Incorporating FS into MP Framework

Model Development Unit (MDU)
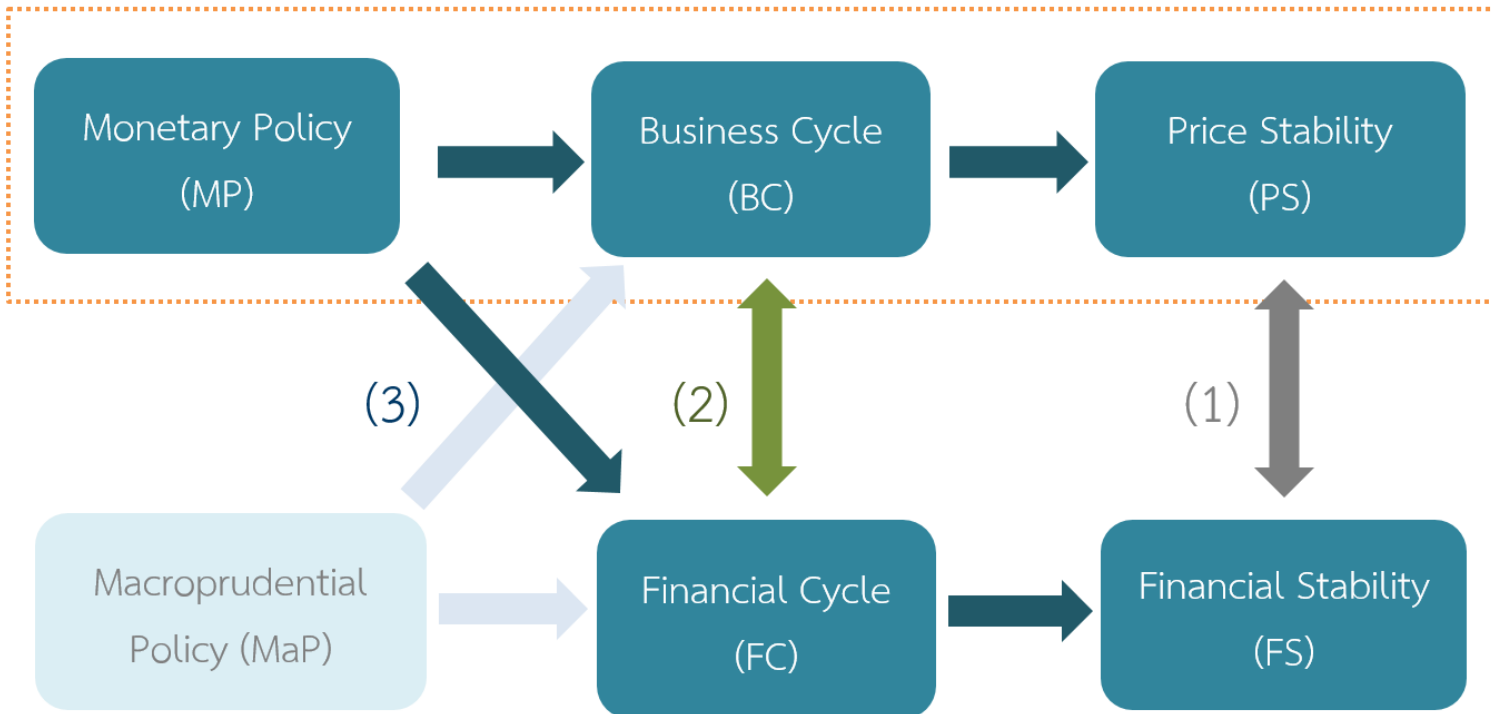
PIER Research Exchange

8 March 2018

Traditional

Link (1) PS and FS are mutually beneficial and re-enforcing
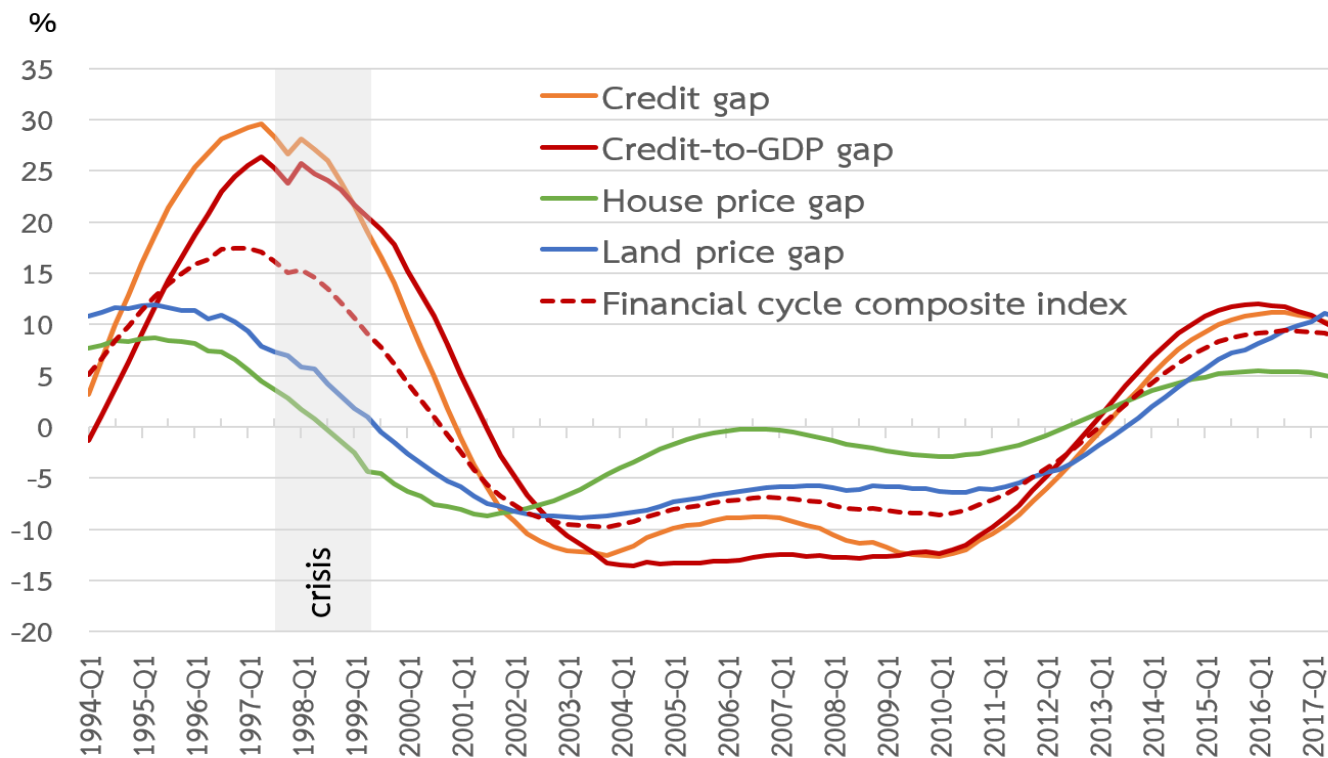
Link (2) FC and BC are related

Link (3) Interaction between MP and MaP

- Financial Cycle and Policy Implication

- A FS-oriented Monetary Policy Framework

- Summary

Financial Cycle and Policy Implication

- FC is an aggregate measure for financial imbalances

- Determinants of FC are credit and asset prices

- Peaks used as a predictor of financial crises.

* FC (composite) calculated by averaging 4 sub-indices: credit gap, credit-to-GDP gap, land price index gap, and house price index gap.
  Non-financial private credit (household + corporate) is used.

** FC is calculated by using CF-filter, see Drehmann et al. 2012 "Characterising the financial cycle: don't lose sight of the medium term!" 5/16

%

Legend:
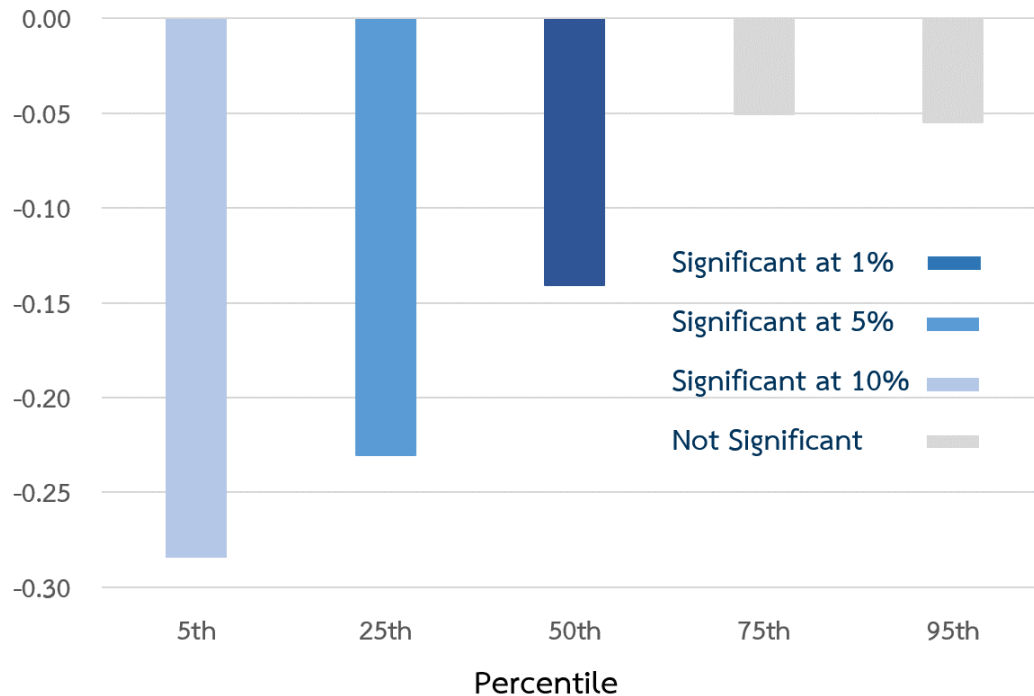- Output gap (Laubach-Williams)
- Financial cycle (composite)
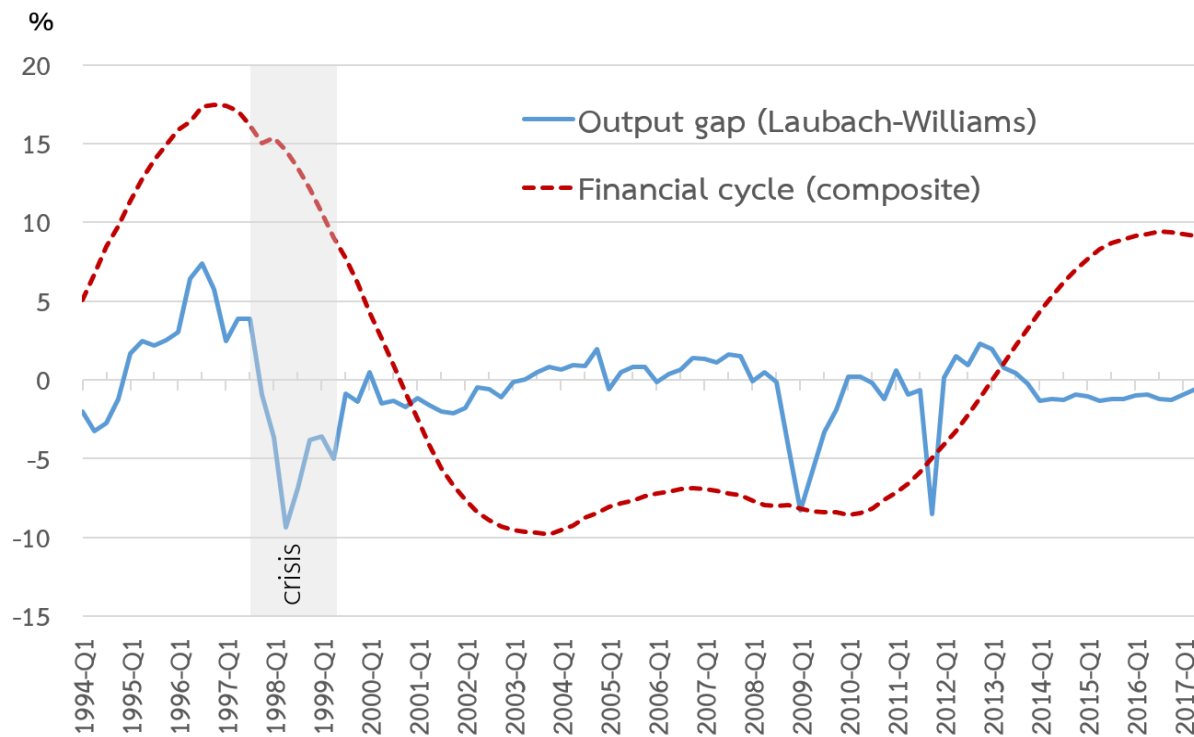
- Duration and amplitude of FC (red) are higher than those of BC (blue)

- Economic recessions are more severe during downturns of FC
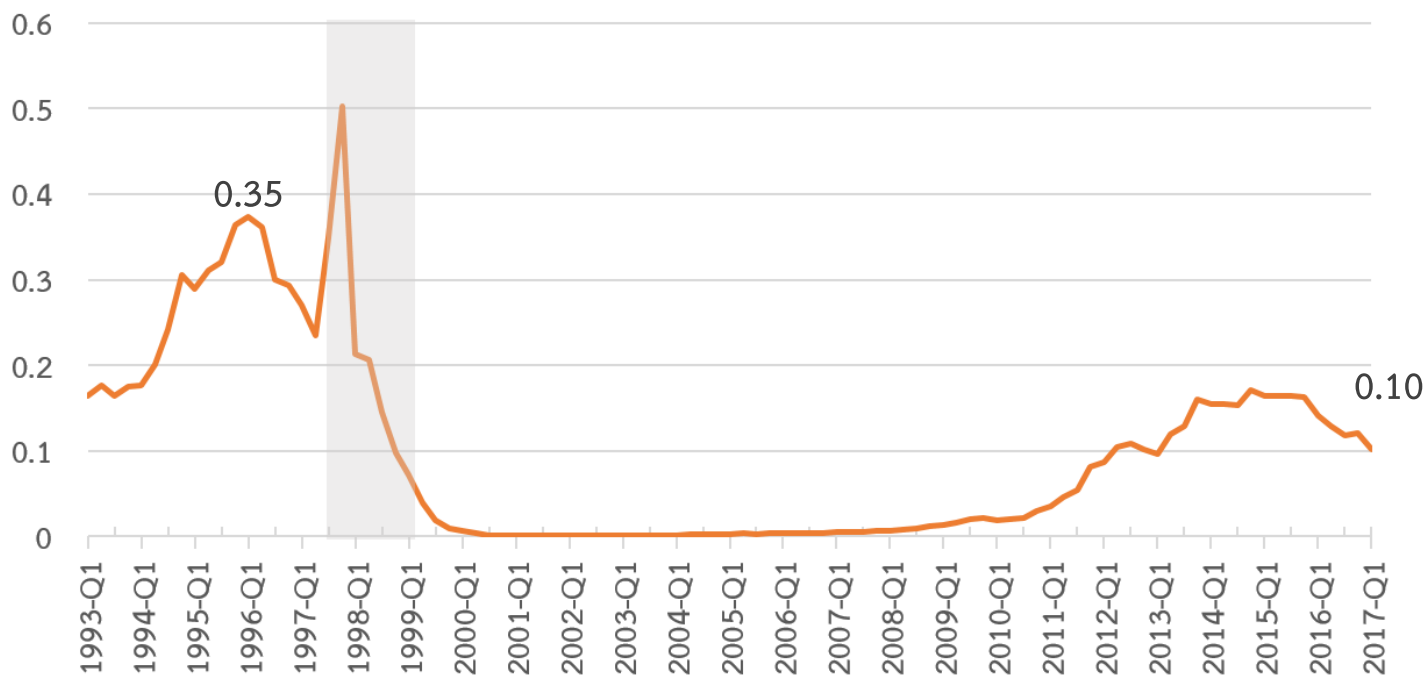
* BC is measured by output gap.

Quantile regression coef. of 1Y-ahead GDP growth on FC

- (Non-linear) Negative impact of an increase in FC on future economic growth

- Example: Around 5th percentile of (historical) GDP growth

  FC increases by 1% ⟶ GDP growth (next year) decreases by 0.28%

Forward-looking crisis probability in Thailand (1-3 years ahead)

- Crisis prob. by panel logistic regression using a cross-country data (credit-to-GDP ratios)

- Used as an early warning indicator for systemic crisis up to 1-3 years ahead

* See Anundsen et al. (2016) "Bubbles and crises: The role of house prices and credit."
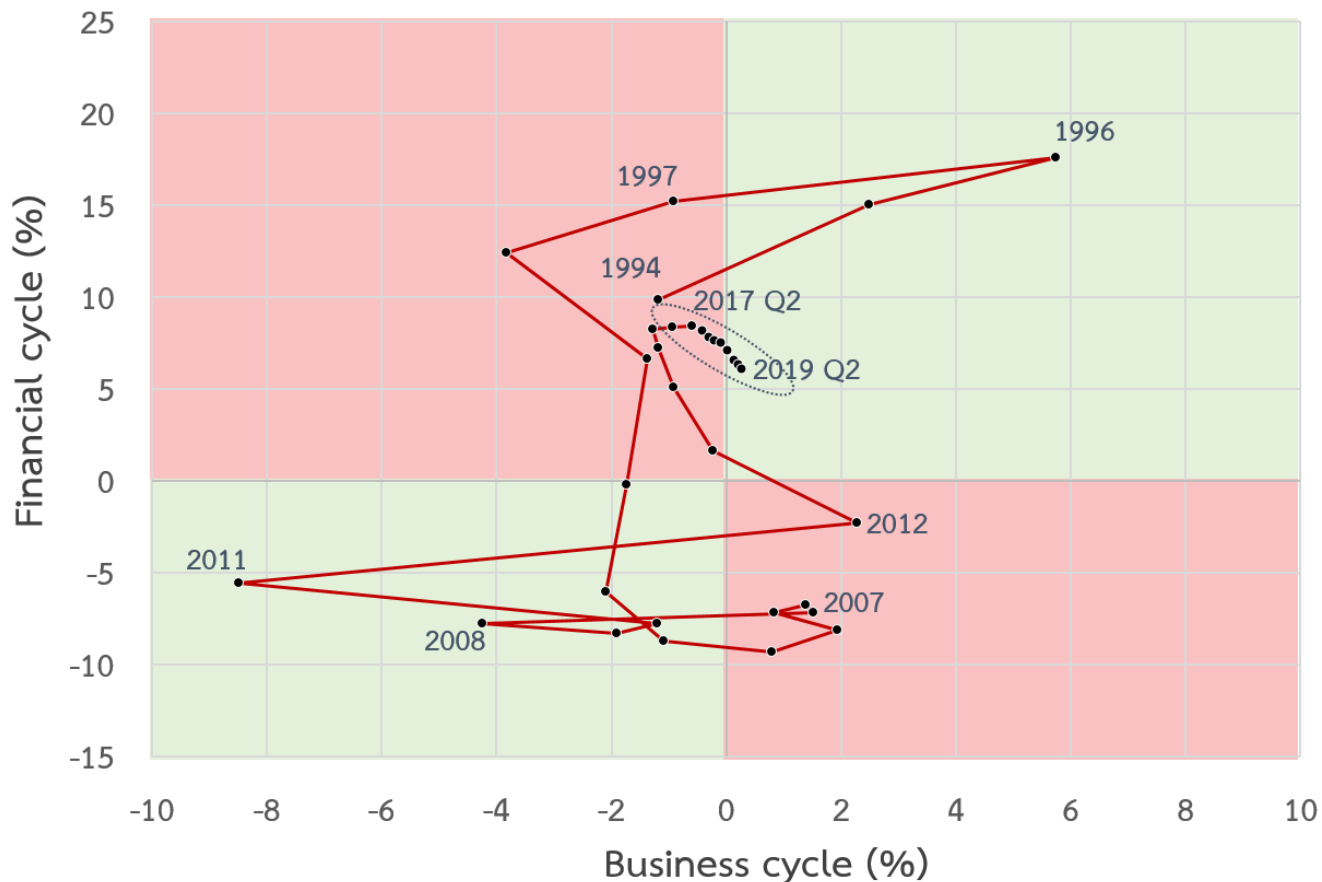
** We use quarterly credit-to-GDP ratios of 16 countries obtained from BIS over 1993 Q1 - 2017 Q1, mapped to individual systemic crises

(see crises database in Laeven and Valencia (2013), "Systemic banking crises database: An update")

A FS-oriented Monetary Policy Framework

Thailand's FC vs. BC (1994 Q1 – 2019 Q2)*

- In 'complementary' zone (green), policy that addresses PS would also benefit FS

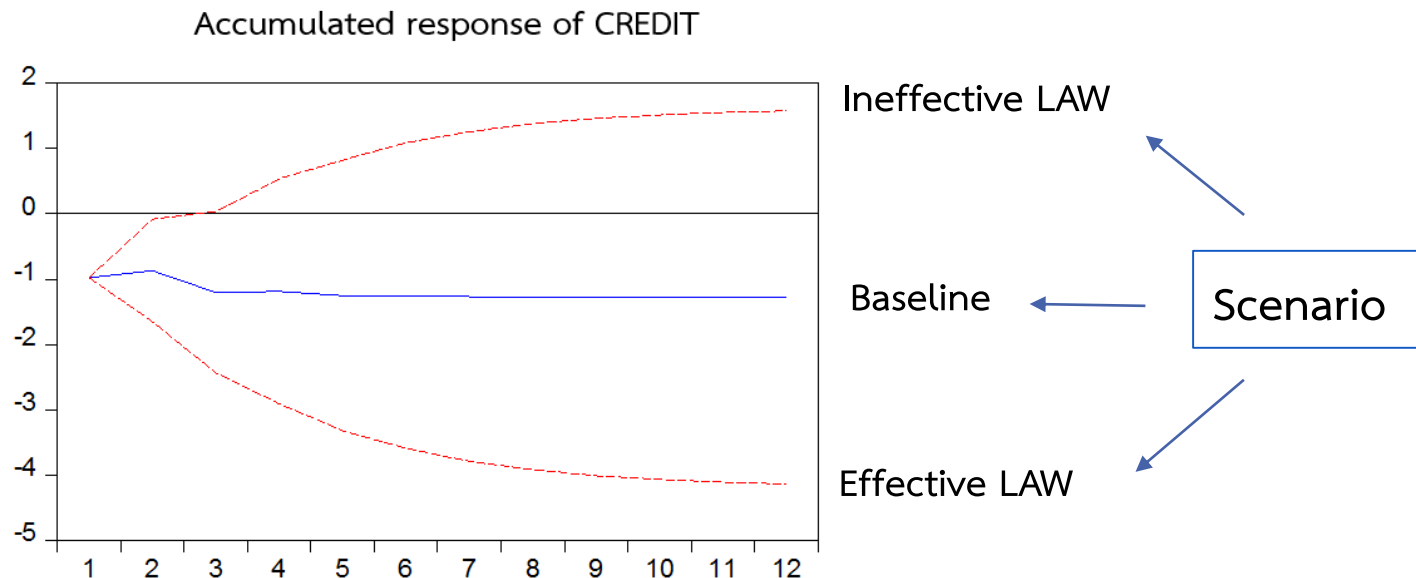- In 'opposite' direction (red), we need a trade-off between PS and FS

*Projected path (2017 Q4 -2019 Q2) for FC consistent with 4-6% credit growth and historical house price growth.

Accumulated Responses to Policy Shock

- A structural VAR model comprises GDP, CPI, RP1, LAND and CREDIT

$$X_t = A_0 X_t + A_1 X_{t-1} + A_2 X_{t-2} + e_t + DUBAI\_1_t + REER\_1_t$$

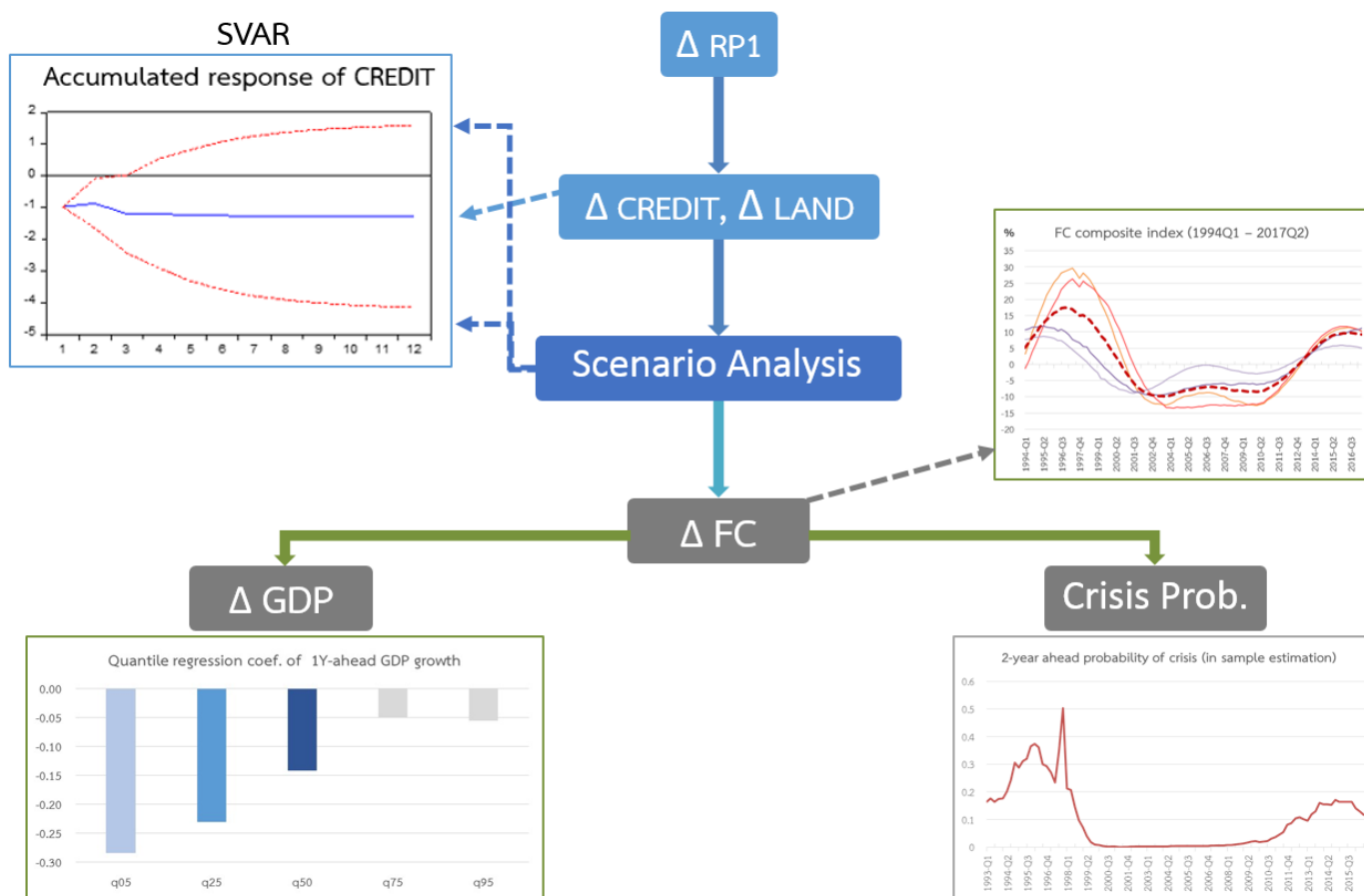where $X_t = (CPI\_1_t, GDP\_1_t, RP1\_1_t, LAND\_1_t, CREDIT\_1_t)'$

- Impulse reponse of CREDIT growth to an increase of policy rate by 1%

Accumulated response of CREDIT

Ineffective LAW

Baseline ← Scenario

Effective LAW

Analytical Framework for Policy Simulation

- Δ FC is calculated by impulse responses of CREDIT and LAND

- Δ FC impacts GDP growth (via quantile regression) and crisis probability (via panel logistic regression)

Δ RP1 = +100 bps

Price stability

Financial stability
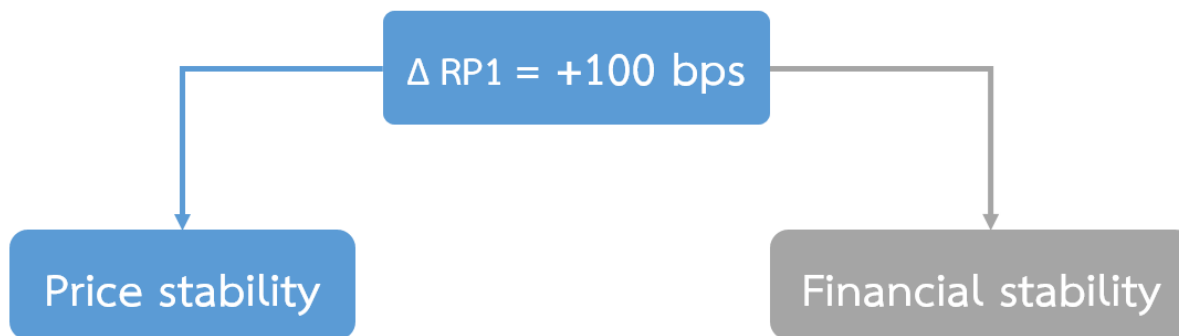
2018	
Δ GDP	Δ CPI
-0.10% to -0.18%	-0.02% to -0.07%

Scenarios	2020	2020-2022
	Δ GDP	Δ Crisis Prob.
Effective LAW	+0.07 %	-4.62 %
Baseline	+0.01 %	-0.91 %
Ineffective LAW	-0.05 %	+3.62 %

- Short run: Cut down GDP growth by 0.10% - 0.18% (via BOT's macro-model)

- Long run (baseline): Improve future GDP growth by 0.01% (via quantile regression) and

   mitigate crisis prob. by 0.91 % (via panel logistic regression)

Summary

Key takeaway

- FC components are credit and property prices

- Incorporating FS into MP framework

  - Simple trade-off: Quadrant of BC vs. FC

  - Analytical trade-off: PS (short-term) vs. FS (medium-term)

Other consideration

- FS Dashboard

- Calibration of tools: MaP vs. MP

Future work

- Improve macro-model (e.g. DSGE with financial frictions)

    + Construct satellite model based on micro data

- Transmission analysis of MP and MaP for BC and FC

- Include impact of global FC