Credit and Financial Cycles as Predictors of Business Cycles: Example of EAEU Countries

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Financial Cycle (FC): credit expansion (contraction) => changes in: spending, investments, risk attitude, mode of expectations, etc. (Borio 2014, p. 183)
Mostly studied for advanced countries so far.

Variables included usually

- Private sector credit
- Private sector credit – to – GDP ratio
- Property price index
- Equity index (too volatile???)
- Annual growth rate of credit
- Annual growth rate of property prices
- Banking sector indicators

Variables we use

- Private sector credit
- Private sector credit – to – GDP ratio
- Property price index
- **Total credit (including government-related)**
- **Total credit – to – GDP ratio**
- **Current account balance ('resource curse' and import dependence)**

Data sources: official data (Central banks, State statistical committees, IMF, BIS).
Data periods: ***Russia*** 2000q4 to 2017q2, ***Kazakhstan*** 2003q1-2017q2, ***Belarus*** 2002q1-2017q2

Methodology-1

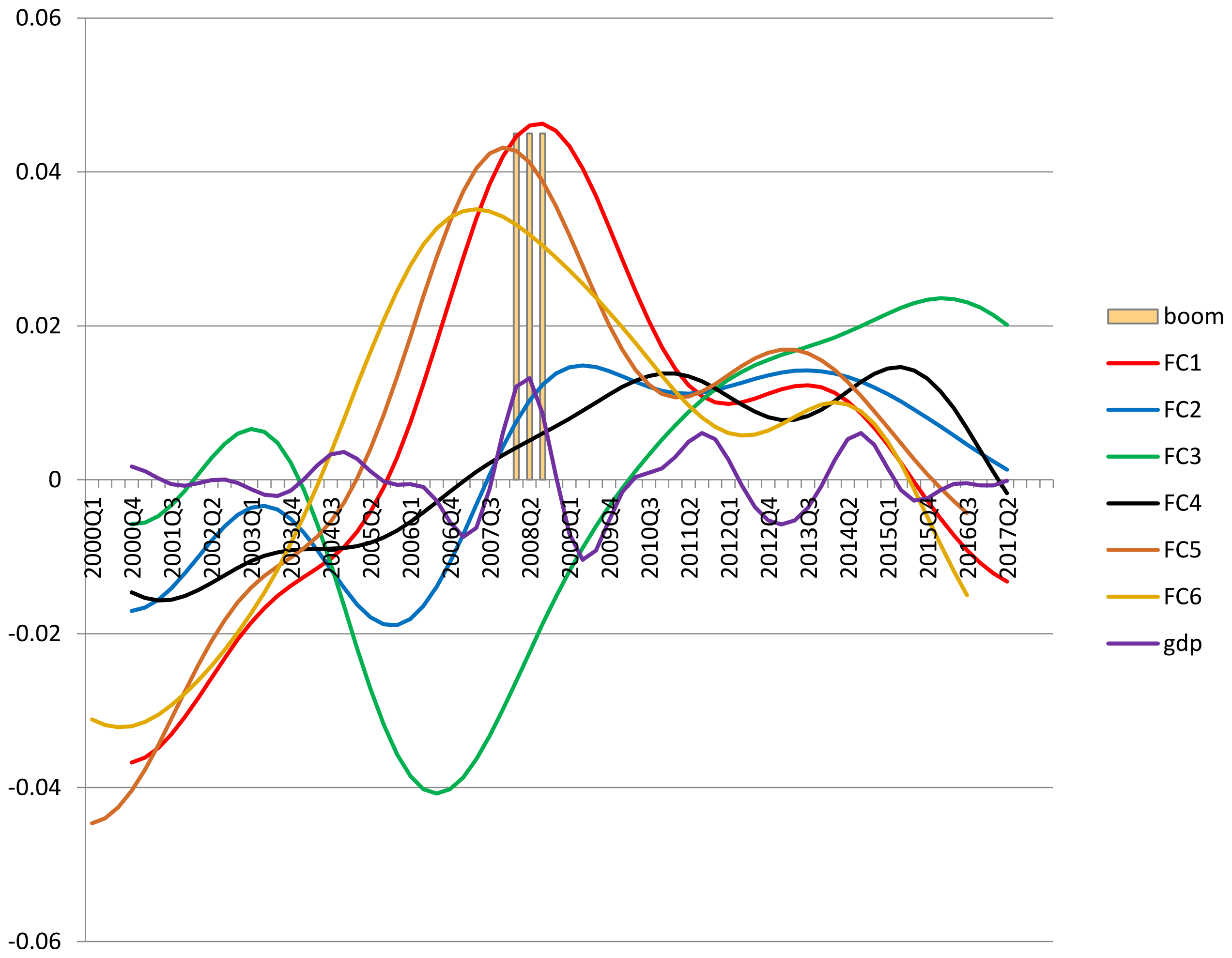
- Filtering
  - HP (problems)
  - Hamilton procedure
  - CF (preferable)
  - BK (not suited for short samples)
- Booms/peaks detection
  - Threshold method based on standard deviation (Mendoza and Terrones, 2012)
  - Bry-Boschan procedure
- Robustness checks:
  - Different filters
  - Different methods for booms/peaks detection
  - Different sample size
  - Different weights for combined FCs series

Methodology-2

- Individual FC indicators
- Aggregate FC indicators
  - **FC1** = private sector credit + private sector credit to GDP ratio + property prices.
  - **FC2** = total credit + total credit to GDP ratio + property prices.
  - **FC3** = total credit + total credit to GDP ratio.
  - **FC4** = total credit + total credit to GDP ratio + property prices + CA balance.
  - **FC5**= private sector credit + private sector credit to GDP ratio;
  - **FC6** = private sector credit + private sector credit to GDP ratio + property prices + CA balance.

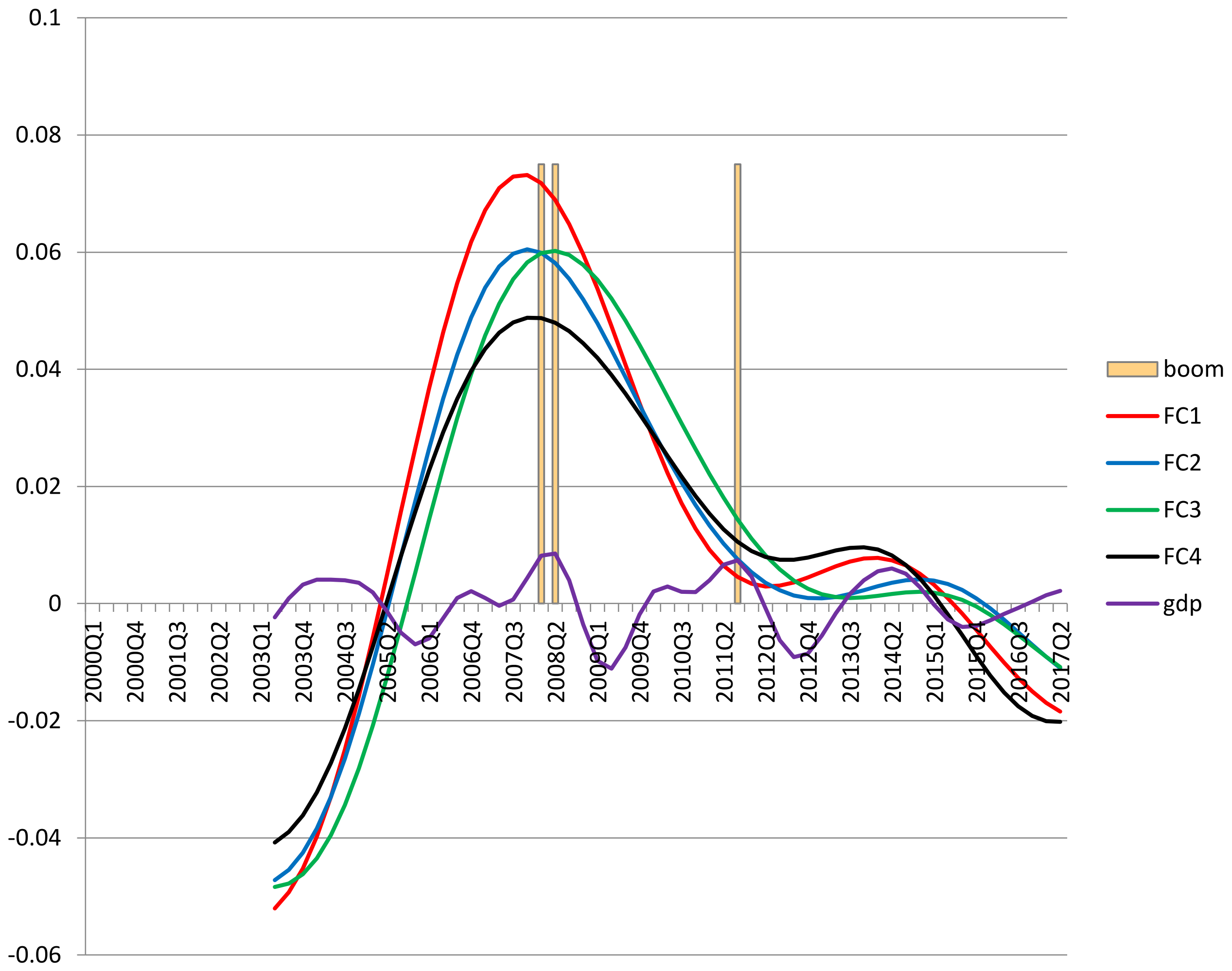
Results for Russia

- CA balance cycles booms of 2002 and 2015 capture commodity markets (oil)
- Total credit cycle has very different dynamics from private sector credit cycle (correlation is 0.3 only)
- No boom period in total credit => 2008 crisis was a private sector crisis
- Negative correlation of total credit to GDP ratio with private sector credit, its ratio to GDP, and property prices
- Aggregate FC measures (see figure) for total credit and for private sector credit differ substantially
- Lowest amplitude of Fcs for all countries
- Measures based on private sector credit have higher amplitudes => easier boom detection
- Measures based on private credit precede or coincide with GDP boom of 2008



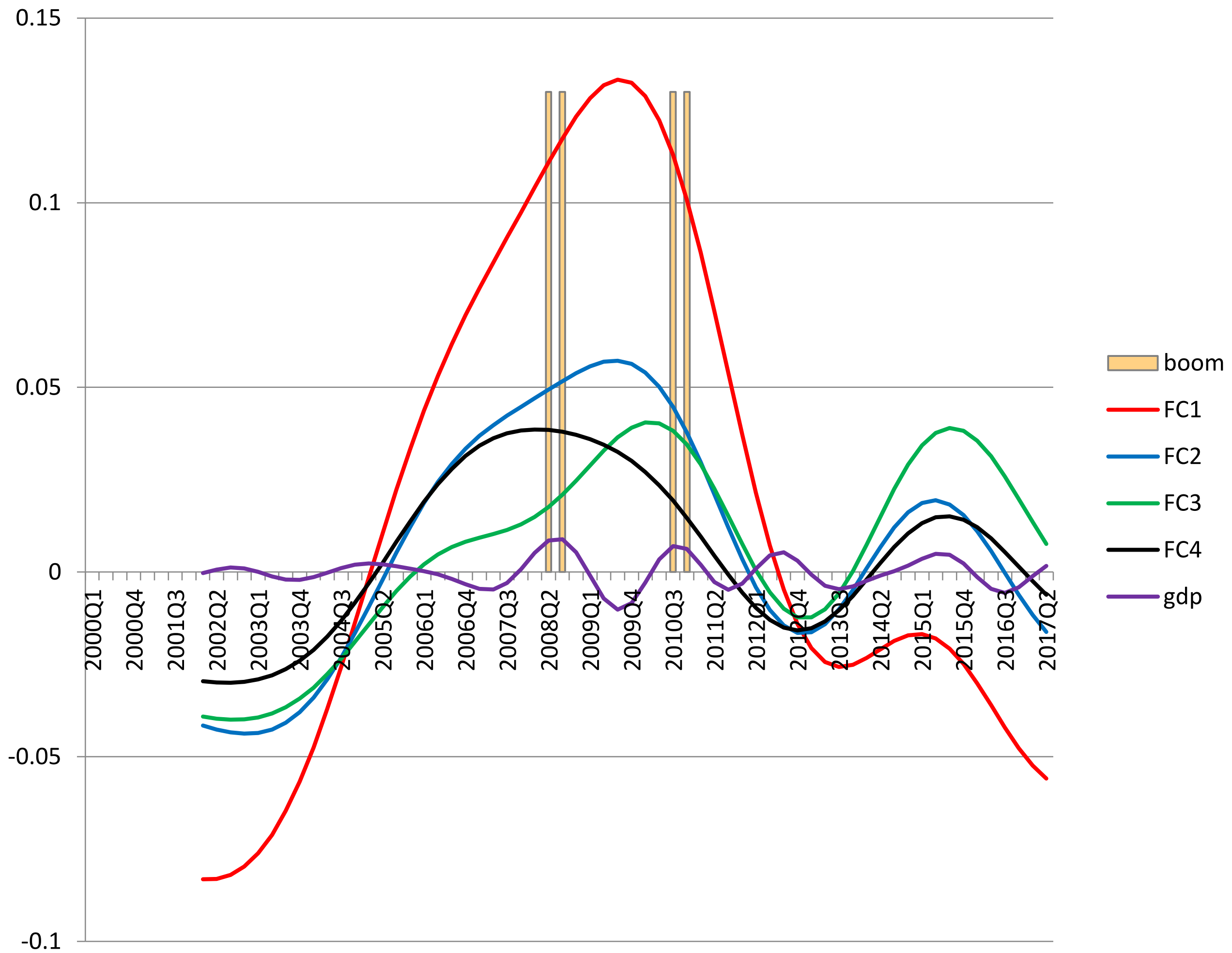
Results for Kazakhstan

- CA balance cycles booms of 2002 and 2015 capture commodity markets (oil)
- Private sector credit and total credit results are largely similar (correlation almost 1)
- Most coherent results in terms of robustness checks (different filters (CF precedes GDP cycle), FC measures, sample sizes, weights…)
- Aggregate FC measures (see figure) for total credit and for private sector credit are very similar
- Boom in aggregate FC measures precedes GDP boom in 2008 (except for FC3)
- CA balance inclusion in aggregate FC measure is important though has the lowest amplitude
- Most conventional FC measure (FC1) has the highest amplitude => easier boom detection

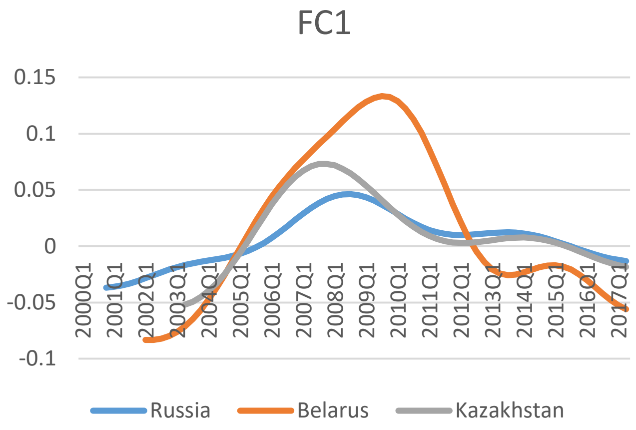


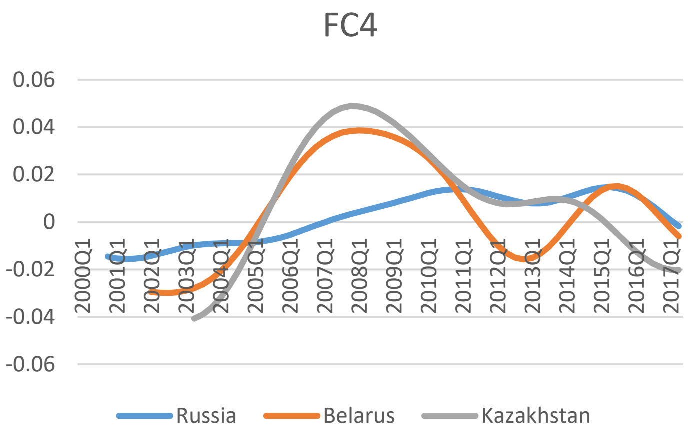
Results for Belarus

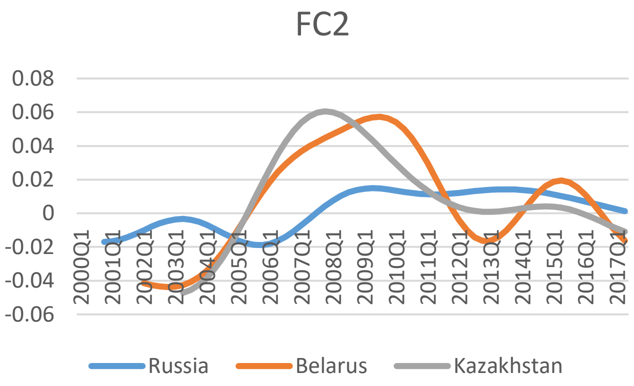
- CA balance captures 2011q4 Beltransgaz acquisition by Gazprom
- Private sector credit and total credit results are largely similar though not to the extent of Kazakhstan (correlation almost 0.75)
- Aggregate measures based on private sector credit and on total credit produce almost the same results (see figure) and are not very related to GDP
- Private-credit based FC measures have much higher amplitude => easier boom detection
- Total credit-based FC measure comes close to 2011 GDP boom
- FC measure including CA balance precede 2008 GDP boom
- Less robust results for different sample periods than for Kazakhstan

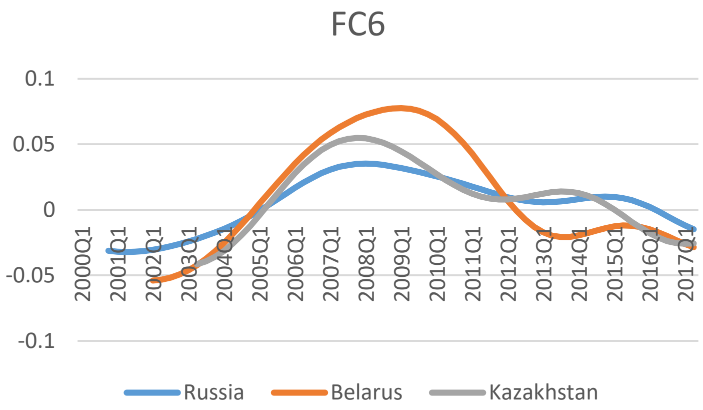


FCs correlations between countries









- Dynamic correlations between GDP and FC measures are non-significant for all countries
- Most correlated FCs are between Belarus and Kazakhstan
  - Especially for measures based on total credit and including CA balance
- Russian FC measures are less correlated with the other two countries

Conclusions

- The most conventional FC measure (private sector credit, its ratio to GDP and property price index) => the most robust results across all countries and highest amplitude (=> easier boom detection)
- Kazakhstan and Belarus: aggregate FC measures based on total credit and credit to private sector are very similar
- Russia: total credit indicator has a substantially different dynamics from private sector credit (might be important to follow)
- Adding CA balance to aggregate FC measure => capture commodity markets for Russia and Kazakhstan
- Importance of tracking total credit (at least for Russia) in addition to private sector credit
- Potential to construct early warning indicators including CA balance into FC measures
- Future work: comparing individual FCs indicators with GDP components (investment, consumption, government purchases, net exports)