial assets" and the "incurrence of liabilities" (IMF 2009:11). An *asset* is a store of value that is usually associated with a claim on *receiving* future payments – e.g. interest payments on a bond, dividend payments on equity etc. A *liability*

⁵ The IMF offers additional guidance by stating that "capital transfers are typically large and infrequent" but also emphasizes that "capital transfers cannot be defined in terms of size or frequency" (IMF 2009:209). In practice, countries have some discretion when it comes to determining whether large transfers are reported in the secondary income account or in the capital account.

is the commitment to *make* such payments. In the financial account, increases in a country's assets and liabilities towards the rest of the world are both reported with a positive sign, while decreases in assets and liabilities are reported with a negative sign. The **financial account balance** reflects the difference between the net increase of assets and the net increase of liabilities. A **financial account surplus (deficit)** thus reflects the fact that, within a period, a country's assets – i.e. claims against residents of other countries – have increased by *more (less)* than its liabilities.⁶

These conventions are a bit confusing at first glance. We therefore illustrate them by presenting a simple example. Suppose that, in a given period, only the following financial transactions take place: some residents of the domestic economy *lend* 2000 Euros to the rest of the world, while others *borrow* 1000 Euros from the rest of the world. In the same period, some domestic residents repay outstanding foreign debt of 700 Euros while others receive repayments of 200 Euros on loans outstanding. Combining these numbers, we see that the net increase of assets amounts to $2000 - 200 = 1800$ Euros while the net increase of liabilities amounts to $1000 - 700 = 300$ Euros. The financial account balance in this example is $1800 - 300 = 1500$ Euros.⁷

Reflecting the different characteristics of securities and contracts that exist on international financial markets as well as the different objectives of the parties involved, the balance of payments assigns transactions to different parts of the financial account. Such a distinction is useful for several reasons: first, some assets are associated with payments that are *state-contingent* – e.g. dividend payments that depend on firms' profitability – while other assets define claims whose size and timing is clearly defined ex-ante and does not hinge on the current situation (e.g. interest payments). Moreover, it is important to distinguish assets and liabilities with respect to the maturity structure of the associated payments (short-term or long-term), and it matters whether the acquisition of company shares reflects the buyer's intention to actively interfere with the operations of the respective firms. Finally, the framework accounts for the fact that

⁶ The term “financial account” was introduced with the 5th revision of the balance of payments manual (BPM5) in 1993, replacing and re-defining the “capital account” which, up to that point in time, had reported the international purchase and sale of financial assets. It is rather unfortunate that many practitioners and academics still use the term “capital account liberalization” to describe the deregulation of international financial flows, since most of the transactions affected by such measures are reported in the financial, not the capital account. Note, finally, that an increase of assets (liabilities) in the financial account is sometimes called a “capital export” (“capital import”).

⁷ Note that the signing of financial account transactions stipulated by BPM6 is in stark contrast to BPM5, according to which an increase of assets entered the balance of payments with a *negative* sign. For the foreseeable future, you should therefore check whether the balance of payments data you are working with are presented according to BPM5 or BPM6.

countries' central banks purchase and sell securities for reasons that usually differ from the objectives of other market participants.

Following these considerations, Table 2.1 adopts the categories defined in the IMF's balance of payments manual and distinguishes between "direct investment", "portfolio investment", "financial derivatives and employee stock options", "other investment" and "reserve assets". **(Foreign) direct investment** – often abbreviated as **FDI** – reflects companies' decisions to establish (or purchase) foreign subsidiaries with the intention to actively manage the respective firms. It is assumed that such an intention is revealed by the ownership stake held by the parent company, and BPM6 thus defines direct investment as „arising when an entity has equity that gives it voting power of 10 percent or more in the enterprise" (IMF 2009:278). Following the sign convention introduced above, this implies that the purchase of a German firm by a British multinational raises the United Kingdom's assets against the rest of the world, while it raises the stock of German external liabilities. Note, finally, that it is not only the initial acquisition that is reported in the direct-investment section of the financial account, but also subsequent transactions that take place within a "direct-investment relationship", e.g. intra-company loans or the re-investment of earnings. Table 2.1 indicates that, in 2015, the volume of German direct investment abroad – the increase of FDI-related assets – exceeded the volume of foreign direct investment in Germany – the increase of FDI-related liabilities – by 56.4 billion Euros.⁸

The second category of international asset transactions reported in the financial account refers to **portfolio investment**. These are transactions „involving debt or equity securities other than those included in direct investment or reserve assets" (IMF 2009: 110) – i.e. purchases and sales of liquid securities that can easily be traded on financial markets. Within this category, the balance of payments framework further distinguishes between **portfolio debt** – mostly corporate and government bonds – and **portfolio equity**, i.e. share ownership that does not reflect a managing interest. Lumping both sub-categories together, Table 2.1 shows that, in 2015, the net increase of German portfolio assets exceeded the net increase of its portfolio liabilities by 199.1 billion Euros.

The third category, **financial derivatives and employee stock options** has gained in importance in recent years. A **financial derivative** establishes a claim whose value is tied to the value of another financial instrument, commodity or indicator – the so-called **underlying asset**. Important types of financial derivatives are **options**, which entitle the owner to purchase or sell the underlying asset at a pre-specified price without forcing him to realize this option, and **forward contracts**, which are a binding commitment to exchange the underlying

⁸ Note that this number does not report the *stock* of German FDI-type assets and liabilities, but the *changes* of these stocks that resulted from transactions in the year 2015.

asset at a pre-specified price. An *employee stock option* grants the holder the right to purchase shares of their own employer and is usually a form of remuneration. As indicated by Table 2.1, the net increase of Germany's assets in this category exceeded the net increase of liabilities by 25.8 billion Euros in 2015.

According to BPM6, *other investment* "is a residual category that includes positions and transactions other than those included in direct investment, portfolio investment, financial derivatives and employee stock options, and reserve assets" (IMF 2009:111). While the IMF's definition seems to suggest that the volume of transactions falling into this category is small, the fact that "other investment" includes such entries as "currency and deposits", "loans" and "trade credit" indicates that the numbers reported in this part of the financial account may actually be quite large: a loan granted by an Austrian bank to a foreign client is reported as an increase in Austria's other investment assets, while foreigners' deposits attracted by this bank are reported as an increase of Austria's other-investment liabilities. The crucial difference between other investment and portfolio debt is that claims associated with portfolio debt are traded on secondary markets, while the claims resulting from other investment are usually tied to a direct creditor-debtor relationship. Table 2.1 shows that the net increase of Germany's other-investment liabilities exceeded the net increase of other-investment assets by 53.3 billion Euros in 2015.

The fifth major category of the financial account covers transactions related to *reserve assets*, which are defined as "those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing)" (IMF 2009:111). Note that, unlike the other parts of the financial account, the reserve assets category focuses on the particular institution involved in the transactions – a country's *monetary authorities*, usually its *central bank* – rather than the nature of the securities considered. However, the purposes evoked in the definition – in particular, the availability for foreign exchange market interventions – stresses the importance of securities that can easily be bought and sold on financial markets. In fact, the bulk of most central banks' reserves consist of foreign-currency denominated cash, deposits and bonds, gold, as well as *special drawing rights (SDRs)*, i.e. reserve assets created by the International Monetary Fund. For the time being, we restrict our attention to a definition of reserves and to a description of their evolution, as reflected by countries' financial accounts. In Chapter VIII, however, we will explore the determinants and consequences of central banks' decisions to increase or reduce the stock of their reserve assets. As indicated by Table 2.1, the stock of reserve

assets held by the German central bank – the *Deutsche Bundesbank* – decreased by 2.2 billion Euros in 2015.

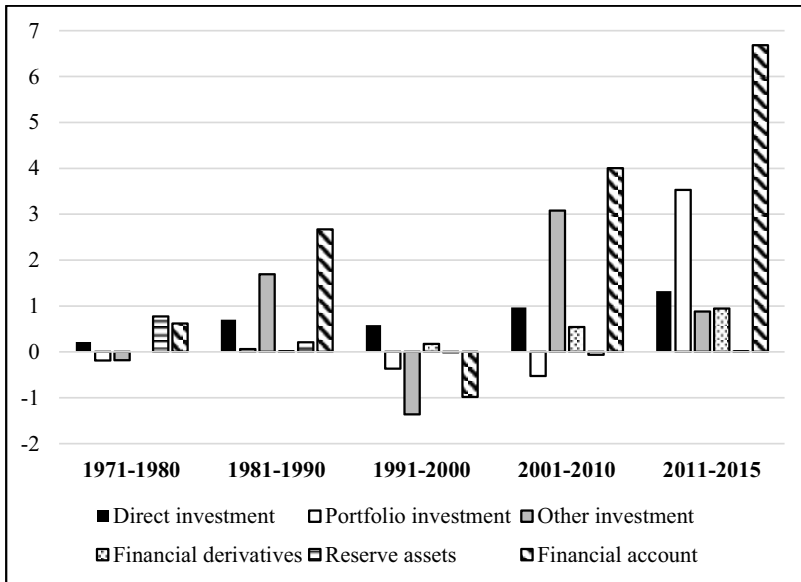


Figure 2.3: Components of the German financial account (net changes of assets minus net changes of liabilities, average values in percent of GDP) Source: IMF (Balance of Payments Statistics) for 1971 through 1990, Deutsche Bundesbank for 1991 through 2015. The IMF’s data were originally compiled according to BPM5, which necessitated a sign change for all entries of the years 1971 – 1990.

Figure 2.3 documents how the size and composition of the German financial account have evolved in recent decades. Unlike the current account, the financial account exhibited quite a bit of variation: in particular, the sign of the “other investment” position was subject to large fluctuations. Moreover, portfolio investment assets have increased by more than liabilities in the most recent past (2011 to 2015), in contrast to previous decades. Finally, foreign exchange reserves, which were an important component of the financial account balance in the 1970s, barely moved in the 1990s and 2000s.

Figure 2.4 shows the composition of the financial account for the USA, China, the Czech Republic and the Philippines. All numbers are presented relative to the respective countries’ GDP, and averaged over the years 2010 to 2014. The graph indicates that, in the United States, FDI assets increased by more than liabilities during that time period, while portfolio and other invest-

ment liabilities increased by more than assets. This conveys an important message: a financial account deficit does not necessarily imply that the respective country is accumulating more liabilities than assets for *all* categories. Between 2010 and 2014, United States residents were selling bonds and equity and borrowing from the rest of the world while, in the same period, they purchased more direct-investment assets than they sold. The picture is even more complex for China, the Czech Republic and the Philippines: while in all these countries, FDI- and/or portfolio-investment liabilities increased by more than assets – implying that individuals, firms and public institutions were selling these types of securities to the rest of the world – the central banks' reserves increased considerably. In two cases (China and the Philippines), the increase of central bank reserves was so substantial that the overall financial account balance turned positive. Hence, while the financial account surpluses of China and the Philippines indicate that, between 2010 through 2014, these countries were accumulating more assets than liabilities vis-à-vis the rest of the world, a closer look at the data reveals that it was, in fact, a particular institution within these countries – the central bank – that brought about this result.

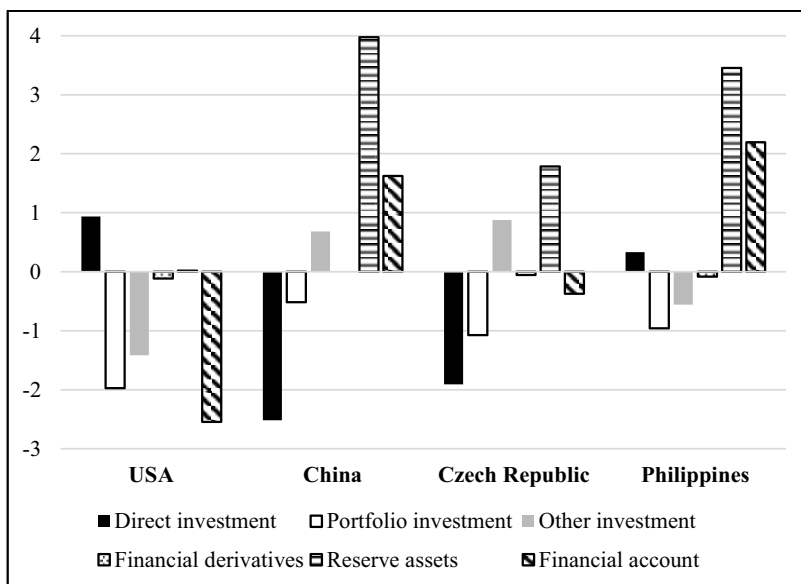


Figure 2.4: Components of the financial account for selected countries (net changes of assets minus net changes of liabilities in percent of GDP, average values for the years 2010 – 2014). Source: IMF (Balance of Payments Statistics and International Financial Statistics).

II.1.5 Balance of Payments Equilibrium

The balance of payments follows a *double-entry accounting system*, i.e. each transaction is recorded twice: if a foreign customer purchases domestic goods in exchange for foreign currency, the transaction enters the domestic *current account* as a credit and the domestic *financial account* as an increase in assets. Conversely, if a domestic customer imports foreign goods which he is allowed to pay for with some delay, the transaction enters the domestic *current account* as a debit and the domestic *financial account* as an increase in liabilities. When adding up all cross-border transactions for a given interval – say, a year – a lot of them actually cancel out: if the sum of all credit-financed exports of goods and services equals the sum of all credit-financed imports of goods and services, both the current account and the financial account balance are zero. However, this constellation is rather unlikely. Usually, the balances on the individual accounts of the balance of payments are positive or negative. But it must hold that, if all transactions are recorded and evaluated properly, the sum of the current account and the capital account balances must equal the financial account balance, i.e.

$$(2.1) \quad CA_t + KA_t = FA_t$$

In this equation, CA_t is the current account balance in period t , KA_t is the capital account balance, and FA_t is the financial account balance. While this expression technically results from the principle of double-entry accounting, it can also be interpreted using a compellingly simple logic: suppose that the value of a country's imports in a given time period exceeds the value of its exports, i.e. residents of that country receive more goods and services from abroad than they are returning to the rest of the world. Suppose further that these negative net exports are not compensated by a surplus in the primary or secondary income account, then it follows that the country is running a current account deficit. Now suppose that the capital account balance – the sum of net capital transfers received and the net sale of nonfinancial assets – still leaves the left-hand side in equation (2.1) negative. A blunt interpretation of this situation is that, in period t , the country is living beyond its means, and that the discrepancy between exports and imports is not compensated by foreigners' willingness to offer capital transfers or current transfers. Such a situation can only prevail if the rest of the world can expect to be compensated in the future, i.e. if the combined current and capital account deficit is matched by the commitment to make future payments. This, however, means that the country we consider is incurring additional liabilities, which is reflected by a financial account deficit. Conversely, a current account surplus which is not dominated by a capital account deficit

necessarily implies an accumulation of claims towards the rest of the world, i.e. a financial account surplus.

Beyond illustrating a technical result that immediately follows from the rules of balance of payments accounting, equation (2.1) points at an important relationship that we will meet over and over again in this book: the financial account documents how a combined current account and capital account deficit is financed, or how a combined surplus of the current account and the capital account is used to accumulate claims against the rest of the world. This, in turn, implies that the current account balance is not only driven by domestic and foreign residents' decisions on goods and services purchases as well as income flows and current transfers, but also on financial markets' willingness and ability to finance deficits or to absorb surpluses.

Equation (2.1) states that the balance of payments is always in *equilibrium*. Nevertheless, people sometimes refer to *balance of payments surpluses* or *balance of payments deficits*. Such statements are usually based on a distinction between the reserve assets part and the other components of the financial account. If we adopt this distinction and define ΔR_{t+1} as the net increase of reserve assets held by monetary authorities between the start of period t and the start of period $t+1$, we can rewrite equation (2.1) as

$$(2.2) \quad CA_t + KA_t = FA_t^{NR} + \Delta R_{t+1}$$

In this expression, FA_t^{NR} is the ("non-reserve") part of the financial account that does not reflect monetary authorities' purchase or sale of foreign-currency denominated assets. It is the sum of the net increase of assets over liabilities for all the other categories covered by the financial account: direct investment, portfolio investment, financial derivatives, and other investment. The above expression obviously implies that

$$(2.3) \quad CA_t + KA_t - FA_t^{NR} = \Delta R_{t+1}$$

This equation highlights another important principle: if a country's current and capital account surplus exceeds the net accumulation of assets outside the central bank, reserves increase. Conversely, if the sum of the current and capital account balances is negative, and if it is not matched by a net increase of liabilities outside the central bank, reserves decrease. For the time being, we report this as an important accounting fact without exploring the forces that determine the composition of the financial account. Such an analysis will be performed in Chapter VIII, which will consider foreign exchange markets and the role of countries' central banks in the context of different exchange rate regimes.

II.1.6 Net Errors and Omissions

While balance of payments equilibrium as expressed by equation (2.1) is a sound theoretical concept, it is rarely observed in the data. Usually, the sum of the current and capital account balances differs from the financial account balance. There are many reasons for this: first, it is hardly possible for statistical authorities – more specifically, central banks in charge of compiling and publishing the balance of payments – to correctly record and evaluate *all* international transactions that take place within a time period. While large purchases and sales have to be reported in most countries, central banks often have to rely on estimates when it comes to assessing the sum of small transactions – e.g. in the case of travel expenditures or personal transfers. Moreover, some international transactions are deliberately kept secret, either because they are illegal or because they are driven by tax-evasion purposes. To account for the possible discrepancy between the left-hand side and the right-hand side of equation (2.1), the balance of payments reports **net errors and omissions**, the sign and size of which are implicitly defined by the following equation:

$$(2.4) \quad CA_t^{rep} + KA_t^{rep} + NEO_t = FA_t^{rep}$$

where the superscript “*rep*” refers to the fact that we are not talking about theoretical concepts, but the actual numbers reported in the current, capital and financial accounts, respectively. If net errors and omissions in period t (NEO_t) are negative, the reported net increase of assets is apparently smaller than what would have been suggested by the combined current and capital account balances. This may be due to an overrating of credits in the current and capital account, an underrating of debits in these accounts, an underrated net increase of assets, or an overrated net increase of liabilities.

Table 2.1 shows that the sum of Germany’s reported current account and capital account balances amounted to 257 billion Euros in 2015. This exceeded the reported financial account balance of 225.8 billion Euros by 31.2 billion Euros, which implies that net errors and omissions in the German balance of payments amounted to -31.2 billion Euros in the year 2015.

Figure 2.5 describes the evolution of the German balance of payments from 1971 through 2015. While the current account surpluses of the 1970s were associated with an increase of the Bundesbank’s stock of reserves, the 1980s, 2000s and 2010s were characterized by current account surpluses combined with a net increase of assets held by agents other than the central bank. By contrast, the German current account was negative, on average, during the 1990s, and this was reflected by the net increase of liabilities exceeding the net increase of assets. Throughout the period considered, net errors and omissions were rather small.

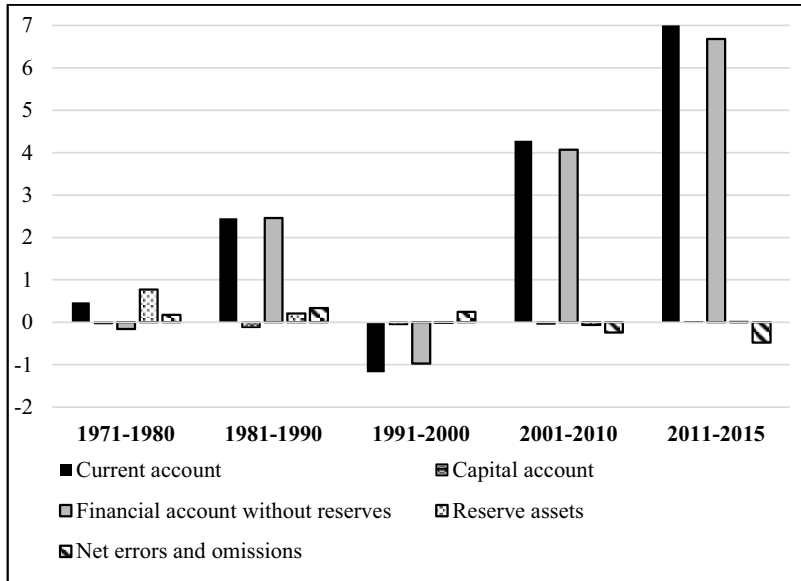


Figure 2.5: Components of the German balance of payments (average values in percent of GDP) Source: IMF (Balance of Payments Statistics) for 1971 through 1990, Deutsche Bundesbank for 1991 through 2015. The IMF's data were originally compiled according to BPM5, which necessitated a sign change for the financial account entries of the years 1971 – 1990).

Figure 2.6 considers the balance of payments of the USA, China, the Czech Republic, and the Philippines. Both the United States and the Czech Republic exhibited current-account deficits in the 2010-2014 period. In the USA, these deficits were financed by increasing liabilities towards the rest of the world, while the stock of reserves barely moved. In the Czech Republic, the current-account deficits were partly compensated by an unusually large capital account surplus – a sign of large capital transfers received in that period. Since the left-hand side of equation (2.1) was still negative, the financial account balance of the Czech Republic had to be negative as well, i.e. liabilities had to increase faster than assets. A look at Figure 2.6 shows that capital inflows into the Czech Republic during the 2010-2014 were, indeed, substantial. In fact, they were so large that the stock of reserves of the Czech National Bank increased – i.e. while individuals and institutions outside the central bank incurred substantial liabilities towards the rest of the world, monetary authorities increased their assets. This evolution was even more pronounced in China and the Philippines: both countries were running current account surpluses during the 2010-2014 period. At the same time, they witnessed substantial capital inflows in the form of FDI,

portfolio investment or other investments. This increase of liabilities outside the central bank system was associated with a strong increase of reserve assets. Note, finally, that the substantial size of net errors and omissions in the Philippines illustrates the large margin of error involved in balance-of-payments accounting.

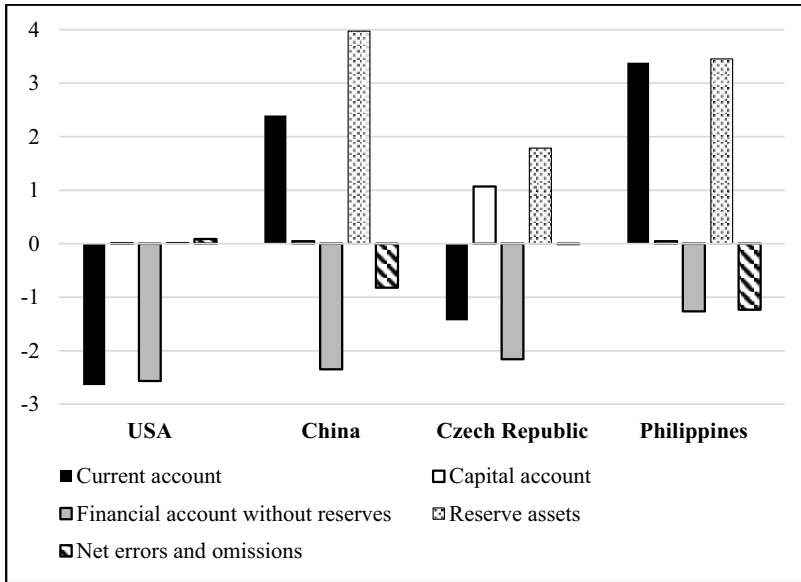


Figure 2.6: Components of the balance of payments for selected countries (in percent of GDP, average values for the years 2010 – 2014). Source: IMF (Balance of Payments Statistics and International Financial Statistics).

II.2 Some Important Balance-of-Payments Relationships

II.2.1 The Balance of Payments and the Net International Investment Position

A country's *net international investment position* (*NIIP*, sometimes also called its *net foreign assets*) at a given point in time is computed by subtracting the value of all external liabilities from the value of all external assets. Unlike the balance of payments, which reports *flow* magnitudes – i.e. the value of transactions taking place during a specific time *interval* – the net international investment position refers to *stock* magnitudes that can be observed at a given *point in time*.

A country with a negative net international investment position is often considered “indebted”. However, this perspective misses the fact that both assets and liabilities consist of positions with very different characteristics. Hence, a country can have a largely negative net international investment position despite a moderate level of external *debt* – e.g. if the major share of external liabilities is in the form of direct investments or portfolio equity. This distinction is important: all external liabilities represent a commitment to make future payments to foreigners. However, the individual types of liabilities differ substantially with respect to whether these payments are *state-dependent* or not. While debt-type liabilities – portfolio debt or credit reported in the “other-investment” category – stipulate principal and interest payments that are contractually fixed *ex ante*, the payments associated with FDI and portfolio equity usually depend on the (ex-ante uncertain) profitability of the companies involved. As we will see in later chapters, these different payoff structures imply that the *composition* of a country’s net international investment position matters as much as its *size*.

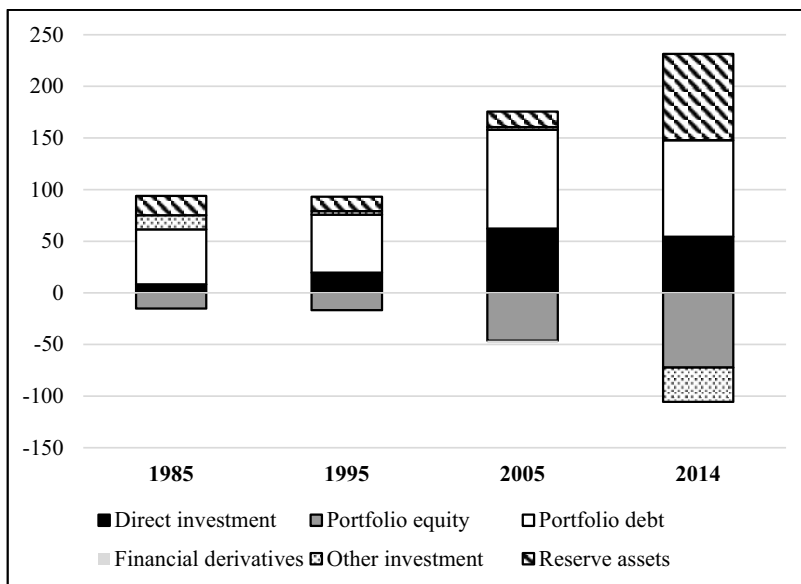


Figure 2.7: The composition of Switzerland’s net international investment position. Assets are shown as positive values and liabilities as negative values in percent of GDP. Source: IMF (Balance of Payments Statistics).

Figure 2.7 describes the structure of Switzerland’s net international investment position at the end of 1985, 1995, 2005, and 2014. Several things are noteworthy about this graph: first, it illustrates that the volume of assets and liabilities

has increased massively since the mid-1980s. Second, the positive difference between total assets and total liabilities documents that Switzerland's net international investment position (NIIP) has grown from 79 percent to 126 percent of GDP. Third, while the figure does not show that Switzerland has always held both assets *and* liabilities for most categories except central bank reserves, it reveals that the difference between assets and liabilities was usually positive for direct investment and portfolio debt, but negative for portfolio equity. Finally, the figure documents the changing structure of Switzerland's external balance sheet – most notably, the considerable increase of central bank reserves in the most recent past and the growing surplus of other investment liabilities over other investment assets.⁹

As we have explained above, the financial account balance is positive (negative) if the net increase of a country's assets exceeds (falls short of) the net increase of its liabilities. This implies that there is a straightforward relationship between the financial account and the evolution of the net international investment position. Denoting the net international investment position *at the start of period* t by B_t , we can write:¹⁰

$$(2.5) \quad B_{t+1} - B_t = FA_t$$

For that reason, a positive financial account balance in period t implies that the NIIP is increasing between the start of that period and the start of the subsequent period, while a financial account deficit implies a decreasing NIIP. Note that B_t itself can be negative at every point in time, signaling that the value of liabilities exceeds the value of assets. Moreover, as mentioned above, the concise representation in (2.5) masks the fact that the net international investment position consists of assets and liabilities with very different characteristics, whose relative importance may vary substantially over time.

By substituting the characterization of balance of payments equilibrium from (2.1) into (2.5), we get

$$(2.6) \quad B_{t+1} - B_t = CA_t + KA_t$$

which relates the evolution of the net international investment position to the capital and current account balances. For example, a large capital transfer –

⁹ For the time being, we focus on a mere description of this evolution. In Chapter VIII, we will relate it to events on international financial markets and to the Swiss National Bank's exchange rate policy.

¹⁰ By defining B_t as the net international investment position at the *start of period* t , we follow a widespread convention in academic literature. Note, however, that annual NIIP data published by policy institutions sometimes refer to the *end* of a year.

reflecting, e.g., debt forgiveness by foreign creditors – has a positive effect on the net international investment position.¹¹ Moreover, an increase of the net international investment position may result from a current account surplus: a country for whom the sum of net exports, net primary income and net secondary income is positive accumulates claims against the rest of the world, which are mirrored by an increasing net international investment position.

II.2.2 Valuation Effects

Equation (2.6) suggests that the evolution of the net international investment position mirrors the sum of the current and capital account balances. This claim can easily be confronted with the data.

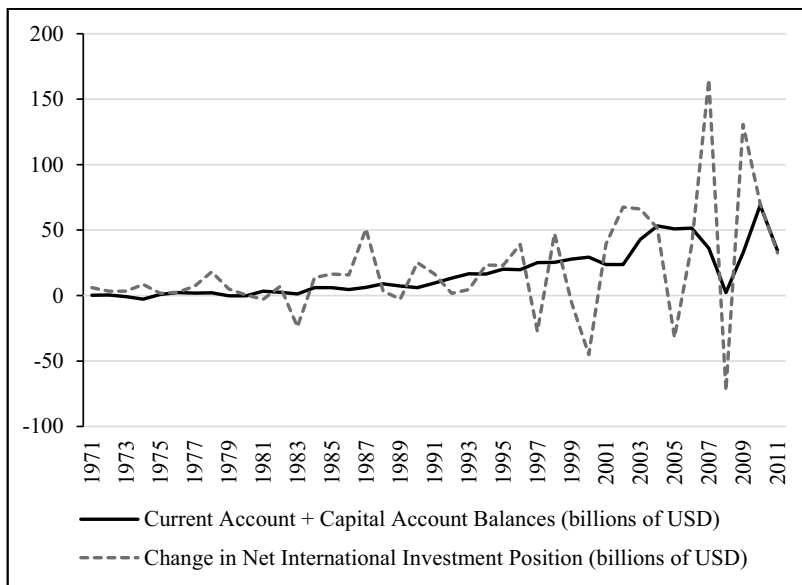


Figure 2.8: The sum of the current and capital account balances and the evolution of the net international investment position in Switzerland. Source: Updated and extended version of the dataset constructed by Lane and Milesi-Ferretti (2007).

Figure 2.8 shows the left-hand side and right-hand side of equation (2.6) for Switzerland. In the 1970s, the two time series move almost in parallel. Starting

¹¹ In this case, the credit entry in the capital account is combined with a reduction of liabilities that is reported in the financial account.

in the mid-1980s, however, we observe major differences between the sum of the current account and capital account balances and the change of the NIIP: in the year 2000, for example, $CA_t + KA_t$ amounted to 29 billion US dollars, but in that year the NIIP *decreased* by 45 US billion dollars. Conversely, the Swiss NIIP increased by 165 billion US dollars in 2007, although the combined current and capital account balances were just 36 billion US dollars.¹²

To understand these huge discrepancies, we have to realize that the value of a country's external assets and liabilities may change due to transactions that are reported in the balance of payments – i.e. the purchase of additional assets and the incurrence of new liabilities during a time period – but also due to the fact that the value of *existing* assets and liabilities varies during that year. To account for this effect, we rewrite the evolution of the net international investment position as follows:

$$(2.7) \quad B_{t+1} - B_t = CA_t + KA_t + VAL_t$$

In this expression, VAL_t represents the **valuation effects** that influence the change of the NIIP beyond the transactions that are reported in the current and capital account balances. There are various factors that may give rise to such valuation changes: first, they may reflect price fluctuations on national equity and bond markets. If domestic investors hold large equity stakes in another country's firms, a stock market crash in that country reduces its external liabilities, while it reduces the home country's external assets. Another important driving force of valuation effects are exchange rate movements: since most countries hold assets and liabilities in different currencies, any change in the exchange rate – i.e. the relative price of one currency in terms of another currency – has immediate consequences for the value of foreign assets and liabilities.

Of course, such price fluctuations have always been around. The reason why they did not have a large impact on the evolution of countries' net international investment position is that, prior to the mid-1980s, the volume of external assets and liabilities – relative to the transactions reported in the balance payments – was rather modest. The rapid progress of financial globalization that started some 30 years ago brought about a huge increase in cross-border investments. As a result, fluctuations of asset prices and exchange rates started to have much bigger effects on the net international investment position. Figure 2.8 documents that this was the case even before the Global Financial Crisis, which

¹² While net errors and omissions contribute to generating such discrepancies, they do not fully explain them, and sometimes they make matters worse: for the year 2000, the net errors and omissions reported by the IMF for the Swiss balance of payments amounted to 13.6 billion US dollars, while it amounted to -10.0 billion US dollars in 2007.

started to unfold in 2007 hit the world economy. Given the huge swings in asset prices and exchange rates that followed the collapse of the US real estate market in 2007, it is not surprising that, in the recent past, countries experienced huge changes in their net international investment positions. Box 2.3 reports the results of a study that assesses the size of these valuation effects and disentangles their components.

Box 2.3: Valuation Effects during the Global Financial Crisis

In the summer of 2007, the world economy had gone through a sequence of prosperous years that were characterized by a substantial increase of cross-border capital flows. This evolution came to an abrupt stop when housing prices started to collapse in the United States, the United Kingdom and some other economies which had experienced a real estate boom in the preceding years. As the crisis unfolded in these countries, it turned out that banks' balance sheets were burdened with a huge amount of bad loans to home owners who could not service their debt, and were collateralized by houses whose value had dropped substantially. The massive increase of foreclosures accelerated a vicious circle of decreasing real estate prices, increasing bank losses and household bankruptcies. When the large US American investment bank Lehman Brothers, which had been severely exposed to the real estate collapse, failed in September 2008, economic mayhem broke loose on a global scale. What transformed the national problems of the countries involved into a global financial crisis were the many interdependencies that had built up during the rapid financial globalization of the early 2000s: in these years, financial institutions around the world had purchased large amounts of *mortgage backed securities (MBS)* – i.e. bulky loans to US American home owners that had been sliced and packaged into smaller pieces and sold on to overseas banks, savers, etc. As the US real estate market broke down, these MBS turned out to be practically worthless, putting pressure on European banks' balance sheets. The bankruptcy of Lehman Brothers exposed these banks to additional stress because many of them had to write off their claims against this institution. What followed was a domino reaction that brought the global financial system to the brink of a meltdown and resulted in a collapse of asset prices and heavy exchange rate fluctuations as well as a major recession in most economies.

Given these developments and the large volume of external asset and liability positions that countries had accumulated in the years preceding the crisis, it is not surprising that the Global Financial Crisis was associated with massive valuation effects. In a study published in 2012, Pierre-Olivier Gourinchas, Hélène Rey and Kai Trümpler assess the sign and magnitude

of these effects at the country level, and identify the contribution of different asset categories to countries' total gains and losses.

As shown in Figure B2.3, valuation effects were, indeed, large. Interestingly, the NIIP of some countries that were heavily affected by the crisis actually *increased* between the fourth quarter of 2007 and the fourth quarter of 2008. One of these countries was the United Kingdom, whose assets had been largely denominated in foreign currency, while the major share of liabilities had been denominated in British pounds. As a consequence, the massive depreciation of the British pound that took place in 2008 resulted in a *valuation gain*. The Euro area's NIIP, by contrast, partly increased due to the reduction of external liabilities that was associated with collapsing domestic stock markets. However, these gains were dominated by the losses on the Euro area's direct investment and debt assets.

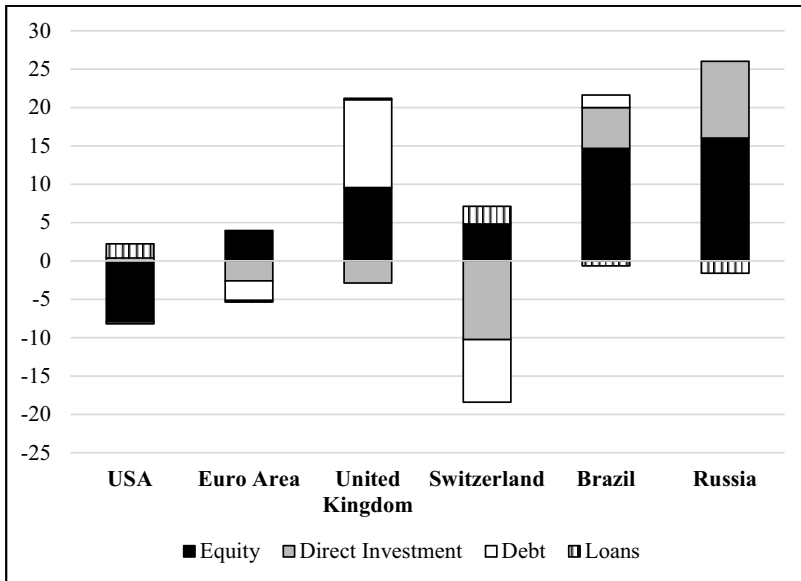


Figure B2.3: Components of valuation gains (positive) and losses (negative) between the fourth quarter of 2007 and the fourth quarter of 2008. All numbers are in percent of the respective countries' nominal GDP in 2007. Source: Gourinchas et al. (2012) and own computations.

The diversity of country-specific valuation effects during the Global Financial Crisis, as documented by Gourinchas et al. (2012), highlights countries' different exposure to asset-price and exchange rate fluctuations. This

exposure, in turn, crucially hinges on the asset-type and currency composition of countries' external assets and liabilities. The question which factors determine this composition is a topic of active research, and one we will repeatedly come across in later parts of this book.

II.2.3 The Dynamics of the Net International Investment Position

Recall from subsection II.1.2 that the current account balance is the sum of net exports of goods and services (NX_t), the balance on the primary income (BPI_t) and the balance on secondary income (BSI_t):

$$(2.8) \quad CA_t = NX_t + BPI_t + BSI_t$$

The balance of the primary income account BPI_t can be split into a component that reflects net foreign labor income (BPI_t^L) and a component reflecting net foreign capital income (BPI_t^K). The latter can be written as the net international investment position times a composite return r_t on foreign assets and liabilities. Hence,

$$(2.9) \quad BPI_t = r_t B_t + BPI_t^L$$

Note that the „interest rate“ r_t in (2.9) represents the composite return on *all* types of securities, i.e. not only interest payments, but also dividends, profits, etc. Combining (2.6), (2.8) and (2.9) and abstracting from valuation effects implies

$$(2.10) \quad B_{t+1} = (1 + r_t) B_t + NX_t + BPI_t^L + BSI_t + KA_t$$

This law of motion of the net international investment position will be of crucial importance in subsequent chapters. It illustrates that the *future* value B_{t+1} depends on net exports, net foreign labor income, net secondary income and the balance on the capital account, but also on the *initial* value B_t . This relationship is due to the role of the net international investment position for the primary income account. Since r_t is usually greater than zero, it gives rise to dynamics through which a positive (negative) difference between assets and liabilities results in an even higher (lower) NIIP in the future. Furthermore, it allows for constellations where a strongly negative value of B_t results in a decreasing net international investment position despite *positive* net exports.¹³ Conversely,

¹³ The situation of the Czech Republic in the years 2010-2014, as illustrated by Figure 2.2, documents the empirical relevance of such a situation.

countries' net international investment position may increase despite negative net exports if high returns on the net international investment position dominate in the current account.

Box 2.4: Return Differences and the Evolution of the NIIP

In equations (2.9) and (2.10), we have implicitly assumed that the return on foreign assets equals the return on foreign liabilities. If we drop this assumption and abstract from the capital account, we can follow Lane and Milesi-Ferretti (2007) and rewrite (2.10) as

$$B_{t+1} - B_t = CA_t^{pr} + r_t^{liab} B_t + (r_t^{assets} - r_t^{liab}) B_t^{assets}$$

Here, $B_t = B_t^{assets} - B_t^{liab}$ represents the country's net international investment position at the start of period t – with B_t^{assets} denoting the value of assets, B_t^{liab} the value of liabilities, and r_t^{assets} (r_t^{liab}) denoting the returns on assets (liabilities). The „primary current account“ CA_t^{pr} reflects the sum of net exports, net foreign labor income and the balance on the secondary income account, and the capital account balance is set equal to zero for simplicity. Using lower-case letters to denote variables relative to GDP and defining the growth rate of real GDP as $(1 + g_{t+1}) = Y_{t+1} / Y_t$, we can rewrite the above expression as

$$b_{t+1} - b_t = \frac{ca_t^{pr}}{1 + g_{t+1}} + \frac{(r_t^{liab} - g_{t+1})}{1 + g_{t+1}} b_t + \frac{(r_t^{assets} - r_t^{liab})}{1 + g_{t+1}} b_t^{assets}$$

This equation demonstrates that the evolution of the net international investment position (as a share of GDP) depends on the primary current account, the difference between the yield on liabilities and the output growth rate times the initial NIIP, and the difference between returns on assets and the return on liabilities. The latter difference weighs stronger if the stock of foreign assets is larger. This decomposition demonstrates that a country which manages to combine high returns received on its assets with low returns paid on its liabilities can afford high primary current account deficits and still avoid large drops of its net international investment position.

II.2.4 Gross Domestic Product, Gross National Income, and the Current Account

A country's **Gross Domestic Product (GDP)** represents the *output* – more specifically, the *value added* – produced by domestic persons, firms and institutions during a specific time interval.¹⁴ The goods and services that make up total output can be used for different purposes: they can be *consumed*, they can be used for *investment* – with investment denoting expenses that raise an economy's *capital stock* and thus future productive capacity – and they can be *exported* to the rest of the world. If we further differentiate between private agents – private households, firms – and the government, we can split the use of GDP in period t into the following categories:

$$(2.11) \quad Y_t = C_t^{priv,H} + C_t^{pub,H} + I_t^{priv,H} + I_t^{pub,H} + EX_t$$

In this equation, C_t in period t denotes consumption, I_t denotes investment, and the superscript H (“Home”) indicates that an expression refers to goods and services that are produced by the domestic economy. The index *priv* denotes private consumption and investment, while *pub* refers to consumption and investment by public institutions. Finally, EX_t stands for exports of domestic goods and services in period t .

Of course, domestic agents can also use foreign goods and services for consumption and investment purposes. Sticking to our distinction between private and public users, we can write total imports at time t (IM_t) as

$$(2.12) \quad IM_t = C_t^{priv,F} + C_t^{pub,F} + I_t^{priv,F} + I_t^{pub,F}$$

The superscript F („Foreign“) indicates that goods and services have been produced abroad, but are used in the domestic economy. If we add up all components of consumption (private and public, domestic and foreign), do the same for investment, and define net exports of goods and services as the difference between exports and imports ($NX_t = EX_t - IM_t$), we get

$$(2.13) \quad Y_t = C_t + I_t + NX_t$$

¹⁴ Since many goods and services are used as inputs in other industries, simply adding up the value of all goods and services produced in an economy would result in double-counting, and thus artificially inflate the output allegedly generated by that country. By only counting the value of goods and services produced for “final use”, GDP effectively sums up the value added generated at various production stages, and thus accurately measures how much an economy actually produces.

Domestic GDP can thus be divided into (private and public) consumption, (private and public) investment, and net exports.

Note that GDP reflects the value of all goods and services that are produced *domestically* for final use within a given time period. The value added generates revenues that ultimately accrue to workers and capital owners. However, in a world that is characterized by a mobile labor force and large international capital flows, not all of the factors of production that contribute to the domestic production process are necessarily owned by domestic residents. As a consequence, the total income available to a country's residents may differ from domestic GDP. The concept of **Gross National Income (GNI)** captures this potential discrepancy by adding a country's primary income balance to its GDP:

$$(2.14) \quad Y_t^{GNI} = Y_t + BPI_t$$

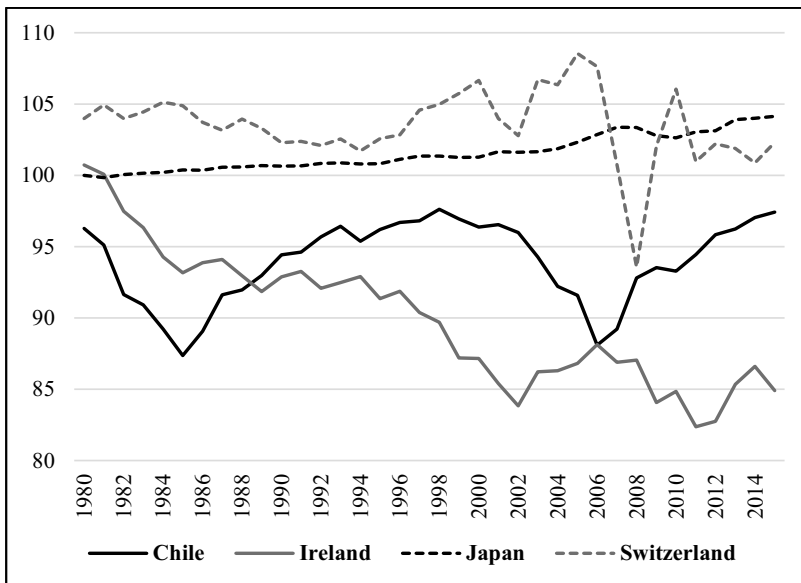


Figure 2.9: Gross National Income relative to Gross Domestic Product (in percent). Source: World Bank (World Development Indicators).

The difference between GNI and GDP may actually be quite large. Figure 2.9 shows the relationship between the two magnitudes for Chile, Ireland, Japan and Switzerland in the years 1980 – 2013. Apparently, GNI exceeded GDP in Japan and Switzerland for most of the time periods – reflecting a positive balance on primary income, which was predominantly driven by returns on foreign assets. By contrast, GNI was usually smaller than GDP in Chile and Ireland,

with the discrepancy sometimes amounting to almost 20 percent. While the time series for Japan and Ireland exhibit a relatively stable trend, reminiscent of the dynamics described by equation (2.10) – i.e. a highly positive or negative net international investment position resulting in primary income payments that drive an even wider wedge between foreign assets and liabilities in subsequent periods – the GNI/GDP ratio of Switzerland took a conspicuous dive in 2007 and 2008. This drop, which was apparently related to the “Global Financial Crisis”, indicates that returns on foreign assets and liabilities are far from stable, and that a high net international investment position is no guarantee for stable income flows from abroad.

If we add the balance on secondary income to GNI, we arrive at **Gross National Disposable Income (GNDI)**, an even more comprehensive income measure that not only includes net primary income, but also all kinds of transfers – public and personal – received from abroad:

$$(2.15) \quad Y_t^{GNDI} = Y_t + BPI_t + BSI_t$$

Combining (2.15) with equations (2.8) and (2.13) yields

$$(2.16) \quad CA_t = Y_t^{GNDI} - C_t - I_t$$

This expression offers an important insight: the current account balance reflects the difference between GNDI and **domestic absorption**, which is the sum of (public and private) consumption and investment. If a country’s spending on consumption and investment exceeds its GNDI, it runs a current account deficit. If GNDI exceeds domestic absorption, the current account balance is positive.

II.2.5 Savings, Investment, and the Current Account

We define the **private savings** of an economy as the difference between GNDI, the taxes paid to the government (T_t), and private consumption (of domestic and foreign goods and services):

$$(2.17) \quad S_t^{priv} = Y_t^{GNDI} - T_t - C_t^{priv}$$

By contrast, **public savings** are the difference between government tax revenues and public consumption:¹⁵

¹⁵ The variable T_t should be interpreted as taxes net of transfers. For simplicity, we do not mention other types of government revenue and spending like, e.g., returns on government assets or interest payments on public debt. Including these magnitudes would complicate terms without affecting the gist of our argument.

$$(2.18) \quad S_t^{pub} = T_t - C_t^{pub}$$

When we add private and public savings, T_t cancels out, which allows us to write **gross national savings** as

$$(2.19) \quad S_t = Y_t^{GNDI} - C_t$$

An economy's total savings thus reflect the difference between GNDI – a comprehensive measure of the income available to domestic residents – and aggregate, i.e. public and private, consumption. This equation can be combined with (2.16) to get

$$(2.20) \quad CA_t = S_t - I_t$$

Hence, the current account balance reflects the difference between gross national savings and aggregate domestic investment. The importance of this statement can hardly be exaggerated. In fact, it will represent the basis for most of our analyses in subsequent chapters. In a *financially closed* economy, aggregate savings – i.e. the difference between income and consumption – determine the feasible volume of investment. For a *financially open* economy, this link no longer applies, and national investment does not have to coincide with national savings. If domestic savings exceed investment, the international capital market absorbs the difference to finance investment in other countries. By contrast, if domestic investment exceeds domestic savings, the international capital market provides the necessary resources. The respective cross-border transactions are reported by the financial account which, in turn, is mirrored by the current account.

Further insights into the determinants of the current account can be gained by defining total government spending $G_t = C_t^{pub} + I_t^{pub}$ as the sum of public consumption and public investment. Making use of this definition, we can use equations (2.17) and (2.18) to transform (2.20) into

$$(2.21) \quad CA_t = S_t^{priv} - I_t^{priv} - (G_t - T_t)$$

In this expression, the difference between public spending and public (tax) revenues $(G_t - T_t)$ represents the government's **budget deficit**. Combining this equation with balance of payments equilibrium, as defined in (2.1), and abstracting from valuation effects yields

$$(2.22) \quad S_t^{priv} = I_t^{priv} + G_t - T_t + B_{t+1} - B_t - KA_t$$

Equation (2.22) can be interpreted as follows: in an open economy, the private sector can use its savings for three different purposes. It can finance the investment projects of domestic (private) firms or it can finance the government's budget deficit. Finally, it can increase its stock of foreign assets (or reduce its liabilities), which results in an increase of the net international investment position beyond the change that possibly results from capital-account transactions (KA_t).

Note, however, that equation (2.22) does not require that S_t^{priv} , $(G_t - T_t)$, $(B_{t+1} - B_t)$ or KA_t are necessarily positive. Hence, this expression can also describe a situation where the sum of private investment and the government's budget deficit *exceeds* private savings. The difference would be financed by incurring liabilities towards the rest of the world, which would be reflected by a current account deficit and a decrease of the net international investment position.

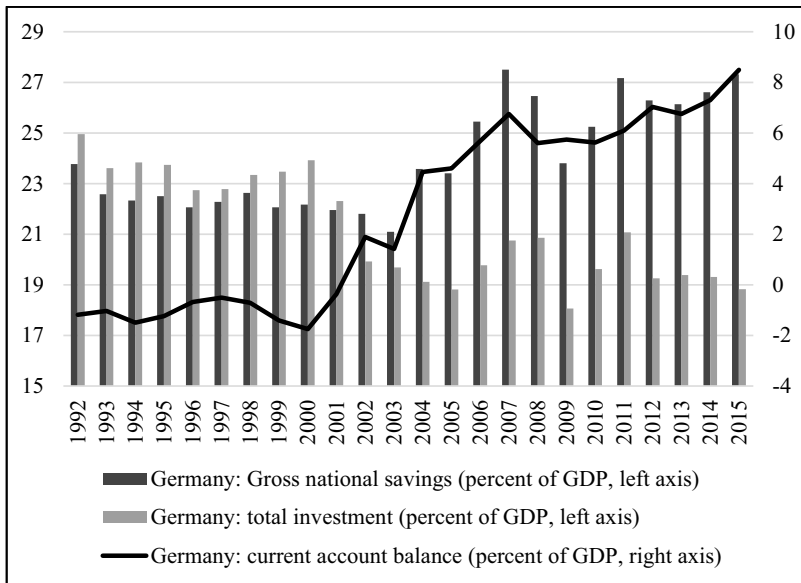


Figure 2.10: Aggregate savings, investment, and the current account in Germany (relative to GDP, in percent). Source: IMF (World Economic Outlook database).

Figure 2.10 illustrates equation (2.20) by presenting data on gross savings and investment for Germany since its re-unification. The time series show that the transition from a sequence of current account deficits in the 1990s to the current account surpluses of the 2000s and beyond was associated with both a decline

in the investment rate and an increase of the saving rate. This indicates that interpreting Germany's current account surpluses of the recent past as an unambiguous sign of economic strength misses an important point: certainly, these surpluses mirror the sequence of strongly positive trade balances, which we documented in Section II.1. But they also reflect the fact that an increasing share of domestic savings is used to purchase foreign assets instead of financing domestic investment.

Recall, however, that we have derived (2.20) and (2.21) using a set of accounting identities and definitions. Hence, these equations *always* hold ex post, regardless of the specific combination of private savings, investment and budget deficits that we observe. As a consequence, these expressions are of limited use when it comes to detecting *causal relationships*. A naïve reading of (2.21), for example, would suggest that an increasing government budget deficit *reduces* the current account balance. However, such a statement would be based on the implicit assumption that variations in government revenues and spending leave private saving and investment behavior unaffected. Whether this assumption is satisfied or not cannot be clarified on the basis of balance of payments identities. Instead, we need a theory that describes and *explains* private savings and investment and its interaction with public taxation and spending decisions.

II.3 Summary and Outlook

In this chapter, we have introduced the most important components of the balance of payments and used various definitions and accounting identities to derive the relationship between central macroeconomic variables (savings, investment, current account). We have demonstrated that having access to the international capital market frees an economy from the requirement that domestic investment equals domestic savings. Instead, the possibility to buy assets and to incur liabilities allows to realize an investment volume that is greater than domestic savings or to use excess domestic savings in order to acquire claims against the rest of the world.

Moreover, we have highlighted the effect of the current account balance on a country's net international investment position. If not for large capital account transactions or valuation effects, the net international investment position of a country that exhibits a sequence of current account *surpluses* increases over time, i.e. domestic residents acquire claims to receive future payments from abroad. By contrast, a sequence of current account *deficits* results in a reduction of the net international investment position and creates the requirement to make future interest and profit payments to the rest of the world.

Note, however, that all these insights do not enable us to *explain* or *evaluate*

the observed magnitudes: why do some countries exhibit current account surpluses over a protracted time period while others run current account deficits? Is a current account deficit necessarily something to worry about and a current account surplus something to be proud of? How can we assess whether an observed net international investment position is “sustainable”? And what are the welfare effects of having access to the international capital market? In order to answer these questions (and many others) we need a theoretical framework that links the current account and the net international investment position to the behavior of individuals, firms, and the government. In addition, such a framework should allow us to analyze the effects of policy changes and other exogenous variations in the social or economic environment. Finally, it should enable us to assess the – individual and aggregate – welfare effects of alternative institutional setups or policy choices. Our knowledge of balance of payments accounting does not endow us with such a theoretical framework, and it is silent on causal relationships and normative issues. However, while such knowledge may provide us with few answers it gives us invaluable guidance in asking the right questions. The following chapter will use these insights and take a first step to lead us from a description towards an explanation and evaluation of reality.

II.4 Keywords

Absorption

Assets

Balance of payments

Balance of Payments Manual

Budget deficit

Capital account

Consumption

Current account

Financial account

Foreign direct investment

Gross Domestic Product

Gross National Income

Gross national savings

Investment

Liabilities

Net errors and omissions

Net exports

Net international investment position

Other investment

Personal transfers

Portfolio investment

Primary income account

Reserve assets

Secondary income account

Valuation effects

II.5 Literature

The description of balance of payments definitions and accounting principles is based on the sixth revision of the *Balance of Payments Manual (BPM6)*, which was published by the International Monetary Fund in 2009. This manual can be downloaded free of charge from the IMF's homepage (<https://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm>). Data on national balance of payments and net international investment positions that comply with a standard format and thus facilitate international comparisons are provided by the IMF's *Balance of Payment Statistics*, which are accessible via the IMF's data portal (<http://data.imf.org>). Most central banks – including the Deutsche Bundesbank, the Swiss National Bank, the Austrian National Bank, the European Central Bank (ECB) – publish detailed balance of payments data on a monthly or quarterly basis. The ECB provides such data in its *Statistics Bulletin*, accessible via <https://www.ecb.europa.eu/stats/>. Data on capital flows to emerging markets and developing countries are offered by the World Bank's *International Debt Statistics*, which can be found at <http://data.worldbank.org/data-catalog/international-debt-statistics>. A focus on the evolution of foreign direct investment is provided by UNCTAD's *World Investment Report* (<http://unctad.org>).

For a general introduction to national accounting we recommend Lequiller and Blades (2014). German-speaking readers will find Frenkel and John (2002) very useful. Krugman et al. (2014, chapter 12) as well as McCallum (1996, chapter 3) put a special emphasis on the balance of payments.

Lane and Milesi-Ferretti (2007) pioneered the assessment of countries' net international investment positions. Updated versions of their original dataset (<http://www.philiplane.org/EWN.html>) are provided on Philip Lane's homepage. A further analysis of valuation effects is provided by Lane and Shambaugh (2010, 2015) as well as Bénétrix et al. (2015) who describe the structure of countries' external assets and liabilities, and disentangle the contributions of exchange rate and other asset price fluctuations to overall valuation changes. Zucman (2013) skeptically discusses the accuracy of official figures on cross-border financial claims. Finally, Obstfeld (2012) provides a highly readable reflection on whether valuation effects reduce the importance of the current account as a macroeconomic indicator.

II.6 Exercises

2.1. Balance of payments transactions. How are the following international transactions reported in the German balance of payments? Make sure you comply with double-entry accounting, i.e. with the principle that every transaction appears twice in the balance of payments.

- a) A German tourist pays for a Spanish hotel room, transferring the amount to the account of a Spanish bank.
- b) A US customer purchases cars from a German manufacturer, which he is allowed to pay with a delay of six months.
- c) A Germany-based NGO transfers food and equipment to a country in need.
- d) A UK-based company borrows money from a German bank to purchase shares of a German company.
- e) A US-based company reinvests the profits of its German subsidiary in Germany.

2.2. The Euro area's balance of payments. Table E.1 documents how the balance of payments of the Euro area – i.e. of all countries who have adopted the Euro – has evolved from 2012 through 2014.

	2012	2013	2014
Current Account (credits – debits)			
Goods	125.5	210.6	247.6
Services	60.9	69.0	75.6
Primary Income	77.0	79.1	69.8
Secondary Income	-134.9	-143.5	-141.6
Balance	128.5	215.2	251.3
Capital Account Balance	9.0	20.6	19.1
Financial Account (net increase of assets – net increase of liabilities):			
Direct Investment	11.2	-58.5	59.6
Portfolio Investment	-141.0	-3.8	113.3
Financial Derivatives and ESOs	32.7	14.6	42.8
Other Investment	199.2	393.2	150.2
Reserve Assets	14.8	4.7	4.4
Balance	116.7	350.2	370.3
Net Errors and Omissions	-20.8	114.5	99.9

Table E.1: The balance of payments of the Euro area, 2012 - 2014. All numbers are in billions of Euros. Source: European Central Bank (Statistics Bulletin).

- a) How would you explain the fact that the entries in this table are not much bigger than the entries in the German balance of payments for 2015 (see Table 2.1)?
- b) Characterize the contribution of the individual components to the increasing Euro area current account surplus.

- c)** Like many other policy institutions, the European Central Bank (ECB) labels the sum of the current account and capital account balances as „net lending/borrowing to/from the rest of the world“. Do you think that this term is appropriate? Justify your answer.
- d)** For which types of securities did Euro area assets increase more than liabilities in 2012 – 2014? For which types of securities did liabilities increase by more than assets? What are the implications for future payment streams?
- e)** Did the value of the ECB's reserve assets increase or decrease in the years 2012 - 2014?
- f)** In its Statistics Bulletin, the ECB reports that, at the end of 2014, the Euro area's net international investment position amounted to -1005.7 billion Euros, while it amounted to -1449.7 billion Euros at the end of 2013. Use the information given in Table E.1 to compute the contribution of valuation changes to the change in the Euro area's NIIP in 2014.

