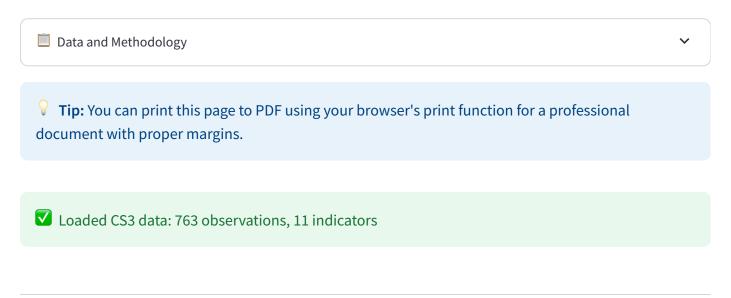
# **Comparative Analysis: Iceland and SOEs**

#### **Capital Flow Volatility Patterns (1999-2025)**

**Research Focus:** How do capital flow volatility patterns compare between Iceland and other small open economies with similar characteristics?

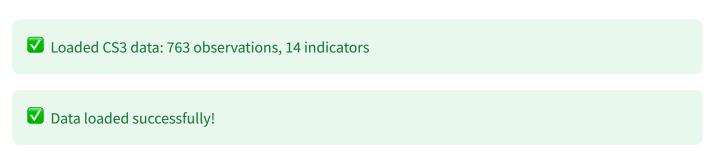
**Methodology:** Cross-sectional comparison of capital flow patterns between Iceland and comparable small open economies from 1999-2025.

**Key Hypothesis:** Iceland and other small open economies may exhibit different capital flow volatility patterns despite similar economic structures and currency regimes.



# **III** Full Time Period Analysis

Complete temporal analysis using all available data



Observations Indicators Countries Time Period

# ✓ Overall Capital Flows Analysis

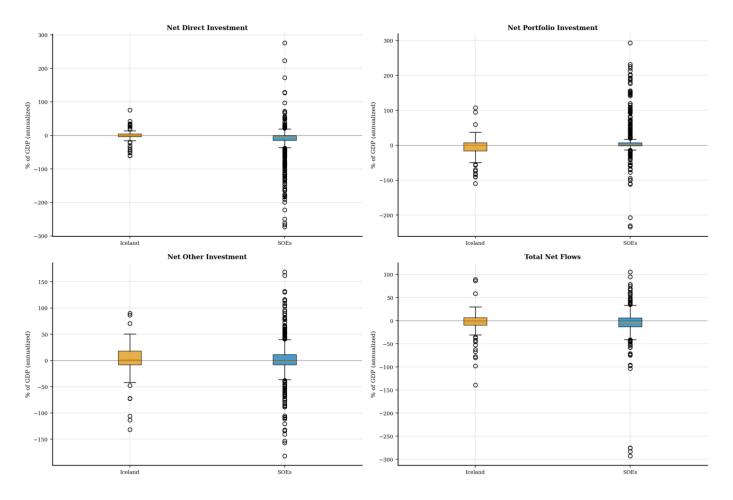
High-level summary of aggregate net capital flows before detailed disaggregated analysis

✓ Loaded CS3 data: 763 observations, 14 indicators

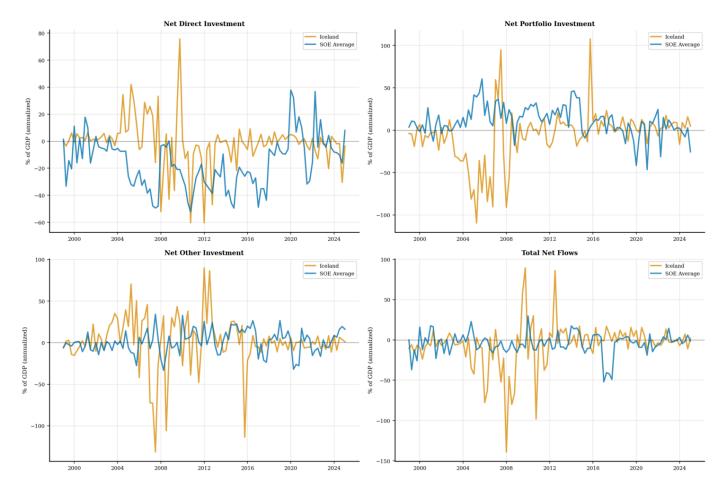
### **■** Summary Statistics by Group

Indicator,	Mean, Iceland	Mean, Small	Median, Iceland	Median, Small	Std Dev, Iceland	Std Dev, Smal
Net Direct Investment	-0.83	-16.77	0.29	-4.55	18.04	48.70
Net Other Investment	1.48	1.30	1.98	-1.33	31.84	35.44
Net Portfolio Investment	-6.42	11.47	0.49	0.76	31.12	48.63
Total Net Flows	-5.77	-4.42	-2.76	-4.22	28.63	32.00





Time Series by Group



### **Key Insights**

**Volatility Comparison (Standard Deviation)** 

• Net Direct Investment: SOE 2.7x more volatile

• Net Portfolio Investment: SOE 1.6x more volatile

• Net Other Investment: Similar volatility levels

• Total Net Flows: Similar volatility levels

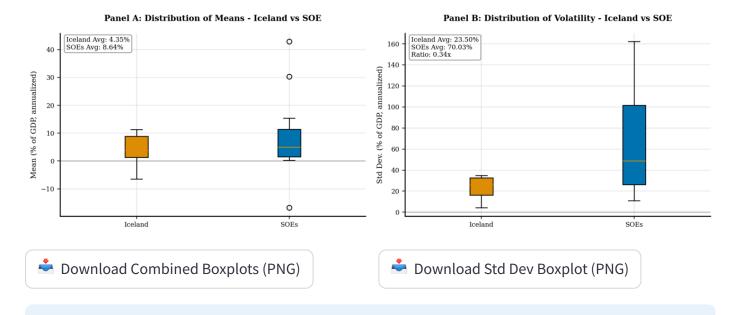
#### **Overall Pattern**

Similar volatility levels between Iceland and SOEs

# ☐ Indicator-level Analysis

Detailed analysis by individual capital flow indicators

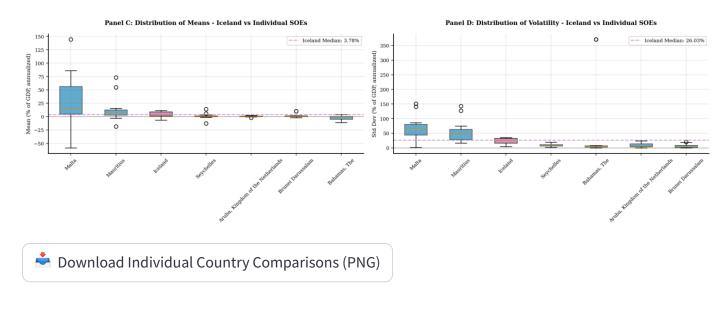
### 1. Summary Statistics and Boxplots



Volatility Comparison: Iceland volatility is 0.34x higher than SOEs on average

# 1b. Individual Country Comparisons: Iceland vs Each Small Open Economy

**Enhanced Analysis:** Rather than comparing Iceland to SOEs as an aggregate group, this section compares Iceland's values to each individual SOE separately.



# Disaggregated Analysis (Sections 2-6)

Detailed analysis by individual capital flow indicators

#### 2. Comprehensive Statistical Summary Table

#### All Indicators - Iceland vs SOEs Statistics

Indicator	Iceland Mean	Iceland Std Dev	Iceland CV%	SOE Mean	SOE Std Dev	SOE CV%	CV Ratio (Ice/
Assets - Direct Investment	3.10	23.05	742.2	30.30	94.25	311.0	2.39
Assets - Other Investment (Debt)	7.97	34.77	436.5	7.57	162.22	2142.1	0.20
Assets - Other Investment (Banks)	10.35	29.01	280.4	0.29	158.85	55478.9	0.01
Assets - Portfolio (Debt)	1.21	12.96	1067.6	4.95	20.62	416.1	2.57
Assets - Portfolio (Equity)	3.62	9.93	274.0	11.30	44.34	392.4	0.70
Assets - Portfolio (Total)	4.84	18.45	381.4	15.37	50.65	329.6	1.16
Liabilities - Direct Investment	3.94	15.71	398.9	42.89	104.19	242.9	1.64
Liabilities - Other Investment (Banks)	9.16	33.15	361.9	1.96	159.19	8128.1	0.04
Liabilities - Portfolio (Debt)	11.07	32.85	296.8	1.37	10.92	798.4	0.37
Liabilities - Portfolio (Equity)	0.19	4.22	2234.6	4.01	19.45	484.9	4.61
Liabilities - Portfolio (Total)	11.26	33.88	300.9	4.96	22.98	463.5	0.65
Net - Direct Investment	-0.83	18.04	2165.0	-16.77	48.70	290.4	7.46
Net - Other Investment	1.48	31.84	2147.9	1.30	35.44	2724.8	0.79
Net - Portfolio Investment	-6.42	31.12	484.6	11.47	48.63	423.8	1.14

**Summary:** Statistics for all 14 capital flow indicators. CV% = Coefficient of Variation (Std Dev / |Mean| × 100). Higher CV% indicates greater volatility relative to mean.

### 3. Hypothesis Testing Results

**F-Tests for Variance Equality Between Iceland and SOEs**  $\mid$  H<sub>0</sub>: Equal volatility patterns  $\mid$  H<sub>1</sub>: Different volatility patterns  $\mid$   $\alpha$  = 0.05

Indicator	F-Statistic	P-Value	Significance	More Volatile
Assets - Other Investment (Banks)	29.98	0.0000	***	Small Open Econo
Assets - Other Investment (Debt)	21.76	0.0000	***	Small Open Econo
Assets - Portfolio (Equity)	19.94	0.0000	***	Small Open Econo
Assets - Portfolio (Debt)	2.53	0.0000	***	Small Open Econo
Assets - Direct Investment	16.73	0.0000	***	Small Open Econo
Assets - Portfolio (Total)	7.54	0.0000	***	Small Open Econo
Liabilities - Other Investment (Banks)	23.05	0.0000	***	Small Open Econo
Liabilities - Portfolio (Equity)	21.26	0.0000	***	Small Open Econo
Liabilities - Portfolio (Total)	2.17	0.0000	***	Iceland
Liabilities - Portfolio (Debt)	9.04	0.0000	***	Iceland
Liabilities - Direct Investment	43.99	0.0000	***	Small Open Econo
Net - Direct Investment	7.29	0.0000	***	Small Open Econo
Net - Portfolio Investment	2.44	0.0000	***	Small Open Econo
Net - Other Investment	1.24	0.1761		Small Open Econo

#### Legend:

- F-Statistic: Ratio of variances
- **P-Value**: Statistical significance
- More Volatile: Which group exhibits greater volatility

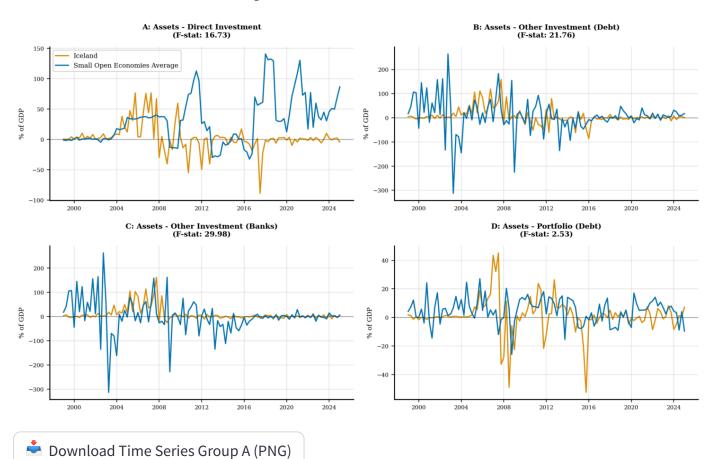
Significance levels: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05

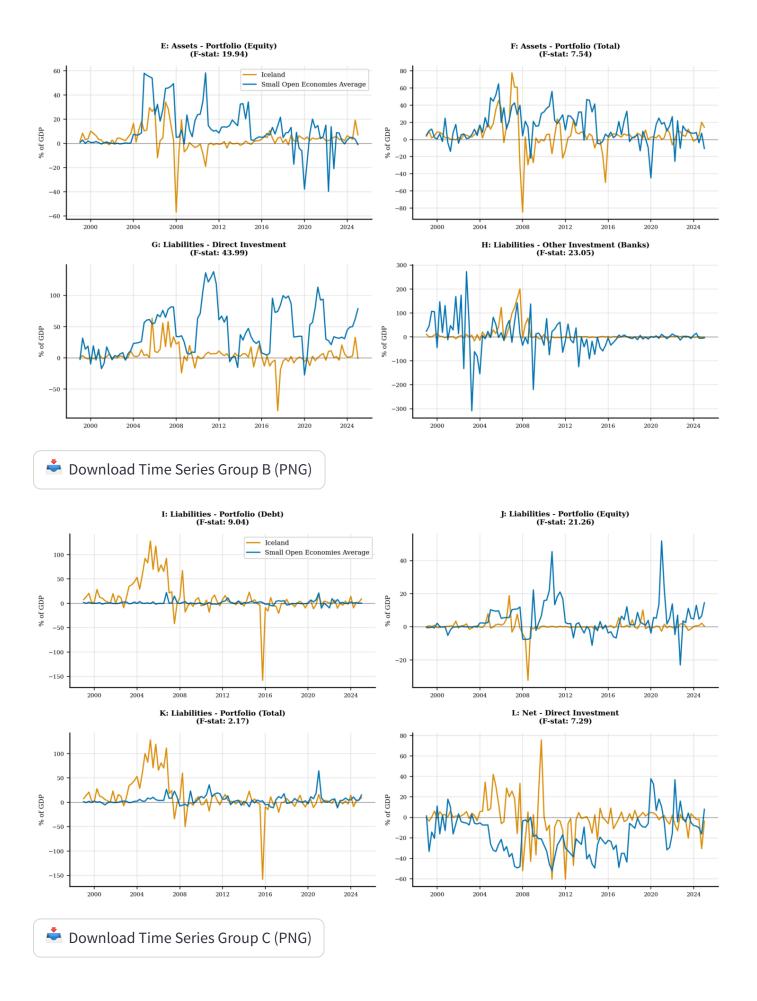
Iceland More Volatile Significant (5%) Significant (1%)

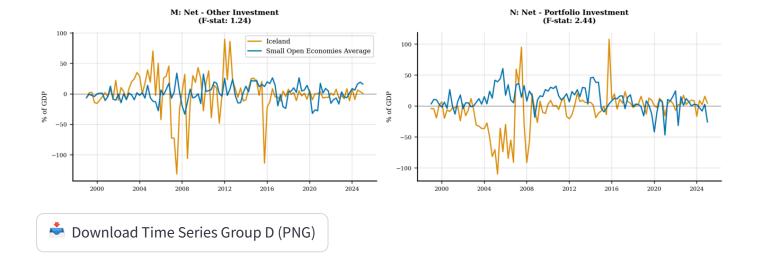
**Conclusion:** Small Open Economies show higher volatility than Iceland in other small open economies across capital flow indicators.

13/14

### 4. Time Series Analysis







#### 5. Key Findings Summary

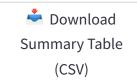
#### Statistical Evidence:

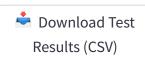
- 14.3% of capital flow indicators show higher volatility in Iceland
- 92.9% of indicators show statistically significant differences (p<0.05)</li>
- Volatility ratio (Iceland/SOE): 0.34x
- Pattern analysis: Capital flow volatility patterns are relatively similar between the two groups

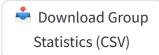
#### **Statistical Context:**

- Sample characteristics: Both groups classified as small open economies
- Data quality: Full quarterly time series coverage
- Methodological approach: F-tests for variance equality comparison
- Result interpretation: Statistical differences observed in volatility patterns across groups

#### 6. Download Results







HTML Report
Generation
available in main
dashboard

# **Solution** Excluding Financial Crises

Analysis excluding Global Financial Crisis (2008-2010) and COVID-19 (2020-2022) periods

- ✓ Loaded CS3 data: 571 observations, 14 indicators
- ✓ Crisis-excluded data loaded successfully! (Crisis-Excluded)

Observations Indicators Countries Excluded Years

571 14 7 2008, 20...

# ✓ Overall Capital Flows Analysis (Crisis-Excluded)

High-level summary of aggregate net capital flows excluding crisis periods

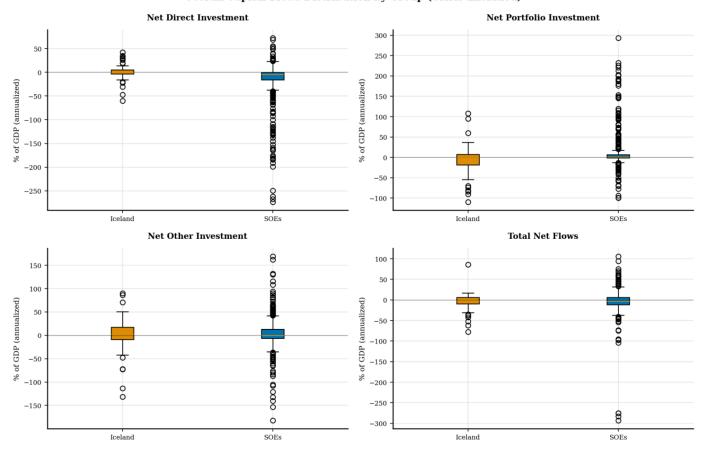
✓ Loaded CS3 data: 571 observations, 14 indicators

### Summary Statistics by Group (Crisis-Excluded)

Indicator,	Mean, Iceland	Mean, Small	Median, Iceland	Median, Small	Std Dev, Iceland	Std Dev, Smal
Net Direct Investment	0.61	-19.89	0.29	-4.26	14.56	46.86
Net Other Investment	1.87	3.56	2.19	0.11	32.52	34.29
Net Portfolio Investment	-6.76	12.89	-0.57	0.67	33.03	47.77
Total Net Flows	-4.28	-4.06	-2.76	-2.96	19.76	35.25

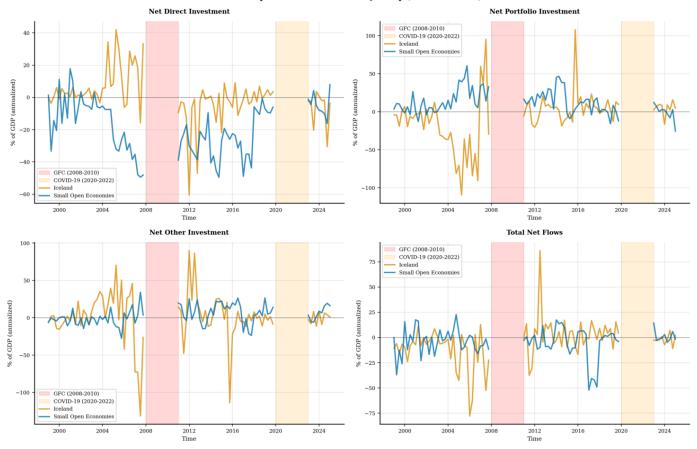
■ Distribution Comparison by Group (Crisis-Excluded)

#### Overall Capital Flows Distribution by Group (Crisis-Excluded)



✓ Time Series by Group (Crisis-Excluded)

#### Overall Capital Flows Time Series by Group (Crisis-Excluded)



### **◯** Key Insights (Crisis-Excluded)

**Volatility Comparison (Crisis-Excluded)** 

• Net Direct Investment: SOE 3.2x more volatile

• Net Portfolio Investment: Similar volatility levels

• Net Other Investment: Similar volatility levels

• Total Net Flows: SOE 1.8x more volatile

#### Overall Pattern (Crisis-Excluded)

Similar volatility levels when crisis periods are excluded

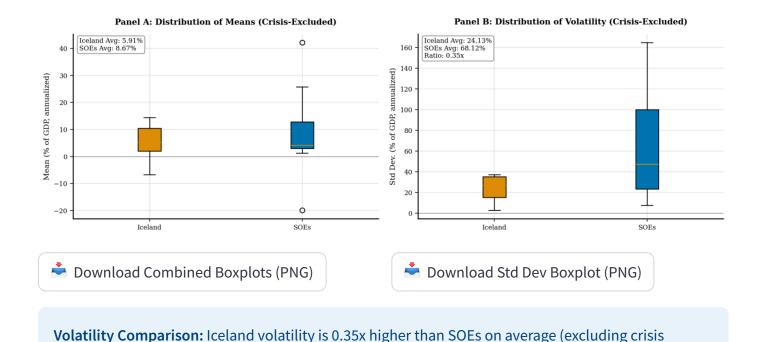
# **□** Indicator-level Analysis (Crisis-Excluded)

Detailed analysis by individual capital flow indicators excluding crisis periods

## 1. Summary Statistics and Boxplots (Crisis-

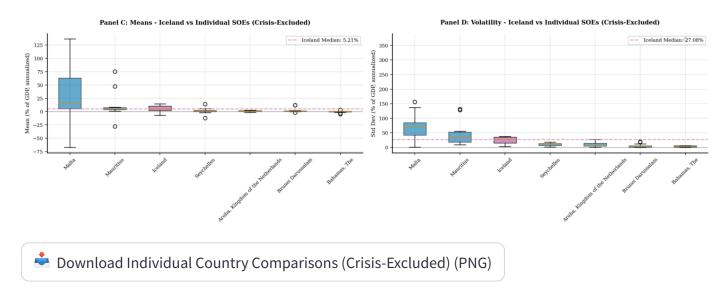
#### **Excluded**)

periods)



# 1b. Individual Country Comparisons: Iceland vs Each Small Open Economy (Crisis-Excluded)

**Enhanced Analysis:** Comparing Iceland to each individual SOE separately, excluding crisis periods to focus on normal market conditions.



### 2. Comprehensive Statistical Summary Table (Crisis-

### **Excluded**)

#### All Indicators - Iceland vs SOEs Statistics (Crisis-Excluded)

Indicator	Iceland Mean	Iceland Std Dev	Iceland CV%	SOE Mean	SOE Std Dev	SOE CV%	CV Ratio (Ice/
Assets - Direct Investment	5.15	23.24	451.2	25.76	91.64	355.7	1.27
Assets - Other Investment (Debt)	9.84	37.27	378.6	10.46	164.69	1574.2	0.24
Assets - Other Investment (Banks)	12.72	30.93	243.2	2.18	160.75	7362.7	0.03
Assets - Portfolio (Debt)	2.38	12.67	531.9	4.11	19.57	476.0	1.12
Assets - Portfolio (Equity)	5.27	7.91	150.2	12.55	42.04	334.9	0.45
Assets - Portfolio (Total)	7.65	17.08	223.3	15.78	49.25	312.1	0.72
Liabilities - Direct Investment	4.54	16.82	370.4	42.17	102.67	243.4	1.52
Liabilities - Other Investment (Banks)	10.66	36.07	338.4	4.22	160.98	3817.2	0.09
Liabilities - Portfolio (Debt)	13.58	36.03	265.2	1.20	7.64	635.8	0.42
Liabilities - Portfolio (Equity)	0.83	2.89	348.9	2.72	11.33	415.9	0.84
Liabilities - Portfolio (Total)	14.41	36.83	255.6	3.66	14.21	387.8	0.66
Net - Direct Investment	0.61	14.56	2392.1	-19.89	46.86	235.6	10.15
Net - Other Investment	1.87	32.52	1737.5	3.56	34.29	962.0	1.81
Net - Portfolio Investment	-6.76	33.03	488.3	12.89	47.77	370.5	1.32

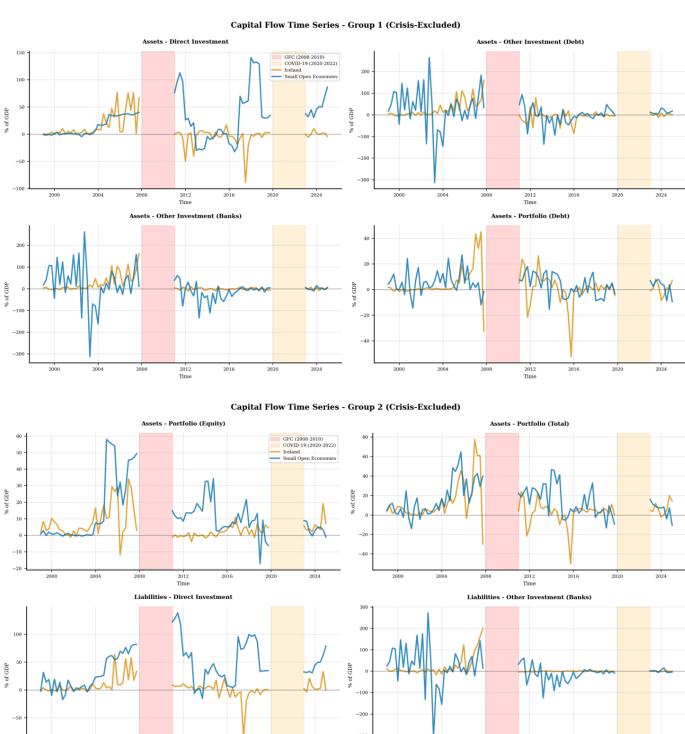
**Summary (Crisis-Excluded):** Statistics for all 14 capital flow indicators. CV% = Coefficient of Variation (Std Dev / |Mean| × 100). Higher CV% indicates greater volatility relative to mean.

### 3. Hypothesis Testing Results (Crisis-Excluded)

F-Tests for Variance Equality Between Iceland and SOEs (Crisis-Excluded) |  $H_0$ : Equal volatility patterns |  $H_1$ : Different volatility patterns |  $\alpha = 0.05$ 

Indicator	Iceland Std Dev	SOE Std Dev	F-Statistic	P-Value	Sig.
Assets - Other Investment (Banks)	30.930	160.750	27.010	0.0000	***
Liabilities - Other Investment (Banks)	36.067	160.978	19.921	0.0000	***
Assets - Other Investment (Debt)	37.270	164.693	19.526	0.0000	***
Liabilities - Portfolio (Equity)	2.889	11.330	15.376	0.0000	***
Liabilities - Portfolio (Total)	36.832	14.213	6.716	0.0000	***
Assets - Portfolio (Equity)	7.912	42.040	28.234	0.0000	***
Liabilities - Portfolio (Debt)	36.029	7.641	22.235	0.0000	***
Net - Direct Investment	14.556	46.861	10.364	0.0000	***
Net - Portfolio Investment	33.027	47.765	2.092	0.0001	***
Liabilities - Direct Investment	16.823	102.670	37.246	0.0000	***
Assets - Portfolio (Debt)	12.665	19.568	2.387	0.0000	***
Assets - Direct Investment	23.236	91.642	15.555	0.0000	***
Assets - Portfolio (Total)	17.079	49.252	8.316	0.0000	***
Net - Other Investment	32.520	34.293	1.112	0.5691	

# 4. Time Series Analysis (Crisis-Excluded)



#### Capital Flow Time Series - Group 3 (Crisis-Excluded)



**Note:** Red shaded areas indicate crisis periods (2008-2010 GFC, 2020-2022 COVID-19) that are excluded from the crisis-excluded analysis. Time series shows patterns during normal market conditions.

### 5. Key Findings Summary (Crisis-Excluded)

#### Statistical Evidence (Crisis-Excluded):

#### **Methodological Notes:**

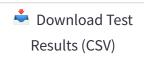
 Crisis periods excluded: 2008-2010 (GFC) and 2020-2022 (COVID-19)

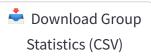
- 14.3% of capital flow indicators show higher volatility in Iceland
- **92.9% of indicators** show statistically significant differences (p<0.05)
- Volatility ratio (Iceland/SOE): 0.35x (excluding crisis periods)
- Pattern analysis: Non-crisis volatility patterns are relatively similar between groups

- Comparison basis: Similar small open economy structures
- Statistical approach: F-test for variance equality without directional assumptions
- Interpretation: Focus on pattern differences rather than superiority/inferiority

### 6. Download Results (Crisis-Excluded)







HTML Report
Generation
available in main
dashboard