

# Macroeconomics I. – Supplementary Materials

**Balance of Payments, International Investment Position,  
and Exchange Rate(s)**

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# Content

1. Balance of Payments
2. International Investment Position
3. Exchange Rate(s)

# Balance of Payments

## Part I

# Balance of Payments

- **The trade balance only captures the flows of goods between the respective economy and abroad**
  - -> **that is not the whole picture** (other transactions are missing)
    - All the movements/transactions have macroeconomic consequences
- **-> Balance of payments**
  - **The statistical statement showing all economic transactions that took place during a certain period of time (months, quarter, year) between the domestic economy and the world (residents x nonresidents principle)**
  - **It captures financial and non-financial transactions between residents and non-residents relating to goods, services, incomes, transfers and financial operations**

# Balance of Payments

## — Key analytical tool for:

- Assessing external (im)balances
- Assessing performance and (future) development of an economy
- Exchange rate (pressures) indicator
- Market capacity indicator (high trade deficit - lower possible growth of imports)
- Indicator of (future) economic policy decisions

# Balance of Payments – Principles

- **Small open economies: domestic macro-variables are influenced by the development of BoP items**
- **Compiled using the double-entry bookkeeping principle**
  - **-> From an accounting point of view, the balance of payments must always be (formally) balanced**  
(inaccuracies -> errors and omissions item balances it; the only exactly known item is the change in reserve assets; other items are more or less accurately estimated)
- **Credit operations**, that support foreign currency supply, include:
  - Exports of goods and services, imports of income (inflows), decreases in foreign assets, or increases in foreign liabilities

# Balance of Payments – Principles

- **Debit operations**, that support foreign currency demand, include:
  - Imports of goods and services, exports of income (outflows), increases in foreign assets, or decreases in foreign liabilities
- **Accrual principle is also used**
- **Balance of payments records not only cash and financial transactions, but also transactions related to non-cash flows (e.g. transfers in kind)**

# Balance of Payments – Principles

- **Only transactions between residents and non-residents are recorded**
- **Valuation of transactions at market prices**
  - If market prices are not available, book values may be used
- **Changes that do not represent transactions (such as exchange rate or price effects) are not reflected in the balance of payments**
  - Transactions recorded in the balance of payments, which have been executed in foreign currencies, are converted into CZK at the exchange rate prevailing at the time of the transaction or at the average exchange rate for the relevant accounting period



# Balance of Payments – Reporting

- **Be careful when using older textbooks (BPM 5 methodology)**
- **CR: Czech National Bank is responsible** for the compilation of the balance of payments
  - The frequency of publishing is monthly (since 2008), but more accurate and detailed data are published on a quarterly basis
  - It is published in CZK, EUR and USD
- **Balance of Payments and International Investment Position Manual – BPM 6 (IMF)**
  - Previous BPM5 was significantly different in some areas (e.g. foreign exchange reserves change was main balancing item + change in terms), financial account can no longer be interpreted as all the items financing the current account; emphasis on the principle of assets and liabilities (BPM5 emphasized the direction of capital flows)

# Balance of Payments – Reporting

- **However, the balance of payments data are flows**
  - **-> it is insufficient to analyse only flows, we need also look at stocks**
  - **Stocks -> international investment position** (separate statistic)
    - But the balance of payments is directly connected to it

# Balance of Payments – Structure

The basic accounts of the balance of payments according to BPM6 consist of:

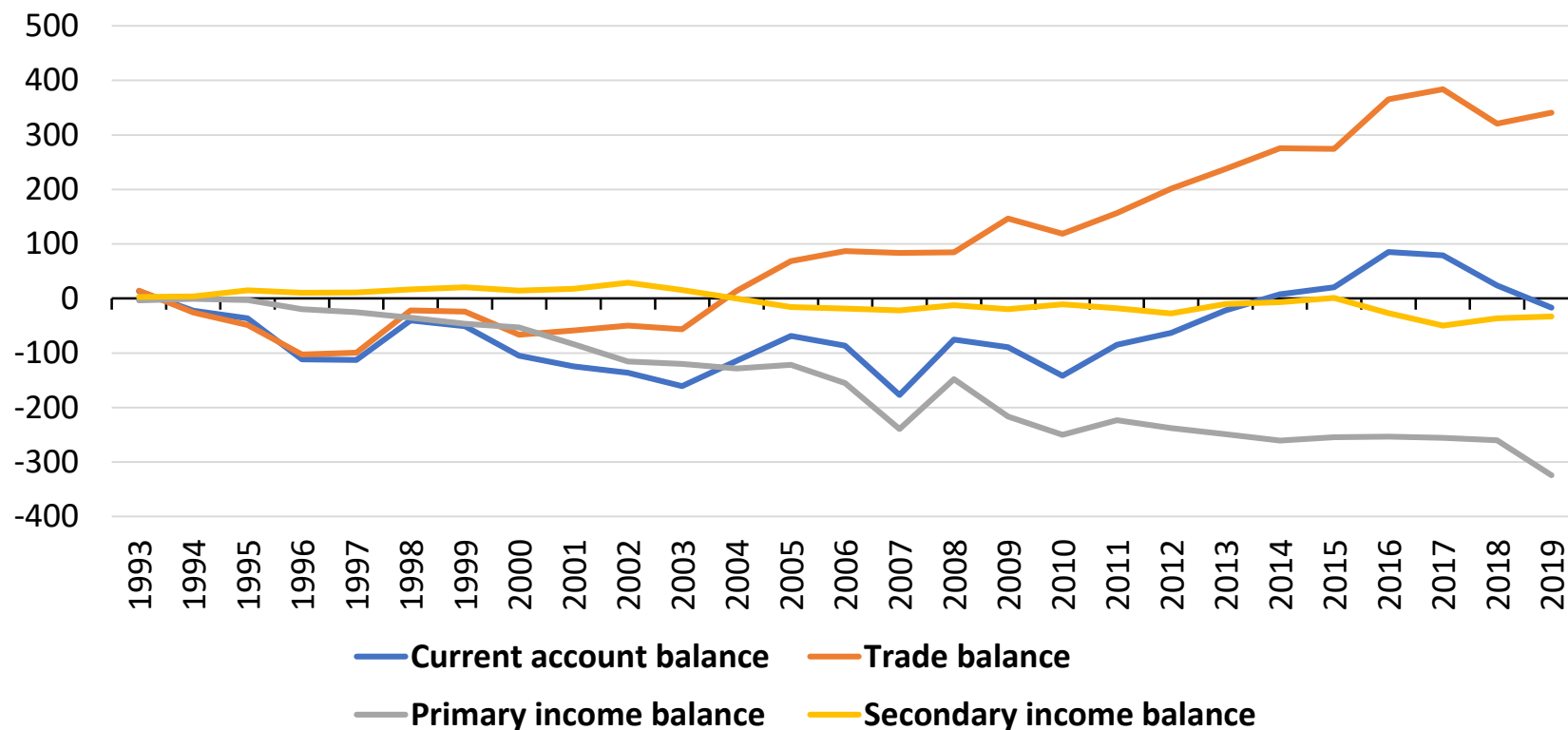
1. **Current Account**
2. **Capital Account**
3. **Financial Account**
4. **Errors and Omissions**

The basic identity:

$$\text{Current Account} + \text{Capital Account} + \text{Errors and Omissions} \\ = \text{Financial Account}$$

- The balancing item should be **Net lending/Net borrowing** but, in reality, it is **errors and omissions** (net lending / net borrowing differs from current+capital account vs from financial account)

# Czech Republic: Current Account (bil. CZK, current prices)

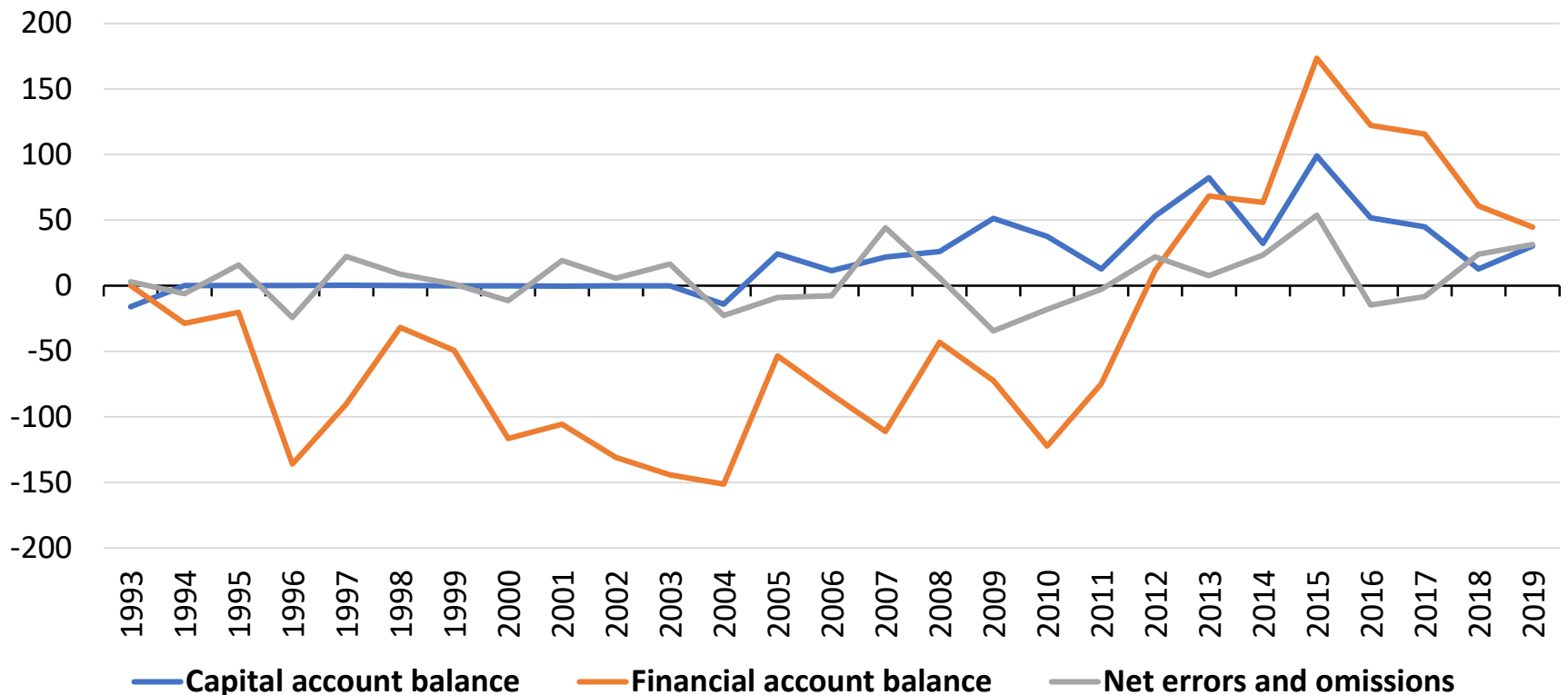


**Data source:** Czech National Bank (2020), available from:

[https://www.cnb.cz/cnb/STAT.ARADY\\_PKG.VYSTUP?p\\_period=12&p\\_sort=2&p\\_des=50&p\\_sestuid=29344&p\\_uka=1%2C4%2C7%2C10%2C13%2C16%2C36&p\\_strid=ADACAA&p\\_od=199303&p\\_do=202006&p\\_lang=EN&p\\_format=0&p\\_decsep=.](https://www.cnb.cz/cnb/STAT.ARADY_PKG.VYSTUP?p_period=12&p_sort=2&p_des=50&p_sestuid=29344&p_uka=1%2C4%2C7%2C10%2C13%2C16%2C36&p_strid=ADACAA&p_od=199303&p_do=202006&p_lang=EN&p_format=0&p_decsep=)

**Note:** be careful when using current/nominal prices due to inflation.

# Czech Republic: Capital Account, Financial Account, Errors and Omissions (bil. CZK, current prices)

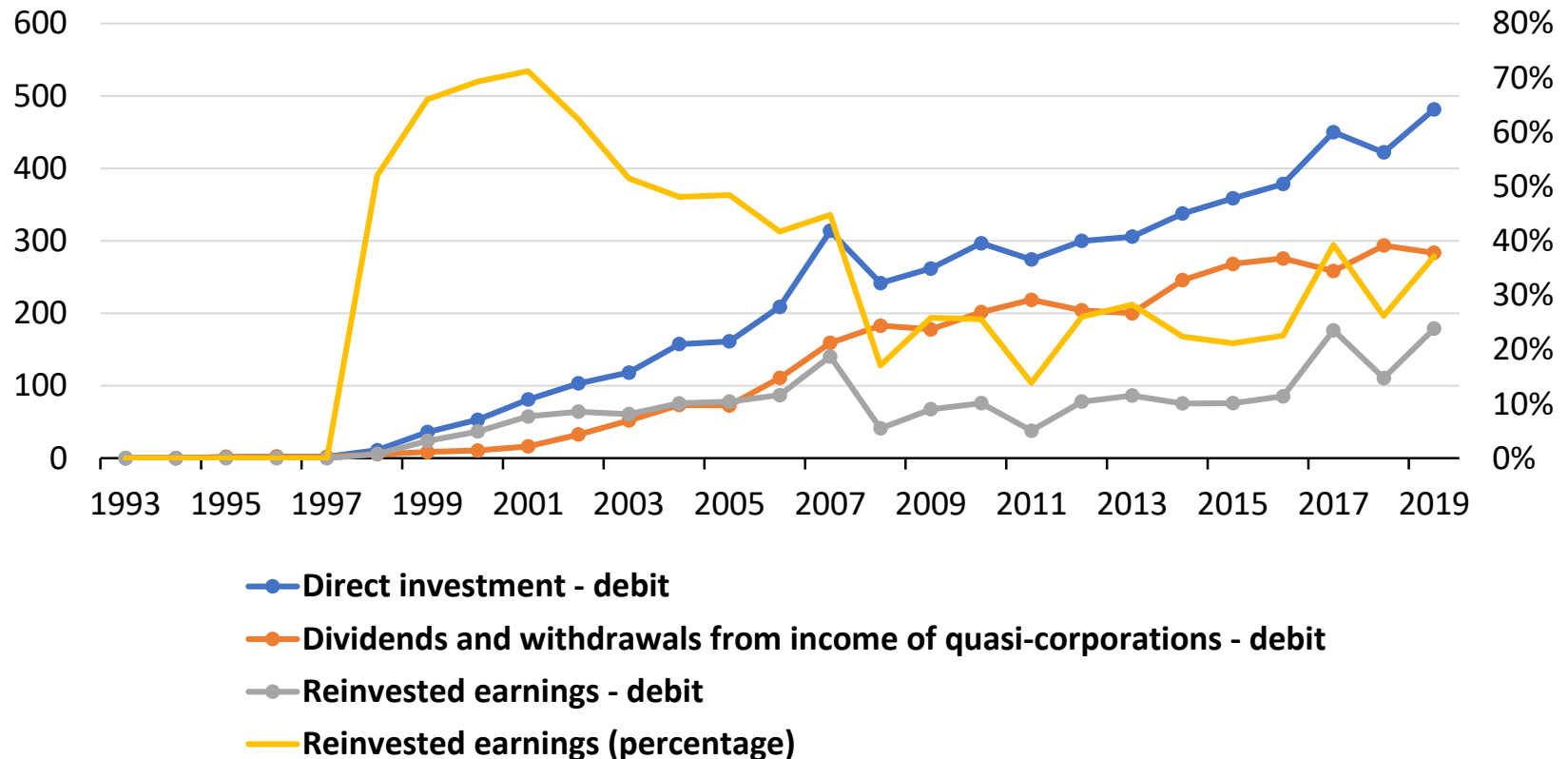


**Data source:** Czech National Bank (2020), available from:

[https://www.cnb.cz/cnb/STAT.ARADY\\_PKG.VYSTUP?p\\_period=12&p\\_sort=2&p\\_des=50&p\\_sestuid=29344&p\\_uka=1%2C4%2C7%2C10%2C13%2C16%2C36&p\\_strid=ADACAA&p\\_od=199303&p\\_do=202006&p\\_lang=EN&p\\_format=0&p\\_decsep=.](https://www.cnb.cz/cnb/STAT.ARADY_PKG.VYSTUP?p_period=12&p_sort=2&p_des=50&p_sestuid=29344&p_uka=1%2C4%2C7%2C10%2C13%2C16%2C36&p_strid=ADACAA&p_od=199303&p_do=202006&p_lang=EN&p_format=0&p_decsep=)

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# Foreign Direct Investment in the Czech Republic

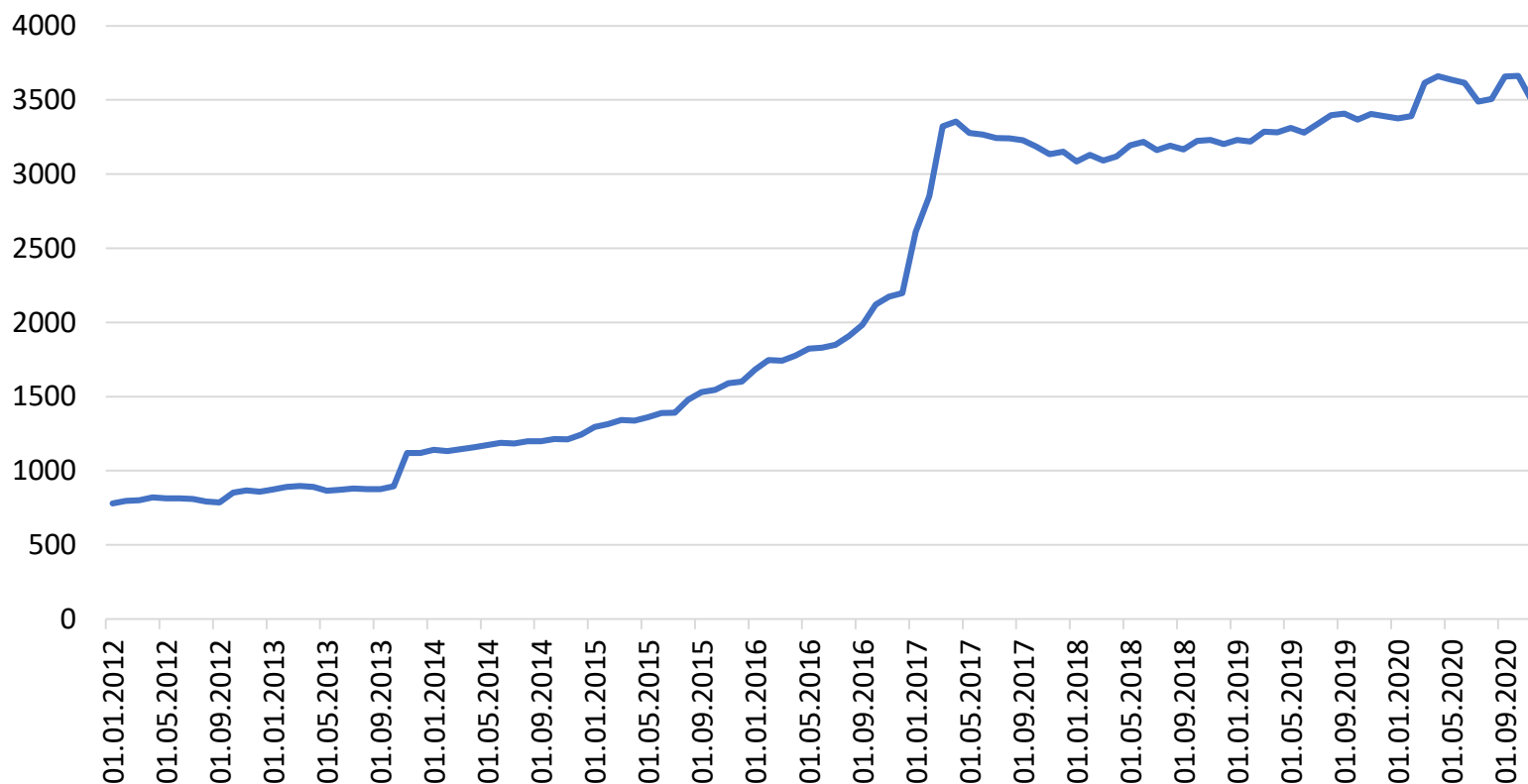


Data source: Czech National Bank (2020), available from:

[https://www.cnb.cz/cnb/STAT.ARADY\\_PKG.VYSTUP?p\\_period=12&p\\_sort=2&p\\_des=50&p\\_sestuid=47228&p\\_uka=12%2C18%2C21&p\\_strid=ADACBB&p\\_od=199303&p\\_do=202006&p\\_lang=EN&p\\_format=0&p\\_decsep=%2C](https://www.cnb.cz/cnb/STAT.ARADY_PKG.VYSTUP?p_period=12&p_sort=2&p_des=50&p_sestuid=47228&p_uka=12%2C18%2C21&p_strid=ADACBB&p_od=199303&p_do=202006&p_lang=EN&p_format=0&p_decsep=%2C)

Note: be careful when using current/nominal prices due to inflation.

# CNB: International Reserves (bil. CZK, current prices; brutto – gross values)



**Data source:** Czech National Bank (2020), available from:

[https://www.cnb.cz/cnb/STAT.ARADY\\_PKG.STROM\\_DRILL?p\\_strid=AD&p\\_lang=EN](https://www.cnb.cz/cnb/STAT.ARADY_PKG.STROM_DRILL?p_strid=AD&p_lang=EN)

**Note:** be careful when using current/nominal prices due to inflation.

# International Investment Position

## Part II



# International Investment Position

- **International Investment Position (IIP) -> a stock view**

- Statistical report, complement to the Balance of Payments

$$\text{Investment position (t + 1)} = \text{Current and capital account balance (trade between t and t + 1)} + \text{Investment position (in t)}$$

(note: + errors and valuation effects (debt relief, exchange rate revaluations, etc.)

- **Assets** include receivables from foreign entities and the holdings of foreign assets by domestic entities
- **Liabilities** include liabilities of domestic entities to foreign entities and holdings of assets in the domestic economy by foreign entities

# International Investment Position

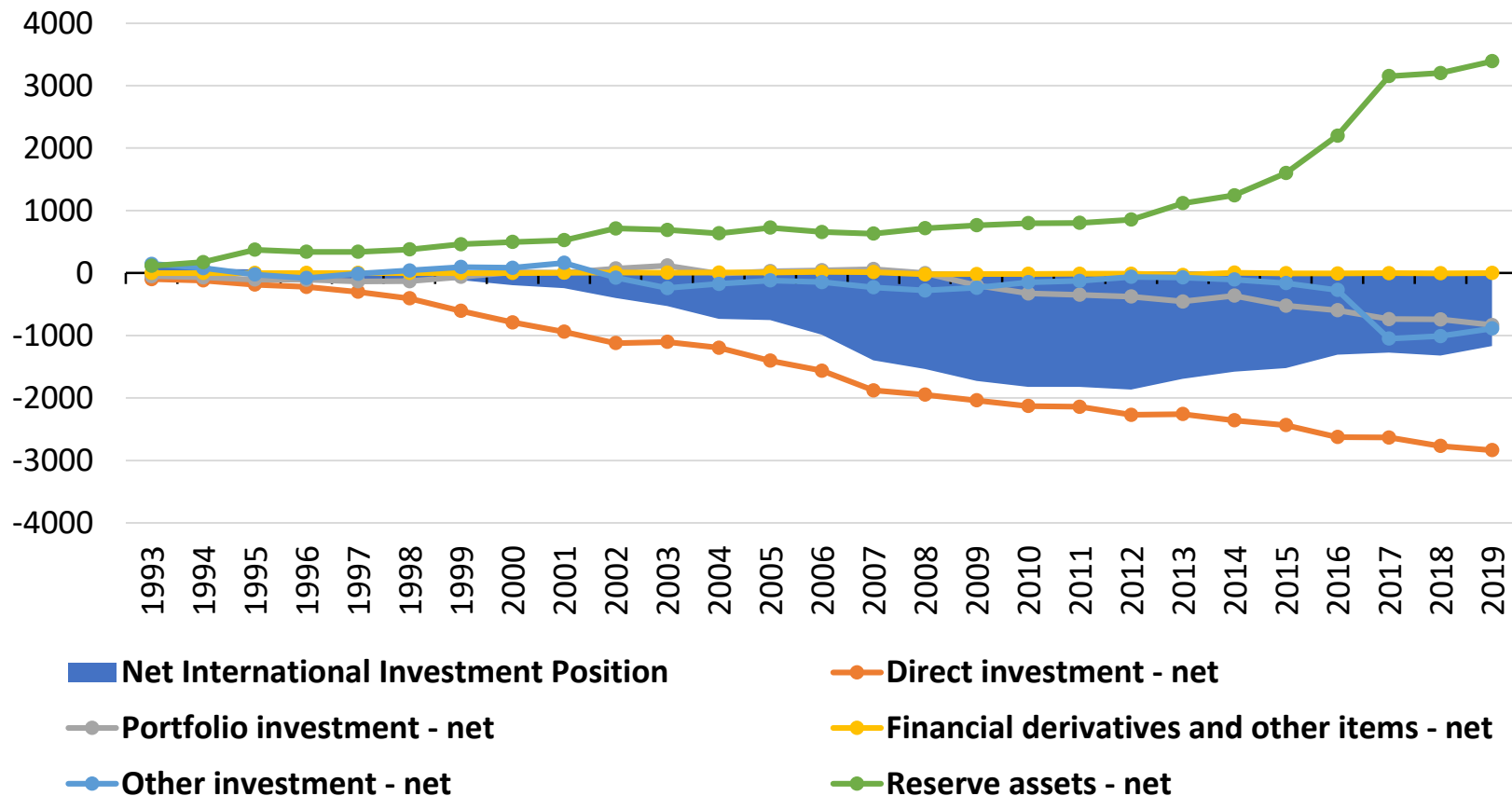
- **The country's investment position is linked to the national economy's balance sheet**
  - **Net worth/wealth of the economy = net external position + the country's net non-financial assets**
- **Uses of IIP:**
  - Analyses of sustainability of the economic development or its vulnerability, including the currency mismatch of asset and liability items (relevant to exchange rate changes)
  - Furthermore, it allows to examine the possible effects of the **sectoral and interest rate structure of debt or the impact of the debt structure in terms of time to maturity, for example on liquidity**
  - **Sectoral, time, and instrument breakdowns are also made**

# International Investment Position

## Identities

- **CA + CAP Account balance (+errors) = net lending net borrowing (flow) = change in net investment position (stock)**
  - -> **Financial account shows structure of the change**
- **Macroeconomic analysis**
  - Disaggregation into a creditor (or debtor) position and a property (ownership) position
  - The country's net investment position is then the sum of the country's creditor position abroad and the country's ownership (ownership) position abroad

## Czech Republic: International Investment Position (bil. CZK, current prices)

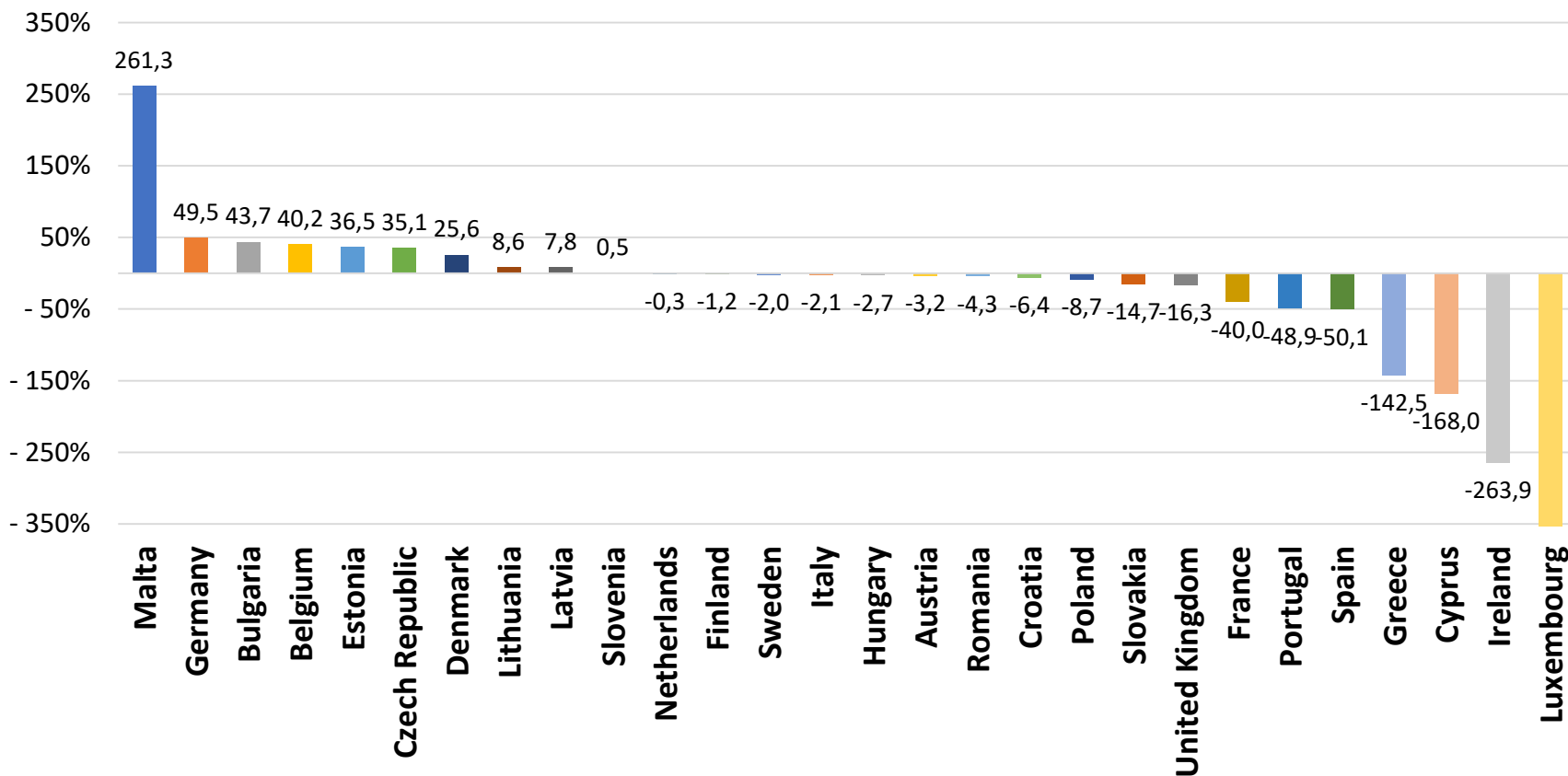


Data source: Czech National Bank (2020), available from:

[https://www.cnb.cz/cnb/STAT.ARADY\\_PKG.VYSTUP?p\\_period=12&p\\_sort=2&p\\_des=50&p\\_sestuid=29354&p\\_uka=1%2C4%2C13%2C34%2C37%2C40&p\\_strid=ADBA&p\\_od=199312&p\\_do=202006&p\\_lang=EN&p\\_format=0&p\\_decsep=.](https://www.cnb.cz/cnb/STAT.ARADY_PKG.VYSTUP?p_period=12&p_sort=2&p_des=50&p_sestuid=29354&p_uka=1%2C4%2C13%2C34%2C37%2C40&p_strid=ADBA&p_od=199312&p_do=202006&p_lang=EN&p_format=0&p_decsep=)

Note: be careful when using current/nominal prices due to inflation.

## EU27+UK: International Investment Position as of 2Q 2020 (% GDP; excluding non-defaultable instruments)



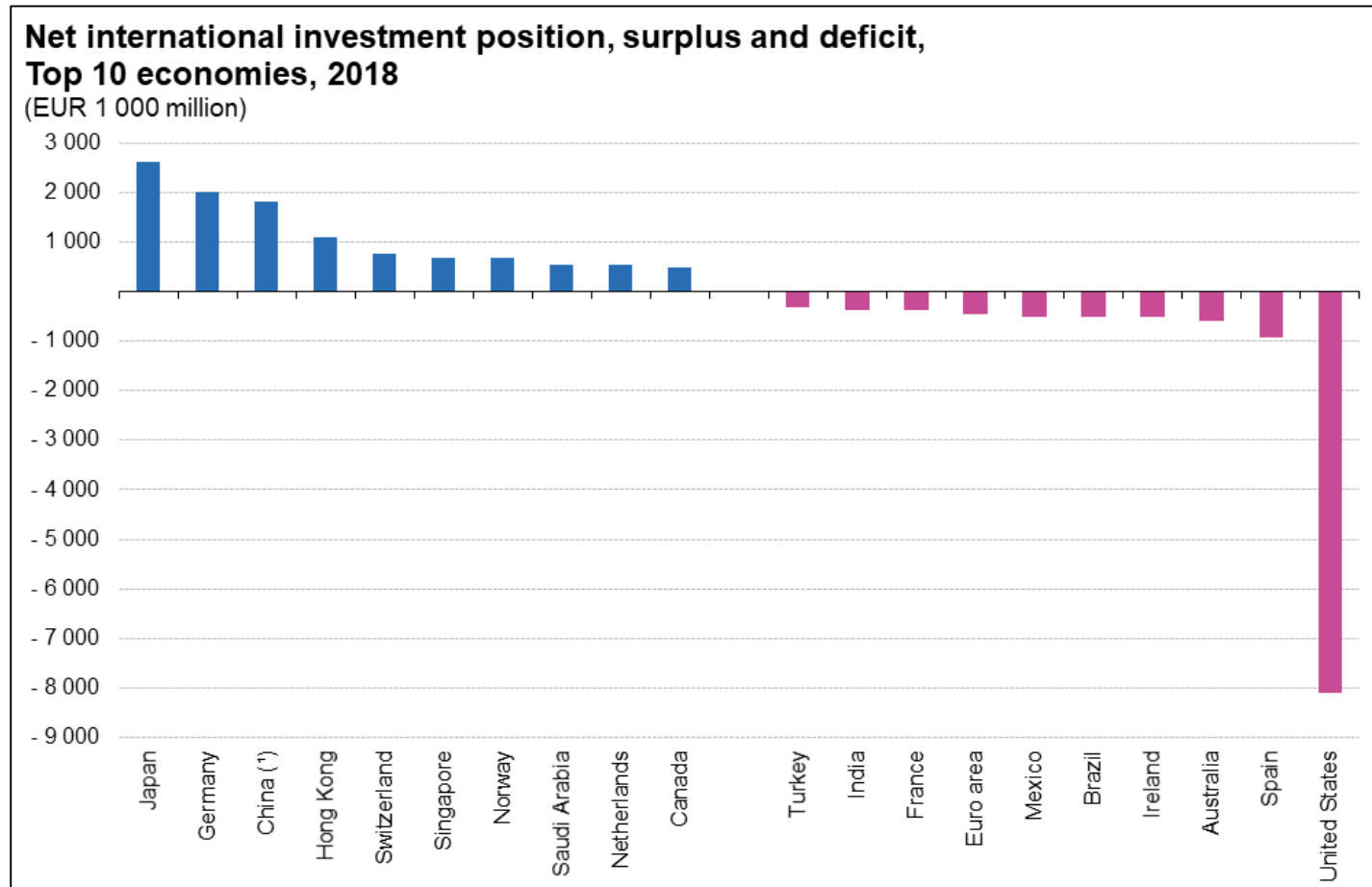
Note: Luxembourg is not fully depicted: -3595%

Data source: Eurostat (2020), available from:

[https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=bop\\_iip6\\_q&lang=en](https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=bop_iip6_q&lang=en)

Other look: financial account stock

# World: International Investment Position (2018)



**Data source:** Eurostat (2020), available from:

[https://ec.europa.eu/eurostat/statistics-explained/index.php/International\\_investment\\_position\\_statistics#The\\_EU-28\\_is\\_a\\_net\\_borrower\\_of\\_financial\\_funds](https://ec.europa.eu/eurostat/statistics-explained/index.php/International_investment_position_statistics#The_EU-28_is_a_net_borrower_of_financial_funds)

# Exchange Rate(s)

## Part III

# Exchange Rate

- The exchange rate represents the price of one currency expressed in the currency of another
- Like any price, the exchange rate is created on the market by a conflict of supply and demand (in this case, on the foreign exchange market – microeconomics)
- **Exchange rate (ER) effects**
  - ER affects a number of nominal variables in the economy (such as inflation through import prices)
  - It can also temporarily affect real variables such as economic output or employment (due to various nominal prices rigidities)
  - **Two-way causality:** macroeconomic framework affects the value of the exchange rate (feedback loop)



# Typology of Exchange Rates

- **Spot exchange rate (ER)** = instantaneous exchange rate for time  $t$ 
  - Example: CZK/EUR = 26 CZK for 1 EUR; in practice expressed as EURCZK 26
  - Appreciation (less CZK for one EUR) vs depreciation (more CZK for one EUR)
- **Forward exchange rate (FR or FW)** = today's value of the exchange rate for settlement at a particular point in the future ( $t + T$ )
  - Based on the so-called interest rate parity; many theoretical concepts
- **Nominal bilateral exchange rate**
  - Exchange rate of the domestic currency against the selected foreign currency
    - Analyses: typically the most important trading partner of that country

# Typology of Exchange Rates

- **Direct quotation (e.g. in the Czech Republic)**
  - Number of units of domestic currency per unit of foreign currency
- **Indirect quotation (e.g. in the USA)**
  - More developed countries with “strong” exchange rates
  - Number of units of foreign currency per unit of domestic currency

# Real Exchange Rate (RER)

- Changes in the nominal exchange rate affects the relative price position of exporters and importers
- Changes in competitiveness (real effects) depends on how flexible the overall domestic and foreign price levels are
- > **Real exchange rate**
  - It is a nominal bilateral exchange rate adjusted for price level differences between the domestic and foreign economy

$$RER_{D/F,t} = ER_{D/F,t} * \frac{P_{F,t}}{P_{D,t}}$$

- Index, dynamic analysis of changes:

$$I_{RER} = \frac{ER_{t+n}}{ER_t} * \frac{1 + p_{F(t,t+n)}}{1 + p_{D(t,t+n)}}$$



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