46_Czechia

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1 How have foreign direct investment outflows evolved relative to inflows in Czechia between 1994 and 2024?

1.1 Abstract

Using World Bank World Development Indicators (WDI), this study examines the evolution of foreign direct investment (FDI) in Czechia between 1994 and 2024, comparing net inflows and net outflows as shares of GDP. The analysis captures how Czechia has engaged with global capital over three decades, revealing patterns of international investment integration, domestic firm expansion, and susceptibility to economic cycles. Both inflows and outflows exhibit significant volatility, reflecting the influence of global financial crises, EU accession, regional investment trends, and shifts in investor confidence. For most of the period, inflows remained higher than outflows, highlighting Czechia's role as a net recipient of foreign investment, yet the difference gradually narrowed as domestic firms increasingly invested abroad, signalling growing economic sophistication and outward capital expansion. By 2024, inflows and outflows were nearly equal, suggesting a convergence that underscores a balanced participation in global capital flows and a structural evolution in Czechia's investment landscape. These trends offer insight into the country's transition from a net FDI recipient towards a more mature, reciprocal investor in the global economy, illustrating the complex interplay between domestic policy, global market forces, and corporate strategies.

1.2 1. Question

How have foreign direct investment outflows evolved relative to inflows in Czechia between 1994 and 2024?

- **FDI inflows proxy**: Foreign direct investment, net inflows (% of GDP)
- **FDI outflows proxy**: Foreign direct investment, net outflows (% of GDP)

1.3 2. Data

- **Source**: World Bank World Development Indicators (WDI)
- **Indicators**:
  - Foreign direct investment, net inflows (% of GDP)
  - Foreign direct investment, net outflows (% of GDP)
- **Coverage**: Czechia, 1994–2024
- **Notes**: National-level data only

1.4 3. Method

1. Filtered dataset for Czechia and selected the FDI inflows and outflows indicators.

2. **Extracted relevant columns**: Year, Indicator Name, and Value.
3. Pivoted the dataset to allow a side-by-side chronological comparison of inflows and outflows as shares of GDP.
4. Produced a dual-line time series plot to visualise volatility, convergence, and relative magnitudes of FDI inflows and outflows over time.

(Analysis is descriptive; no causal inference applied.)

1.5 4. Results

- **FDI net inflows (% of GDP)**: Showed high volatility throughout the period, generally remaining above outflows but fluctuating sharply in response to global and domestic economic conditions.
- **FDI net outflows (% of GDP)**: Also volatile but less pronounced, steadily rising over time and gradually approaching inflow levels by 2024.
- **Comparison**: For most of the period, inflows exceeded outflows, but the gap narrowed steadily, indicating a convergence of inbound and outbound investment. This reflects a maturing investment environment, increasing Czech outward investment, and balanced participation in global capital flows.

(Figure 1. Czechia: FDI Inflows vs. Outflows, 1994–2024)

(Table 1. Pivoted dataset summary)

1.6 5. Interpretation

- The persistent volatility in inflows highlights Czechia's sensitivity to global investment cycles, financial crises, and shifts in investor confidence.
- The gradual rise in outflows reflects growing domestic firms' capacity and interest in investing abroad, signalling economic maturation and integration with international markets.
- The convergence of inflows and outflows by 2024 suggests that Czechia is transitioning from a net FDI recipient to a more balanced participant in global investment networks.
- Understanding these dynamics is critical for policies aimed at sustaining investment stability, promoting domestic firms' competitiveness abroad, and managing the risks of external capital dependency.

1.7 6. Limitations

- National aggregates may conceal sectoral or regional differences in investment flows.
- WDI FDI estimates are subject to reporting and measurement limitations, particularly for earlier years.
- The analysis is descriptive and does not isolate causal drivers such as policy changes, global economic shocks, or firm-level investment strategies.

1.8 7. Next Steps / Extensions

- Disaggregate FDI by sector to identify which industries drive inflows and outflows.
- Analyse correlations between FDI flows and macroeconomic indicators such as GDP growth, trade balance, and exchange rates.
- Compare Czechia's FDI patterns with other Central and Eastern European countries to contextualise regional investment trends.

- Conduct time-series decomposition to distinguish structural trends from short-term shocks and identify critical periods of convergence or divergence in FDI flows.

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[1]:  # How have foreign direct investment outflows evolved relative to inflows in
      ↪Czechia between 1994 and 2024?

      import pandas as pd
      import matplotlib.pyplot as plt
      import os

      # Folders
      data_raw_folder = "data_raw/"
      data_clean_folder = "data_clean/"
      figures_folder = "figures/"

      # Load CSV
      filename = "financial-sector_cze_filtered.csv"  # Filtered dataset with only
       ↪relevant rows
      df = pd.read_csv(os.path.join(data_raw_folder, filename))

      # Keep only needed columns
      df = df[["Year", "Indicator Name", "Value"]]

      # Convert Year and Value to numeric, drop invalid rows
      df["Year"] = pd.to_numeric(df["Year"], errors="coerce")
      df["Value"] = pd.to_numeric(df["Value"], errors="coerce")
      df = df.dropna(subset=["Year", "Value"])

      # Pivot indicators into separate columns
      df_pivot = df.pivot(index="Year", columns="Indicator Name", values="Value").
       ↪reset_index()
      df_pivot = df_pivot.sort_values("Year")

      print("Pivoted Czechia dataset:")
      display(df_pivot)

      # Interpolate missing values for smooth plotting (optional)
      df_plot = df_pivot.interpolate(method='linear')

      # Plot the indicators
      plt.figure(figsize=(10,6))
      plt.plot(df_plot["Year"], df_plot["Foreign direct investment, net outflows (%
       ↪of GDP)"],
               marker='o', linestyle='-', label="Foreign direct investment, net
       ↪outflows (% of GDP)")
      plt.plot(df_plot["Year"], df_plot["Foreign direct investment, net inflows (% of
       ↪GDP)"],
```

```
        marker='o', linestyle='-', label="Foreign direct investment, net␣
 ↪inflows (% of GDP)")

plt.title("Czechia: Net inflows of foreign direct investment vs net outflows (%␣
 ↪of GDP) (1994-2024)")
plt.xlabel("Year")
plt.ylabel("Percentage")
plt.legend()
plt.grid(True)
plt.tight_layout()
plt.savefig(os.path.join(figures_folder,␣
 ↪"czechia_net_inflows_of_foreign_direct_investment_vs_net_outflows.png"))
plt.show()

# Save cleaned CSV
df_pivot.to_csv(os.path.join(data_clean_folder,␣
 ↪"czechia_net_inflows_of_foreign_direct_investment_vs_net_outflows"),␣
 ↪index=False)
```
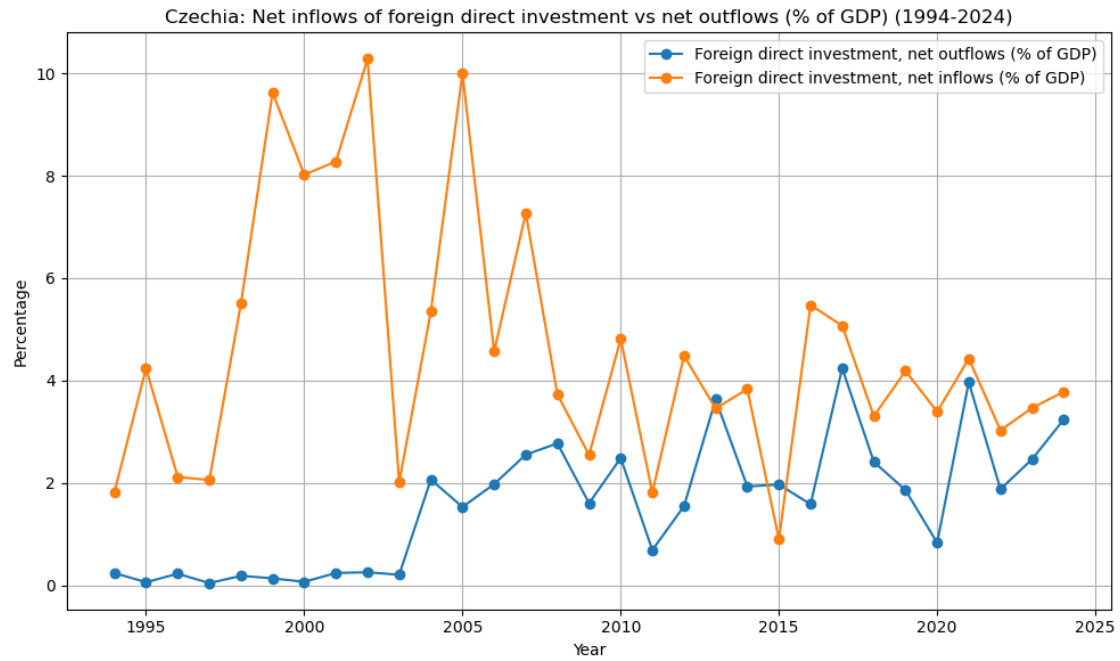
Pivoted Czechia dataset:

Indicator Name	Year	Foreign direct investment, net inflows (% of GDP) \
0	1994	1.822493
1	1995	4.238837
2	1996	2.116803
3	1997	2.057080
4	1998	5.507252
5	1999	9.624832
6	2000	8.020953
7	2001	8.278685
8	2002	10.285472
9	2003	2.012503
10	2004	5.346298
11	2005	10.002729
12	2006	4.564883
13	2007	7.269841
14	2008	3.727340
15	2009	2.547019
16	2010	4.815030
17	2011	1.809942
18	2012	4.484244
19	2013	3.453867
20	2014	3.835102
21	2015	0.898913
22	2016	5.475664
23	2017	5.070662
24	2018	3.303540
25	2019	4.187057

26	2020	3.391141
27	2021	4.430295
28	2022	3.029375
29	2023	3.464846
30	2024	3.782606

Indicator Name	Foreign direct investment, net outflows (% of GDP)
0	0.241391
1	0.060447
2	0.228152
3	0.044225
4	0.186570
5	0.137195
6	0.068642
7	0.241689
8	0.255904
9	0.207077
10	2.066769
11	1.530857
12	1.977349
13	2.553095
14	2.772763
15	1.604126
16	2.485865
17	0.689707
18	1.546170
19	3.632241
20	1.931726
21	1.970385
22	1.584170
23	4.242697
24	2.412741
25	1.859971
26	0.831229
27	3.967694
28	1.879369
29	2.461559
30	3.239827

Czechia: Net inflows of foreign direct investment vs net outflows (% of GDP) (1994-2024)

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