Assessing and Measuring Macroeconomic Imbalances in the EU

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Questions:

1. Should we worry about macro imbalances in the EU?
2. What macro imbalances should we worry about?
3. How should we assess and measure them?
4. What then?
Short Answers:

1. Should we worry about macro imbalances in the EU? Yes, if a) prices and wages are sticky, b) financial markets are myopic

2. What macro imbalances should we worry about? It depends on what crisis we worry about

3. How should we assess and measure them? Possibly identifying joint tail risks and critical thresholds

4. What then? Go back to 1 (not stick to symptoms)
Q1: Should we worry about macro imbalances *in the EZ*?

A: In a flexible-price world we should not since, for ex. CA imbalance would self correct by real devaluation/appreciation in deficit/surplus countries. Unfortunately,

1. Prices and wages are rigid, and it’s hard to achieve the required fall in the relative price of non-tradable goods (real depreciation) required for increasing (excess) supply of tradables => unemployment

2. Financial markets are myopic and under price risk (for ex, expected depreciation not replaced by default-risk premia EZ bond market since Euro) encouraging excess leverage of private and public sector

=> Reminder: remove distortions in labor and goods markets, regulate financial markets is the first best response to imbalances
Q2: What macro imbalances should we worry about?

• A: It depends on what sort of “vulnerability” we want to monitor

Variety of Crises: sovereign default, banking crises, liquidity crises, stock/housing market crashes/bubbles, sudden stops, currency crises (Em’s). While different types hardly ever occur in isolation, for appropriate policy response it’s crucial to understand where the risks come from.
Q2/Q3. Which imbalances should we assess and how should we measure them?

Borrow from Statistics (machine learning/data mining) and Computer science (Classification and Regression Tree algorithms)

Applications: Engineering, medical diagnosis, genetics, meteorology, marketing, insurance, finance

Topics: Credit risk assessment, quality control, spread of cancer, blood cell classification, infant mortality, wildlife management, air pollution alerts, speech recognition, classification of radar images for the military
How do you tell a “risky type” when you see one?
• Very large set of candidate indicators (regression analysis not adequate)
• Heterogeneity of risk classes (hart attack risk: 1) male, +45, low pressure at recovery, 2) female with diabetics
• Identify joint characteristics (thresholds) of vulnerability (ex: external debt/GDP > 50%m and inflation>10%)
• Non linearity (non parametric) : discontinuities
Cart and other algorithm (Random Forest, Cragging)

- Partition data separating crises from non-crises
- Consider each indicator, value by value, and compare how well it splits the data
  E.g. how many crisis we observe if Current Account/GDP above 3 percent?
- Build posterior conditional probabilities
- Examples from EMs: **Sovereign Default** (Manasse, Roubini, 2009), Capital Account Crises (Chamon, Manasse, Prati, 2007), Banking and Liquidity Crises (Manasse, Savona, Vezzoli, 2011).
EARLY WARNINGS OF EMERGING MARKETS DEBT CRISIS

Tree of Truth – Empirical tree for 2010 data

- Total external debt > 50% of GDP
  - Yes
    - Inflation > 10.47%
      - Yes
        - External financing requirement > 1.44
          - Yes
            - Not Crisis-prone
              - Crisis entries:
                - Asia: India, China, Indonesia
                - Latin America: Brazil, Mexico
                - Eastern Europe: Russia

- Short-term external debt in reserves > 1.34
  - No
    - Public external debt to revenue > 2.15
      - No
        - Real GDP Growth > -5.45%
          - Yes
            - Crisis-prone
              - Crisis entries:
                - Latin America: Brazil, Argentina
                - Asia: Vietnam, Thailand

- Yes
  - Public external debt to revenue > 3.1
    - Yes
      - Exchange rate volatility > 27.88
        - Yes
          - Not Crisis-prone
            - Crisis entries:
              - Asia: Korea, Thailand
              - Latin America: Colombia

- No
  - Crisis-prone
    - Crisis entries:
      - Middle East: UAE, Qatar
      - Eastern Europe: Poland

- No
  - Inflation > 10.67%
    - Yes
      - Total external debt > 19.1% of GDP
        - Yes
          - US T-bill rate > 9.72%
            - Yes
              - Not Crisis-prone
                - Crisis entries:
                  - Middle East: UAE

- No
  - Public external debt to revenue > 3.1
    - Crisis-prone
      - Crisis entries:
        - Asia: Korea, Thailand
        - Latin America: Colombia

- No
  - External financing requirement > 1.44
    - Yes
      - Not Crisis-prone
        - Crisis entries:
          - Middle East: UAE

- No
  - Inflation > 10.47%
    - Yes
      - Total external debt > 50% of GDP
        - Yes
          - Not Crisis-prone
            - Crisis entries:
              - Middle East: UAE

- No
  - Public external debt to revenue > 2.15
    - Yes
      - Real GDP Growth > -5.45%
        - Yes
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            - Crisis entries:
              - Latin America: Brazil, Argentina
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- No
  - Crisis-prone
    - Crisis entries:
      - Middle East: UAE

- No
  - Crisis-prone
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      - Middle East: UAE
Example 2: Banking Crises

1. High Deposit Rate $t-1$ + Credit Boom $t-2$ + Large increase in Comm Banks external leverage $t-2$: $p=42\%$: Costa Rica, Venezuela 1994; Zimbabwe 1994


Q3. What Then? (Reform of SGP)

1. **Correction**: target for public debt, 60% of GDP, adjustment rate of 1/20 per year(?) the sanction process will be sped up

2. **Prevention** of fiscal indiscipline: Medium Term Objectives, growth $G < $ growth GDP, “best practices” budgetary procedures (fiscal rules, transparency, fiscal councils)

3. **Imbalances**: Monitoring vulnerability indicators: private and public, debt, competitiveness, the current account, credit expansion, the growth in property prices, productivity growth, infringement procedure (EIP), fine of 0.1% of GDP.
Observations on Q3

1. Best Imbalances Prevention: foster product and labor market reform + financial regulation (everywhere)

2. Intermediate targets: for reducing imbalances you need changes in *relative* prices and demand (i.e. if productivity improves / deficits fall *everywhere at the same rate* it doesn’t work)

3. An Invisible Hand at work?
Figure 1. Budget cuts in 2010-15 (y-axis) vs. current account balances in 2009 (x-axis), % GDP
Thanks for you attention

References

**Web**: a few articles on
lavoe.info
roubini.com
voxeu.org
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**Journals and Books**:

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Paolo Manasse, Carlos Chamon and Alessandro Prati, (2007)"Can We Predict the Next Capital Account Crisis?", *IMF Staff Papers*, Vol.54, n.2