

NINETY-THIRD INTERNATIONAL ATLANTIC ECONOMIC EUROPEAN CONFERENCE

CHANGES IN THE ALIGNMENT OF CREDITOR COUNTRIES: 1995 TO 2020

Gylfi Zoega

University of Iceland and Birkbeck College, London

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- Data on current account imbalances for the OECD countries and for emerging economies used to map imbalances across countries and over time.
- The data is described by calculating the principal components of a matrix of current account imbalances for 47 countries going back to 1995.
 - These capture the unobserved underlying factors that explain how the pattern of surpluses and deficits has evolved.
 - The analysis identify the origins of surplus savings, which triggered capital inflows into different currencies.
- Results will show patterns of surpluses and deficits that may explain a large fraction of the variation in the data.

Data – current account (% of GDP) for 47 countries (OECD plus emerging markets)

| | arg | aut | aus | bel | bra | can | chi | chin | col | crica | cze | den | est | fin | fra | ger | gre | hun | ice | ind | indo | ire | isr | ita | jap | kor | lat | lit | lux | mex | net | nze | nor | pol | por | cric | rus | safr | sara | slo | sloe | spa | swe | swi | tur | UK | US |
|------|------|-----|-----|-----|-----|-----|-----|------|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-----|------|-----|------|------|-----|------|------|-----|-----|------|----|----|
| 1995 | -1.8 | -5 | -3 | 5 | -2 | -1 | -2 | 0.2 | -4 | -3.1 | -2 | 1 | -4 | 4 | 1 | -1 | -2 | -4 | 0.2 | -2 | -3 | 3.2 | -5 | 2 | 2.1 | -2 | -0 | -9 | 11 | -1 | 6.2 | -3.9 | 3.5 | 0.6 | -0 | -3 | 2.2 | -1 | -3.7 | 2 | -1 | -1.3 | 3.1 | 4.9 | -2.4 | -1 | -2 |
| 1996 | -2.4 | -4 | -3 | 5 | -3 | 0 | -4 | 0.8 | -4 | -2.2 | -6 | 1 | -8 | 4 | 1 | -1 | -3 | -4 | -3 | -1 | -3 | 3.5 | -5 | 3 | 1.4 | -4 | -4 | -9 | 11 | -1 | 5.1 | -4.7 | 6.7 | -2.1 | -5 | -2 | 2.8 | -1 | 0.4 | -10 | 0.1 | -0.9 | 3.3 | 5.3 | -1 | -1 | -2 |
| 1997 | -3.9 | -3 | -3 | 6 | -4 | -1 | -4 | 3.9 | -5 | -3.8 | -6 | 1 | -11 | 5 | 3 | -1 | -4 | -4 | -2 | -1 | -2 | 3.3 | -3 | 3 | 2.1 | -2 | -5 | -11 | 9.9 | -2 | 6.5 | -5.2 | 6.2 | -3.7 | -6 | -4 | 0 | -1 | 0.2 | -9 | 0.1 | -0.7 | 3.8 | 8.4 | -1 | -0 | -2 |
| 1998 | -4.5 | -5 | -2 | 5 | -4 | -1 | -5 | 3.1 | -5 | -3.7 | -2 | -1 | -9 | 5 | 3 | -1 | -3 | -8 | -7 | -2 | 3.8 | 0.8 | -1 | 2 | 2.8 | 11 | -9 | -13 | 9 | -3 | 3.2 | -2.7 | -0.3 | -4 | -8 | -4 | 0.1 | -2 | -9 | -9 | -1 | -1.7 | 3.6 | 7.6 | 0.7 | -0 | -2 |
| 1999 | -3.9 | -6 | -2 | 5 | -4 | 0 | 0 | 1.9 | 1 | -5.6 | -2 | 2 | -4 | 5 | 3 | -1 | -4 | -8 | -7 | -1 | 3.7 | 0.2 | -1 | 1 | 2.5 | 4.4 | -9 | -11 | 8 | -2 | 3.8 | -4.9 | 5.5 | -9.1 | -9 | -6 | 13 | -0 | 0.3 | -6 | -4 | -3.2 | 3.9 | 8.5 | -0.4 | -3 | -3 |
| 2000 | -3 | -4 | -1 | 4 | -4 | 3 | -1 | 1.7 | 1 | -4.6 | -4 | 1 | -5 | 8 | 1 | -2 | -8 | -9 | -10 | -1 | 4.8 | 0.6 | -2 | -0 | 2.6 | 1.8 | -4 | -5 | 13 | -3 | 1.9 | -3.2 | 14.8 | -6 | -11 | -5 | 18 | -0 | 7.6 | -4 | -3 | -4.3 | 3.9 | 11 | -3.6 | -2 | -4 |
| 2001 | -1.4 | -2 | -1 | 3 | -4 | 2 | -2 | 1.3 | -1 | -3.2 | -5 | 3 | -7 | 8 | 2 | -0 | -7 | -6 | -5 | 0.3 | 4.3 | 0.2 | -2 | 0 | 2 | 0.4 | -7 | -4 | 8.3 | -2 | 2.4 | -0.8 | 15.8 | -3.1 | -11 | -3 | 11 | 0.2 | 5.1 | -8 | 0 | -4.4 | 4.7 | 6.8 | 1.9 | -2 | -4 |
| 2002 | 8 | -4 | 2 | 5 | -1 | 2 | -1 | 2.4 | -1 | -5.1 | -5 | 3 | -11 | 8 | 1 | 1.9 | -6 | -6 | 1.2 | 1.4 | 4 | 0.2 | -1 | -1 | 2.6 | 0.7 | -6 | -4 | 7.6 | -2 | 2.6 | -2.2 | 12.3 | -2.8 | -8 | -5 | 8.4 | 0.8 | 6.3 | -8 | 0.9 | -3.7 | 4.4 | 6.9 | -0.3 | -2 | -4 |
| 2003 | 5.8 | -5 | 2 | 4 | 0.6 | 1 | -0 | 2.6 | -1 | -5.1 | -6 | 3 | -13 | 5 | 1 | 1.4 | -9 | -8 | -5 | 1.5 | 3.5 | 0.5 | 0.6 | -1 | 3.1 | 1.6 | -8 | -6 | 7 | -1 | 5.5 | -2.4 | 12 | -2.5 | -7 | -5 | 7.2 | -1 | 13.1 | -1 | -1 | -3.9 | 5.8 | 11 | -2.4 | -2 | -5 |
| 2004 | 1.8 | -6 | 2 | 3 | 1.7 | 2 | 3 | 3.5 | -1 | -3.6 | -4 | 3 | -12 | 6 | 1 | 4.5 | -8 | -9 | -10 | 0.1 | 0.6 | -0 | 1.5 | -1 | 3.7 | 3.7 | -12 | -8 | 7.1 | -1 | 7.6 | -4.6 | 12.4 | -5.8 | -8 | -4 | 9.1 | -3 | 20.8 | -8 | -3 | -5.5 | 6 | 13 | -3.5 | -2 | -5 |
| 2005 | 2.5 | -6 | 2 | 2 | 1.6 | 2 | 2 | 5.8 | -1 | -4.2 | -2 | 4 | -9 | 3 | 0 | 4.7 | -9 | -7 | -16 | -1 | 0 | -4 | 3 | -1 | 3.5 | 1.3 | -12 | -7 | 6.9 | -1 | 7.1 | -7.1 | 16.5 | -2.9 | -10 | -4 | 10 | -3 | 28.5 | -8 | -2 | -7.3 | 6 | 12 | -4.1 | -2 | -6 |
| 2006 | 2.8 | -6 | 3 | 2 | 1.2 | 1 | 5 | 8.4 | -2 | -4 | -2 | 3 | -15 | 4 | 0 | 5.8 | -12 | -7 | -23 | -1 | 2.7 | -5 | 4.1 | -2 | 3.8 | 0.2 | -21 | -11 | 6.7 | -0 | 9.1 | -7.1 | 16.3 | -4.3 | -10 | -4 | 8.9 | -4 | 26.3 | -8 | -2 | -8.8 | 8.1 | 13 | -5.6 | -3 | -6 |
| 2007 | 2.1 | -7 | 4 | 2 | 0.1 | 1 | 4 | 9.9 | -3 | -5.5 | -5 | 1 | -15 | 4 | -0 | 6.9 | -15 | -7 | -14 | -1 | 2.2 | -7 | 3.2 | -1 | 4.7 | 0.9 | -21 | -15 | 6.5 | -1 | 6.9 | -6.8 | 12.4 | -6.6 | -10 | -6 | 5.3 | -5 | 22.5 | -5 | -4 | -9.4 | 8.1 | 8.7 | -5.3 | -3 | -5 |
| 2008 | 1.5 | -5 | 5 | -1 | -2 | 0 | -4 | 9.2 | -3 | -8.3 | -2 | 3 | -9 | 3 | -1 | 5.7 | -15 | -7 | -21 | -3 | 0 | -6 | 1 | -3 | 2.8 | 0.4 | -12 | -13 | 6.2 | -2 | 5 | -7.7 | 15.8 | -7 | -12 | -8 | 5.9 | -5 | 25.5 | -6 | -5 | -8.9 | 7.8 | 1.5 | -5 | -4 | -5 |
| 2009 | 2.2 | -5 | 3 | 2 | -2 | -3 | 2 | 4.8 | -2 | -1.7 | -2 | 4 | 3 | 2 | -1 | 5.8 | -12 | -1 | -9 | -2 | 1.8 | -5 | 3.2 | -2 | 2.8 | 3.6 | 8.2 | 1.9 | 5.6 | -1 | 5.4 | -2.3 | 10.8 | -4.1 | -10 | -2 | 3.8 | -2 | 4.9 | -4 | -1 | -4.1 | 5.9 | 6.1 | -1.6 | -3 | -3 |
| 2010 | -0.4 | -4 | 3 | 2 | -4 | -4 | 1 | 3.9 | -3 | -3.2 | -4 | 7 | 2 | 2 | -1 | 5.8 | -10 | 0.3 | -6 | -3 | 0.7 | -1 | 3.3 | -3 | 3.8 | 2.5 | 2.7 | -0 | 5.8 | -0 | 7 | -2.2 | 11 | -5.5 | -10 | -3 | 4.3 | -1 | 12.6 | -5 | -1 | -3.7 | 5.9 | 14 | -5.6 | -3 | -3 |
| 2011 | -1 | -3 | 2 | -2 | -3 | -3 | -2 | 1.8 | -3 | -5.3 | -2 | 7 | 1 | -1 | -1 | 6.2 | -9 | 0.6 | -5 | -4 | 0.2 | -2 | 1.5 | -3 | 2.1 | 1.3 | -3 | -4 | 5.6 | -1 | 8.6 | -2.8 | 12.5 | -5.4 | -6 | -5 | 4.7 | -2 | 23.6 | -5 | -1 | -2.7 | 5.5 | 6.8 | -8.8 | -2 | -3 |
| 2012 | -0.4 | -4 | 2 | -0 | -3 | -4 | -4 | 2.5 | -3 | -5.1 | -2 | 6 | -2 | -2 | -1 | 7.1 | -4 | 1.6 | -4 | -5 | -3 | -3 | 0.4 | -0 | 1 | 3.8 | -3 | -2 | 5.3 | -2 | 10 | -3.9 | 12.4 | -4 | -2 | -5 | 3.2 | -5 | 22.4 | 1 | 1.3 | 0.1 | 5.5 | 9.4 | -5.5 | -4 | -3 |
| 2013 | -2.1 | -3 | 2 | 1 | -3 | -3 | -5 | 1.5 | -3 | -4.8 | -1 | 8 | 0 | -2 | -1 | 6.5 | -1 | 3.4 | 6.2 | -3 | -3 | 1.6 | 2.8 | 1 | 0.9 | 5.6 | -3 | 1.7 | 4.6 | -3 | 9.8 | -3.1 | 10.2 | -1.8 | 1.6 | -5 | 1.4 | -5 | 18.1 | 2 | 3.3 | 2 | 5.2 | 10 | -5.8 | -5 | -2 |
| 2014 | -1.6 | -3 | 3 | 1 | -4 | -2 | -4 | 2.3 | -5 | -4.7 | 0.2 | 9 | 1 | -1 | -1 | 7.2 | -1 | 1.1 | 4.3 | -1 | -3 | 1.1 | 4.1 | 2 | 0.8 | 5.6 | -2 | 3.3 | 4.7 | -2 | 8.5 | -3.1 | 11 | -2.6 | 0.2 | -5 | 2.7 | -5 | 9.8 | 1 | 5.1 | 1.7 | 4.2 | 7.5 | -4.1 | -5 | -2 |
| 2015 | -2.7 | -5 | 2 | 1 | -3 | -4 | -3 | 2.6 | -6 | -3.4 | 0.4 | 8 | 2 | -1 | -0 | 8.6 | -1 | 2.3 | 5.6 | -1 | -2 | 4.4 | 5.2 | 1 | 3.1 | 7.2 | -1 | -3 | 4.8 | -3 | 6.3 | -2.7 | 8 | -0.9 | 0.2 | -3 | 4.9 | -4 | -8.7 | -2 | 3.8 | 2 | 3.3 | 9.4 | -3.2 | -5 | -2 |
| 2016 | -2.7 | -3 | 3 | 1 | -1 | -3 | -3 | 1.7 | -5 | -2.1 | 1.8 | 8 | 1 | -2 | -1 | 8.5 | -2 | 4.5 | 8 | -1 | -2 | -4 | 3.6 | 3 | 3.8 | 6.6 | 1.7 | -1 | 4.7 | -2 | 8.1 | -2.1 | 4 | -0.8 | 1.2 | -2 | 1.9 | -3 | -3.7 | -3 | 4.8 | 3.2 | 2.4 | 8 | -3.1 | -5 | -2 |
| 2017 | -4.8 | -3 | 1 | 1 | -1 | -3 | -3 | 1.5 | -3 | -3.6 | 1.6 | 8 | 2 | -1 | -1 | 7.8 | -2 | 2 | 4.2 | -2 | -2 | 0.5 | 3.6 | 3 | 4.2 | 4.6 | 1.1 | 0.5 | 4.7 | -2 | 11 | -2.8 | 5.5 | -0.3 | 1.3 | -4 | 2 | -2 | 1.5 | -2 | 6.2 | 2.8 | 2.9 | 6.3 | -4.7 | -4 | -2 |
| 2018 | -5.2 | -2 | 1 | -1 | -3 | -2 | -5 | 0.2 | -4 | -2.9 | 0.4 | 7 | 1 | -2 | -1 | 7.8 | -3 | 0.2 | 3.5 | -2 | -3 | 5.2 | 2.8 | 3 | 3.5 | 4.5 | -0 | 0.2 | 4.6 | -2 | 11 | -3.9 | 8 | -1.3 | 0.6 | -3 | 6.9 | -3 | 8.8 | -2 | 5.9 | 1.9 | 2.7 | 6.1 | -2.4 | -4 | -2 |
| 2019 | -0.8 | 1 | 2 | 0 | -4 | -2 | -5 | 0.7 | -5 | -1.2 | 0.3 | 9 | 3 | -0 | -0 | 7.4 | -2 | -1 | 5.8 | -1 | -3 | -20 | 3.4 | 3 | 3.4 | 3.6 | -1 | 3.5 | 4.7 | -0 | 9.4 | -2.9 | 2.9 | 0.5 | 0.4 | -1 | 4 | -3 | 4.8 | -3 | 6 | 2.1 | 5.5 | 5.4 | 0.9 | -3 | -2 |
| 2020 | 0.9 | 3 | 2 | 1 | -2 | -2 | -2 | 1.9 | -3 | -1.3 | 3.5 | 8 | -0 | 1 | -2 | 6.9 | -7 | -2 | 0.8 | 1.3 | -0 | -3 | 5.4 | 4 | 2.9 | 4.5 | 3 | 7.3 | 3.8 | 2.4 | 7 | -1.1 | 0.7 | 3 | -1 | -1 | 2.4 | 2 | -3.1 | 0 | 7.4 | 0.8 | 6.1 | 2.9 | -5 | -3 | -3 |

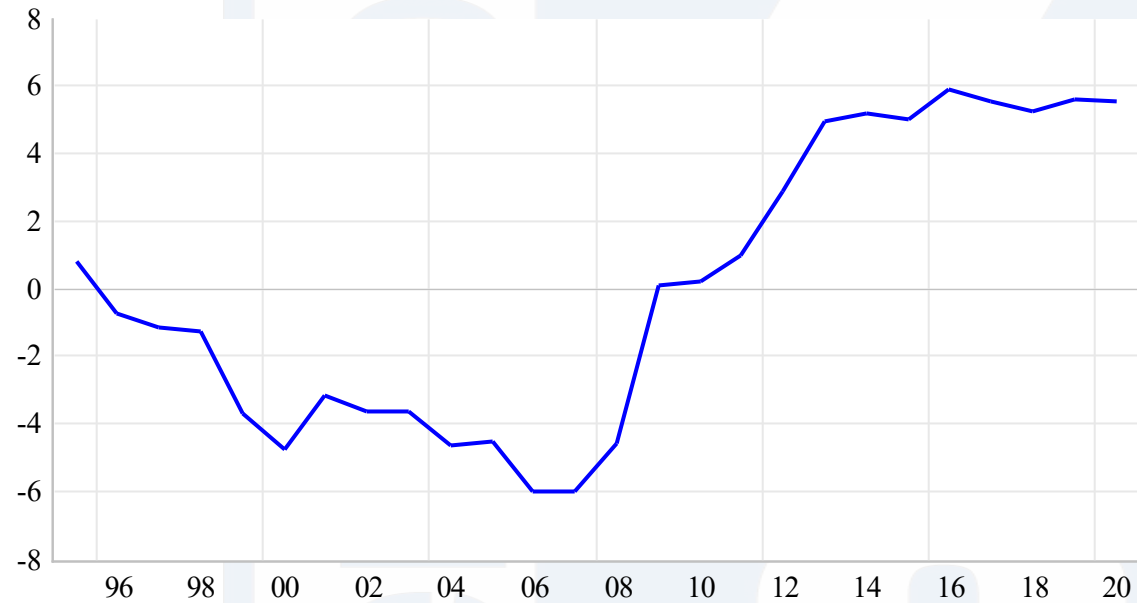
Eigenvalues

| Principal component | Value | Proportion | Cumulative value | Cumulative proportion |
|---------------------|-------|------------|------------------|-----------------------|
| PC1 | 17.5 | 0.38 | 17.5 | 0.38 |
| PC2 | 10.2 | 0.22 | 27.6 | 0.60 |
| PC3 | 4.0 | 0.09 | 31.6 | 0.69 |
| PC4 | 2.8 | 0.06 | 34.4 | 0.75 |
| PC5 | 2.3 | 0.05 | 36.7 | 0.80 |
| PC6 | 1.8 | 0.04 | 38.5 | 0.84 |
| PC7 | 1.5 | 0.03 | 40.0 | 0.87 |
| PC8 | 1.1 | 0.02 | 41.2 | 0.89 |

Eigenvectors

| OECD | PC1 | PC 2 | PC 3 | PC 4 | PC 5 | | PC 1 | PC 2 | PC 3 | PC 4 | PC 5 | Non-OECD | PC 1 | PC 2 | PC 3 | PC 4 | PC 5 |
|------------|--------------|--------------|-------------|--------------|--------------|-------------|-------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|
| Australia | 0.16 | -0.05 | 0.23 | -0.03 | -0.22 | Japan | -0.05 | 0.11 | 0.21 | -0.06 | 0.32 | Argentina | -0.12 | 0.13 | 0.23 | -0.01 | -0.11 |
| Austria | 0.01 | 0.29 | 0.10 | 0.06 | 0.04 | Korea | 0.12 | 0.04 | -0.01 | 0.25 | 0.36 | Brazil | -0.09 | 0.16 | 0.19 | -0.18 | 0.20 |
| Belgium | -0.12 | -0.24 | 0.04 | -0.05 | 0.12 | Latvia | 0.18 | -0.08 | 0.07 | 0.15 | -0.22 | China | -0.14 | 0.19 | -0.05 | -0.16 | 0.09 |
| Canada | -0.20 | -0.05 | 0.13 | -0.01 | 0.05 | Lithuania | 0.18 | 0.05 | 0.19 | 0.20 | -0.16 | India | -0.06 | -0.10 | 0.36 | -0.02 | 0.21 |
| Chile | -0.15 | 0.13 | 0.16 | 0.05 | 0.09 | Luxembourg | -0.14 | -0.22 | -0.08 | -0.05 | -0.09 | Indonesia | -0.18 | -0.04 | 0.15 | 0.27 | 0.06 |
| Colombia | -0.16 | 0.01 | 0.11 | 0.29 | -0.09 | Mexico | 0.02 | 0.09 | 0.29 | -0.30 | -0.27 | Russia | -0.14 | 0.00 | 0.08 | 0.32 | 0.01 |
| Costa Rica | 0.12 | -0.09 | 0.27 | -0.09 | 0.03 | Netherlands | 0.14 | 0.17 | -0.08 | -0.18 | 0.06 | Saudi Arabia | -0.10 | 0.23 | -0.10 | -0.02 | -0.15 |
| Czech R. | 0.18 | 0.10 | 0.07 | 0.01 | 0.13 | New Zealand | 0.13 | -0.11 | 0.20 | 0.30 | -0.10 | South Africa | -0.04 | -0.19 | 0.31 | 0.10 | -0.16 |
| Denmark | 0.19 | 0.15 | 0.07 | 0.12 | -0.01 | Norway | -0.14 | 0.16 | -0.08 | 0.18 | -0.15 | | | | | | |
| Estonia | 0.20 | 0.02 | -0.02 | 0.19 | -0.13 | Poland | 0.17 | -0.05 | 0.23 | -0.19 | 0.01 | | | | | | |
| Finland | -0.20 | -0.15 | 0.12 | 0.04 | 0.01 | Portugal | 0.22 | -0.02 | -0.03 | -0.11 | 0.11 | | | | | | |
| France | -0.13 | -0.22 | -0.07 | 0.03 | 0.17 | Slovakia | 0.15 | 0.06 | -0.03 | 0.09 | -0.09 | | | | | | |
| Germany | 0.13 | 0.25 | 0.03 | -0.02 | 0.09 | Slovenia | 0.22 | -0.01 | 0.15 | -0.03 | 0.07 | | | | | | |
| Greece | 0.17 | -0.17 | -0.08 | 0.02 | 0.17 | Spain | 0.22 | -0.10 | -0.02 | 0.03 | 0.06 | | | | | | |
| Hungary | 0.22 | 0.07 | -0.08 | 0.04 | -0.06 | Sweden | -0.12 | 0.22 | 0.08 | -0.10 | -0.14 | | | | | | |
| Iceland | 0.20 | -0.11 | 0.04 | 0.07 | 0.06 | Switzerland | -0.08 | 0.07 | -0.05 | 0.20 | 0.24 | | | | | | |
| Ireland | 0.00 | -0.14 | -0.15 | 0.11 | 0.06 | Turkey | -0.02 | -0.23 | 0.12 | 0.01 | 0.14 | | | | | | |
| Israel | 0.09 | 0.24 | 0.14 | 0.10 | 0.19 | U.K. | -0.12 | -0.19 | 0.06 | -0.21 | -0.16 | | | | | | |
| Italy | 0.14 | -0.18 | 0.07 | -0.21 | 0.18 | U.S. | 0.18 | -0.16 | -0.13 | -0.04 | -0.09 | | | | | | |

Western financial boom and bust

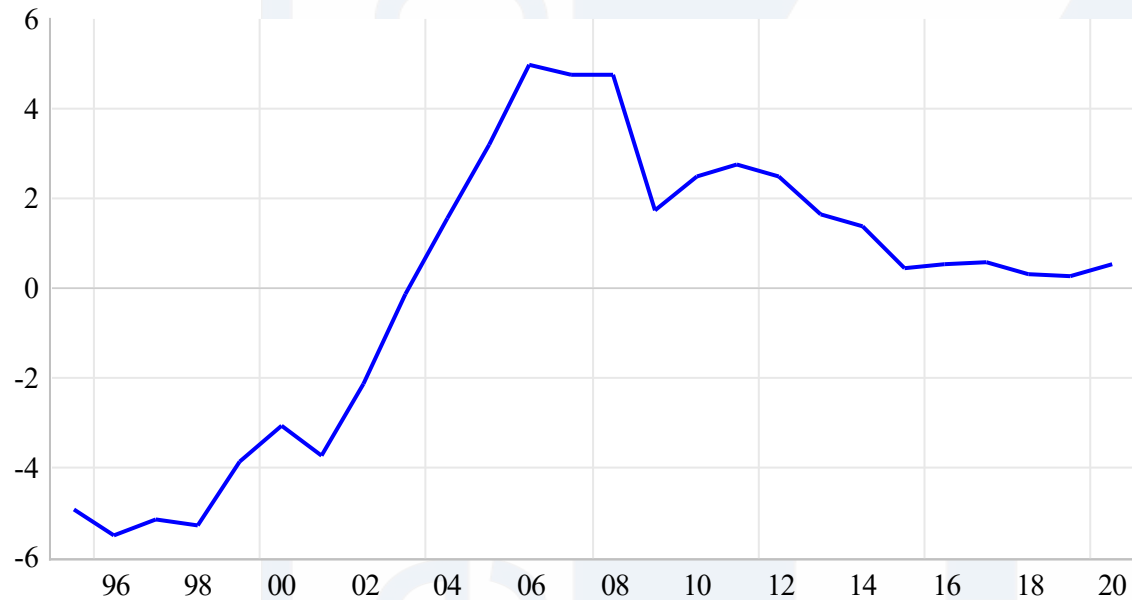


Captures:

- Capital inflow into the U.S., Italy, Greece, Spain, Portugal, Baltic countries, Iceland before 2008 and,
- reversal after 2008.

This component explains 38% of the variation in the data.

Surplus and deficit countries



Captures:

- Current account surpluses of Germany, the Netherlands, Austria, Denmark, Norway, Sweden China, and Saudi Arabia,
- the deficits of the U.K., the U.S., Ireland, New Zealand, Turkey, Belgium, France and Italy.

Explains 22% of the variation in the data.

Emerging market boom



Captures:

- Capital inflow into emerging economies, which started before 2008 and continued after the crisis in countries such as; Argentina, Brazil, India, Indonesia and South Africa.

Explains 9% of the variation in the matrix.

Fourth principal component



Captures:

- Countries where the current account improved suddenly around 2000 and then declined gradually in the years that followed: Russia, Indonesia, Norway, Korea, Colombia, New Zealand...

Explains 6% of the variation in the matrix.

Concluding remarks

Three underlying factors explain close to 70% of the variation in the current account of 47 countries from 1995 to 2020:

Western financial crisis

- Capital inflow into Italy, Greece, Spain, Portugal, Baltic countries, Iceland before 2008 and reversal after 2008.
 - Explains 38% of the variation in the data.

Surplus and deficit countries

- Current account surpluses of Germany, the Netherlands, Austria, Denmark, Norway, Sweden, China, and Saudi Arabia and
- the deficits of the U.K., the U.S., Ireland, New Zealand, Turkey, Belgium, France and Italy.
 - Explain 22% of the variation in the data.

Emerging market boom

- Capital inflow into emerging economies, which started before 2008 and continued after the crisis, in Argentina, Brazil, India, Indonesia and South Africa.
 - Explains 9% of the variation in the matrix.