

A financial cycle for Albania

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Introduction

The aim of this paper:

Estimate the financial cycle in Albania by creating a quantifying synthetic measure as part of the new macro-prudential framework which is being developed by the Bank of Albania.

This synthetic measure incorporates different elements from various segments of the financial system into one single composite indicator.

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- What indicators are used to assess the financial cycle?
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Literature review

- **Borio (2012)** - *self-reinforcing interactions between perceptions of value and risk, attitudes towards risk and financing constraints, which translate into booms followed by busts*
- **Drehmann et al (2010)** - the distance between two financial crisis, recommending the credit-to-GDP gap as a good starting point, due to its proper attributes to capture the performance of the crisis
- **Drehmann et al (2012)** - the financial cycle described mainly in terms of co-movements of credit and property prices. It is longer than the business cycle and it shows higher amplitudes.
- **Schuler et al (2015)** - the financial cycle tends to extend in time, especially in the upswing phase. The contraction phase of the financial cycle also lasts for several years, unlike the recession of the business cycle which may not exceed the timeframe of one year.
- **Einarsson et al (2015)** - recessions that coincide with financial cycle contractions last longer than other recessions. Thus, the role of the financial cycle is very important in facilitating the expansion of the real economy.

What indicators are used to assess the financial cycle?

To assess credit developments:

- Credit to GDP ratio
- Annual credit growth

To evaluate the performance of asset prices:

- House price index
- Annual growth of house prices

To assess the role of banks' balance sheet information:

- The ratio of short-term funding to total assets
- Net income to total assets
- The ratio of total loans to total assets

The methodology

In each period $t = 1, \dots, N$, the performance of each indicator includes two components: the long-term trend or trend (L_t) and the cyclical behavior or deviation cycle (D_t) as follows:

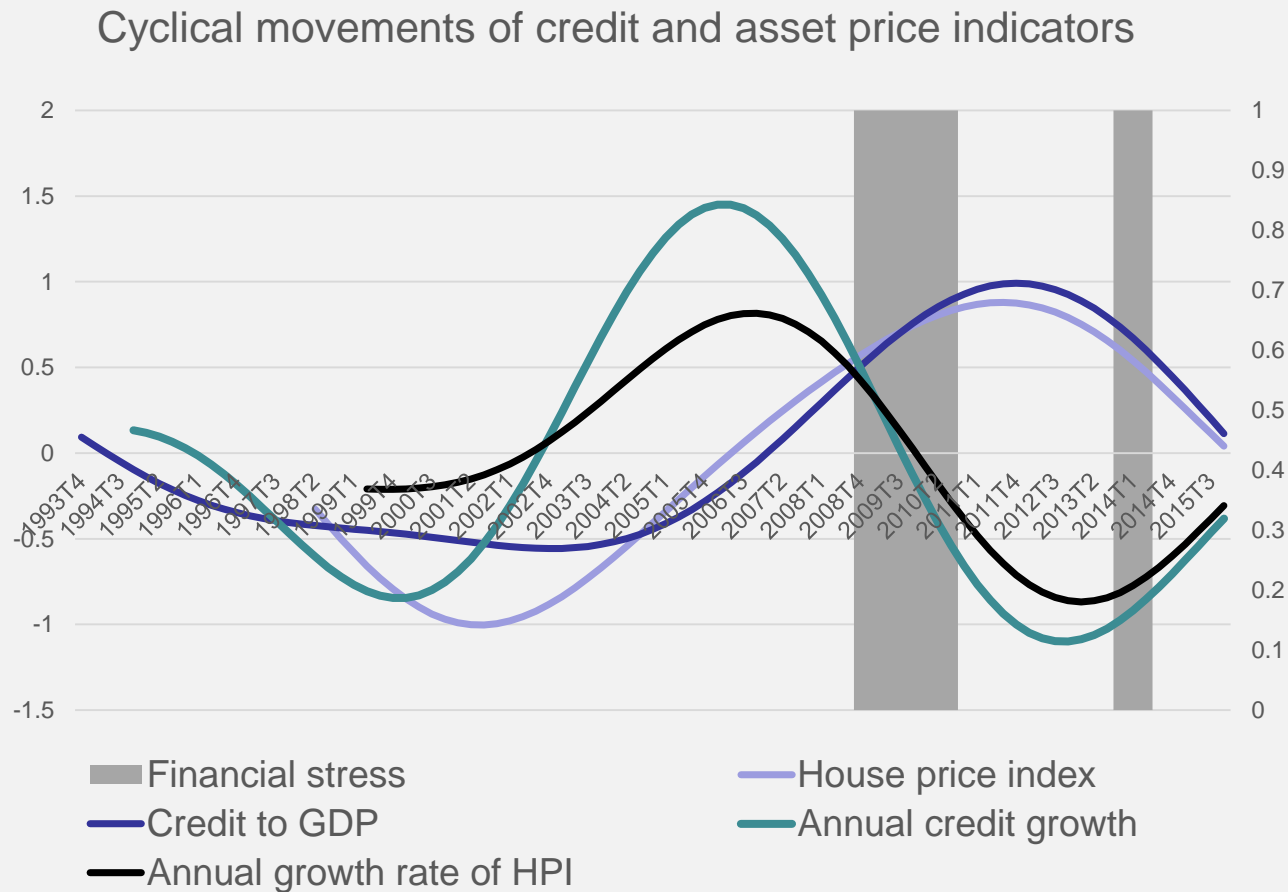
$$T_t = L_t + D_t$$

The long-term component L_t and the cyclical deviation component D_t cannot be monitored so they have to be assessed:

$$\check{T}_t = \check{L}_t + \check{D}_t$$

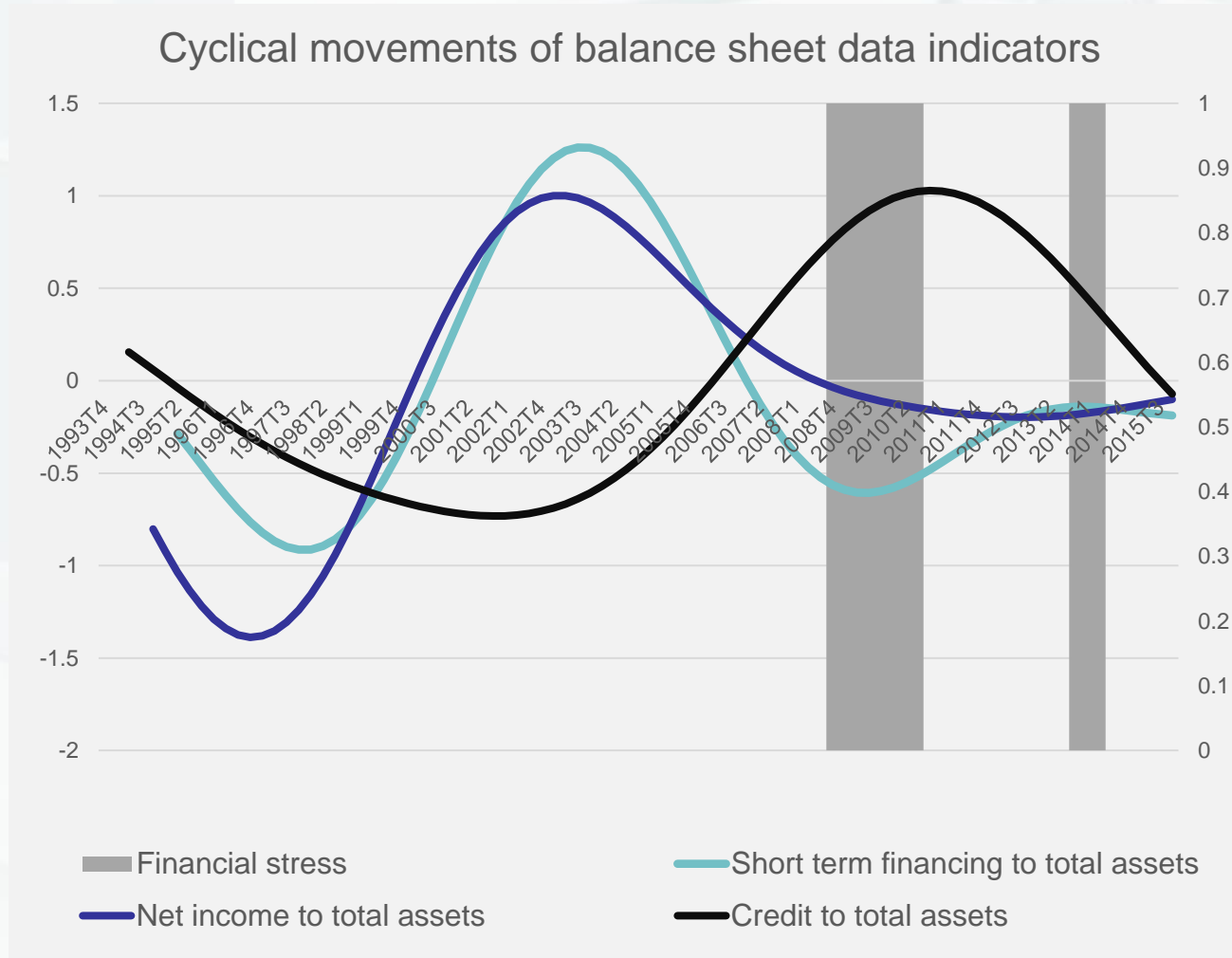
- The cyclical component is derived for each of the indicators using the band-pass filter (using the CF approach).
- The filtered indicators are combined for the construction of different potential financial cycle measures.

Credit and asset price indicators



- Cyclical component of credit and house prices co-moves together.
- For both indicators, their growth rate tend to culminate faster that the performance of the stock indicators.

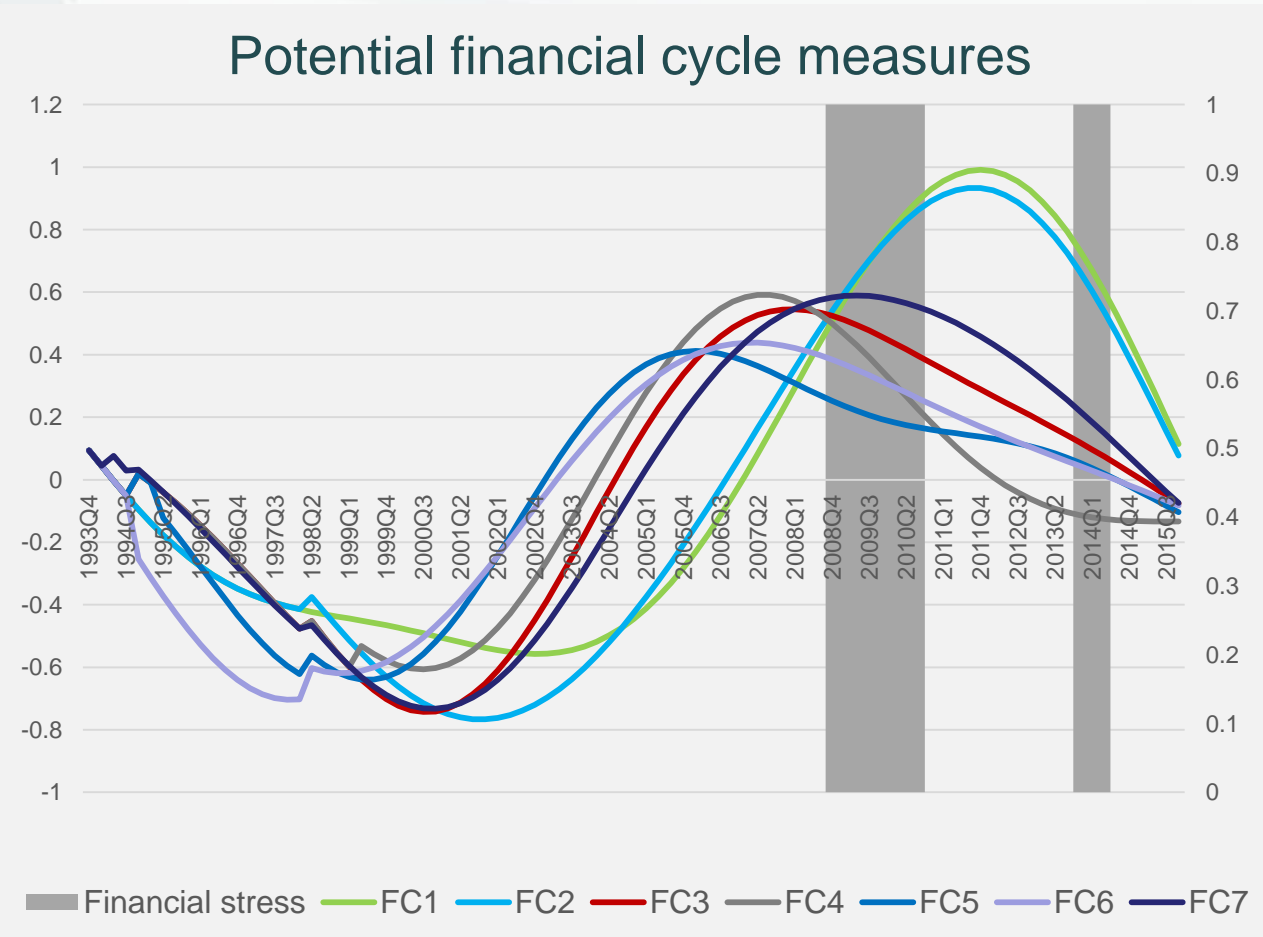
Balance sheet data indicators



- Filtered indicators based on the banks' balance sheet vary in frequency and amplitude.
- Net income and short-term funding act as leading indicators of financial stress periods.
- The ratio of credit to total assets culminates at the end of the identified period of financial stress.

Potential financial cycle measures for Albania

Financial cycle measure	Indicators
FC1	Credit-to-GDP ratio
FC2	Credit-to-GDP ratio, House price Index
FC3	Credit-to-GDP ratio, House price Index, Credit growth
FC4	Credit-to-GDP ratio, House price Index, Credit growth, House price growth
FC5	Credit-to-GDP ratio, House price Index, Credit growth, Short-term funding to total assets
FC6	Credit-to-GDP ratio, House price Index, Credit growth, Net income to total assets
FC7	Credit-to-GDP ratio, House price Index, Credit growth, Total loans to total assets

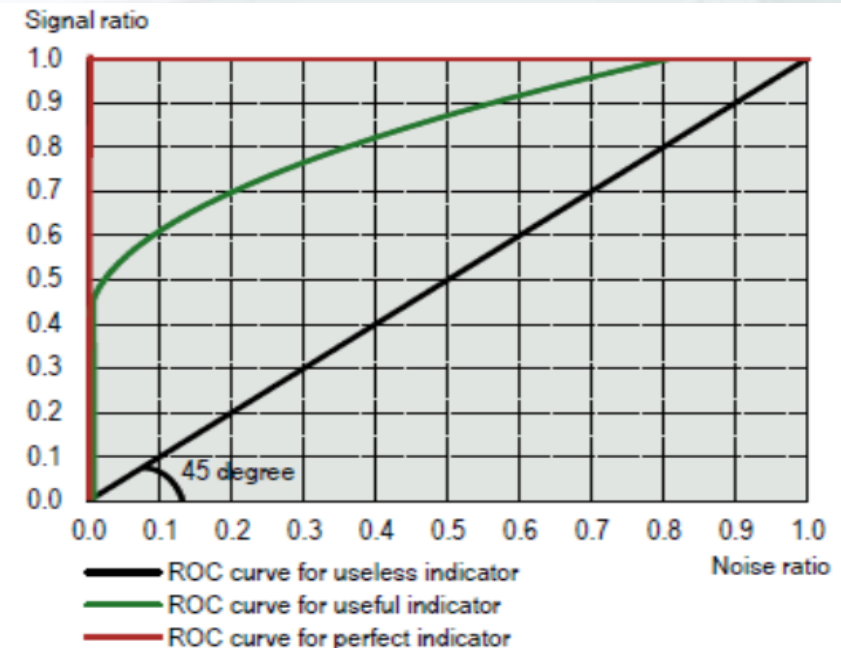


Evaluation of the best measure of the financial cycle

The relationship between different synthetic indicators and financial crisis periods, focusing on how they coincide in time, but without aiming at using the financial cycles as an early warning indicator of the financial crisis

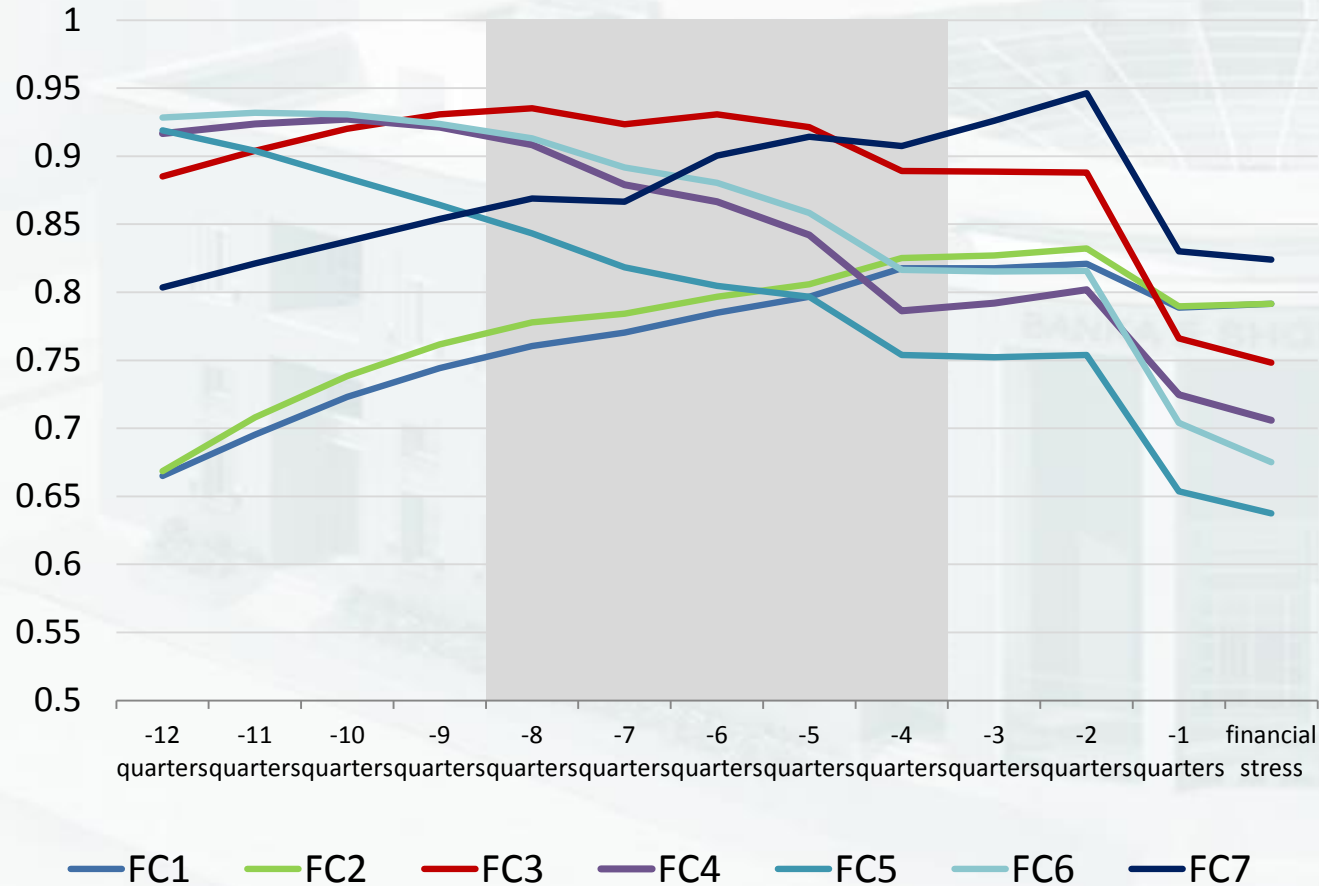
$$\text{Crisis}_{i,t} = C + CF_{i,t}$$

	Crisis during Q quarters	No crisis during Q quarters
Signal	A	C
No signal	B	D



Evaluation of the best measure of the financial cycle

AUROC of financial cycle measures

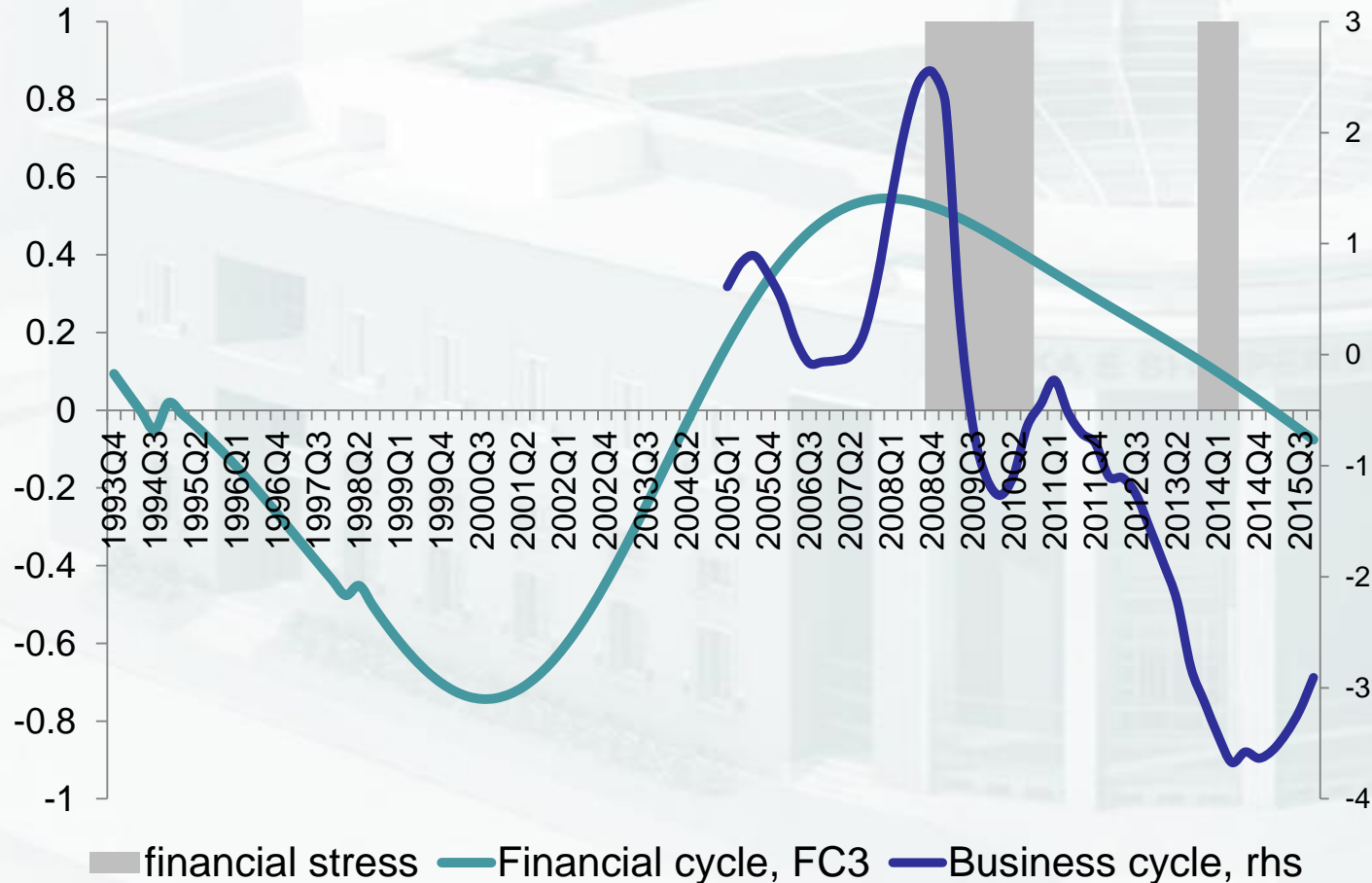


- 91 AUROC curves estimations
- AUROC fluctuates between the range of 0.64-0.95, with the highest level for FC3 and FC7

Expert judgment required considering:

- a) which of the measures better assesses the boom before periods of financial stress
- b) which of the measures can be interpreted more easily in the financial cycle terms

Financial cycle vs. business cycle



Credit to GDP ratio, the housing price index and credit growth together derive the best estimation of financial cycle.

Financial cycle vs. business cycle

- Higher average duration of the financial cycle
- Lower variance and less volatile of the financial cycle
- Financial cycle slowdown in Albania had a strong impact on the country's economic developments, reflected in a rapid contraction of the business cycle.

Conclusions

- Key components of the financial cycle in Albania identified, its construction techniques and differences between potential indicators that could serve as measures of financial cycle.
- Results show that indicators of credit-to-GDP ratio, the house price index and the credit growth rate are the best choices to construct a synthetic index to measure the financial cycle.
- The financial cycle is positively correlated with periods of financial stress, which should be considered appropriately in policies that could be implemented.
- The financial cycle measure can serve to different purposes in macro-prudential policies.

An aerial, high-angle view of a large, modern building complex. The building features a prominent central courtyard with a grid-like roof structure. The surrounding building has multiple stories with numerous windows and a curved facade. The entire image is rendered in a light, monochromatic teal color.

Thank you!