



# Incorporating Financial Stability into Monetary Policy Framework: The Bank of Thailand's Experience

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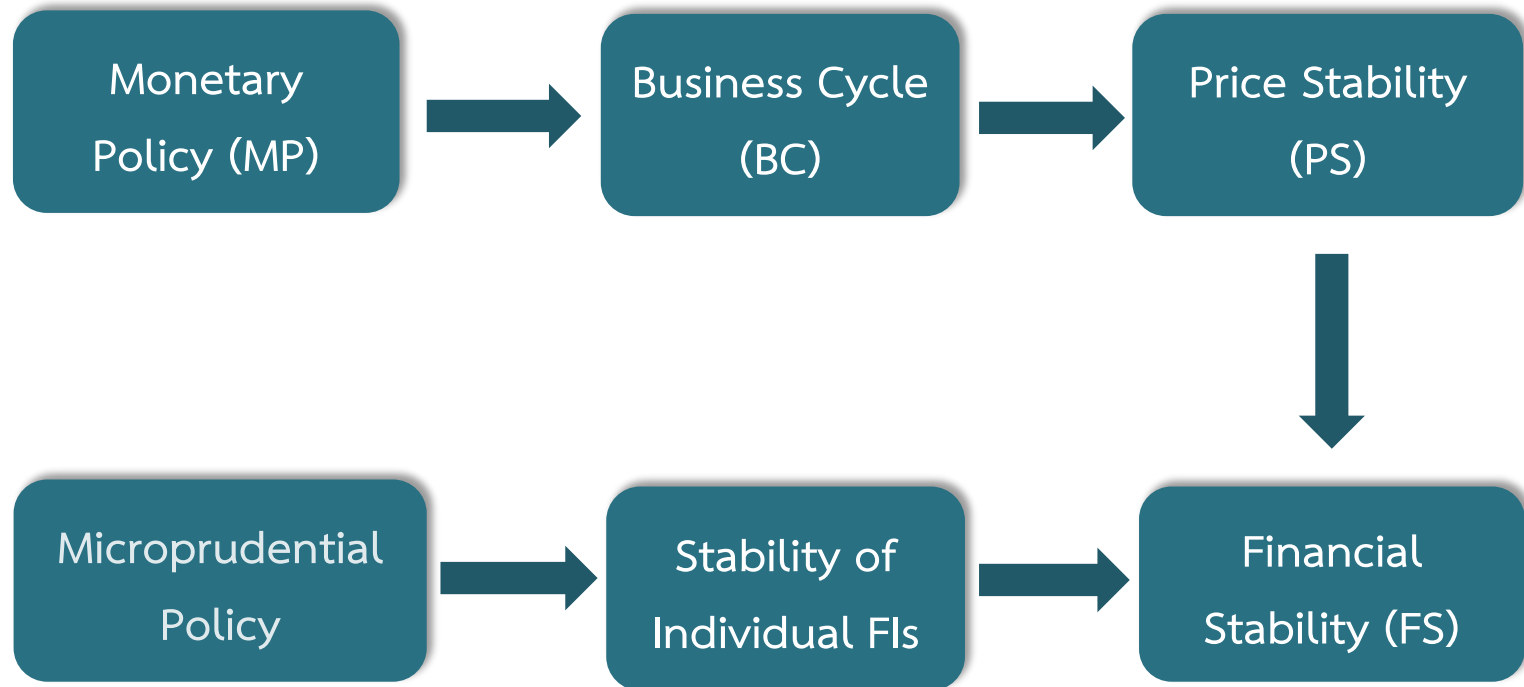
Central Bank of Sri Lanka

11<sup>th</sup> International Research Conference 2018

7 December 2018

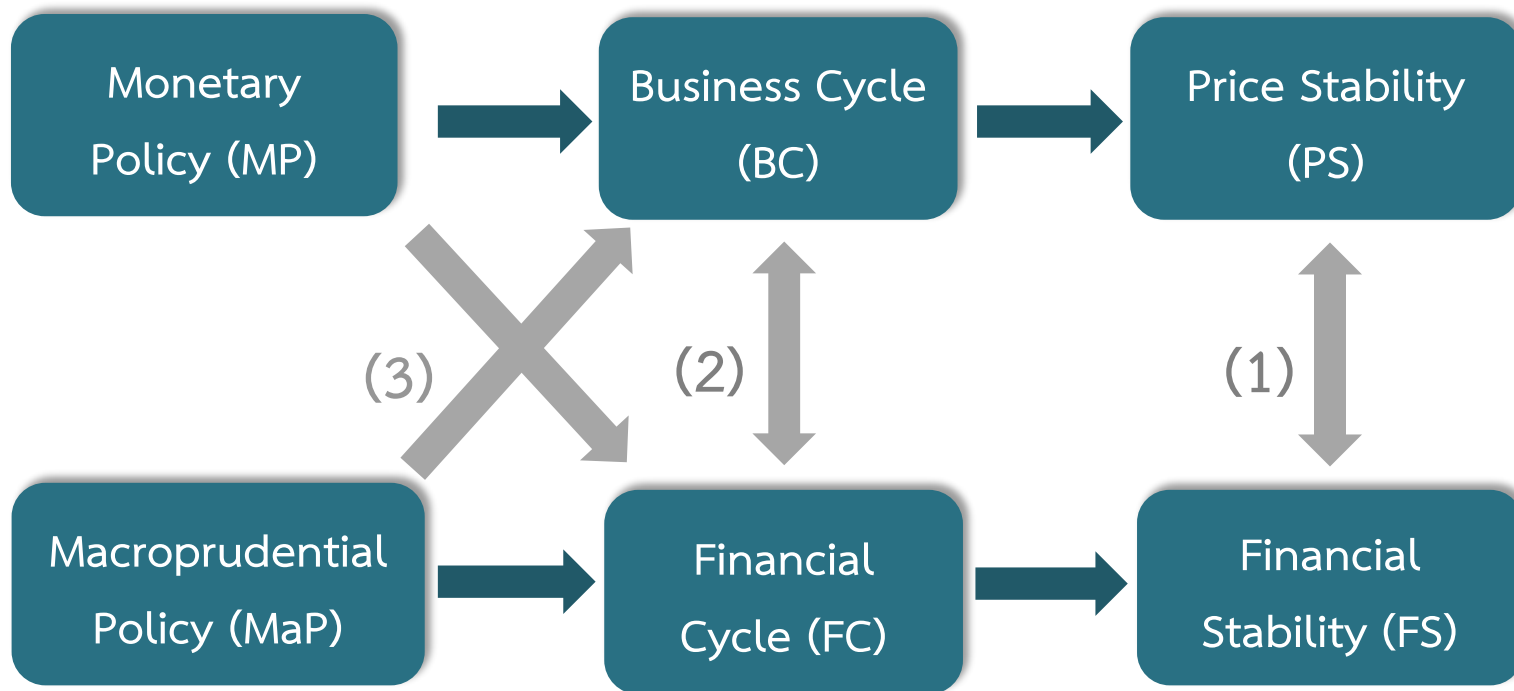
- Motivation
- Financial Cycle and Its Implications
- FS-oriented Monetary Policy Decision
- Summary

# Conventional MP Framework



- The conventional MP framework focused on maintaining price stability (PS)
- A lesson learned from the GFC is financial imbalances could build up even under low and stable inflation and closed output gaps

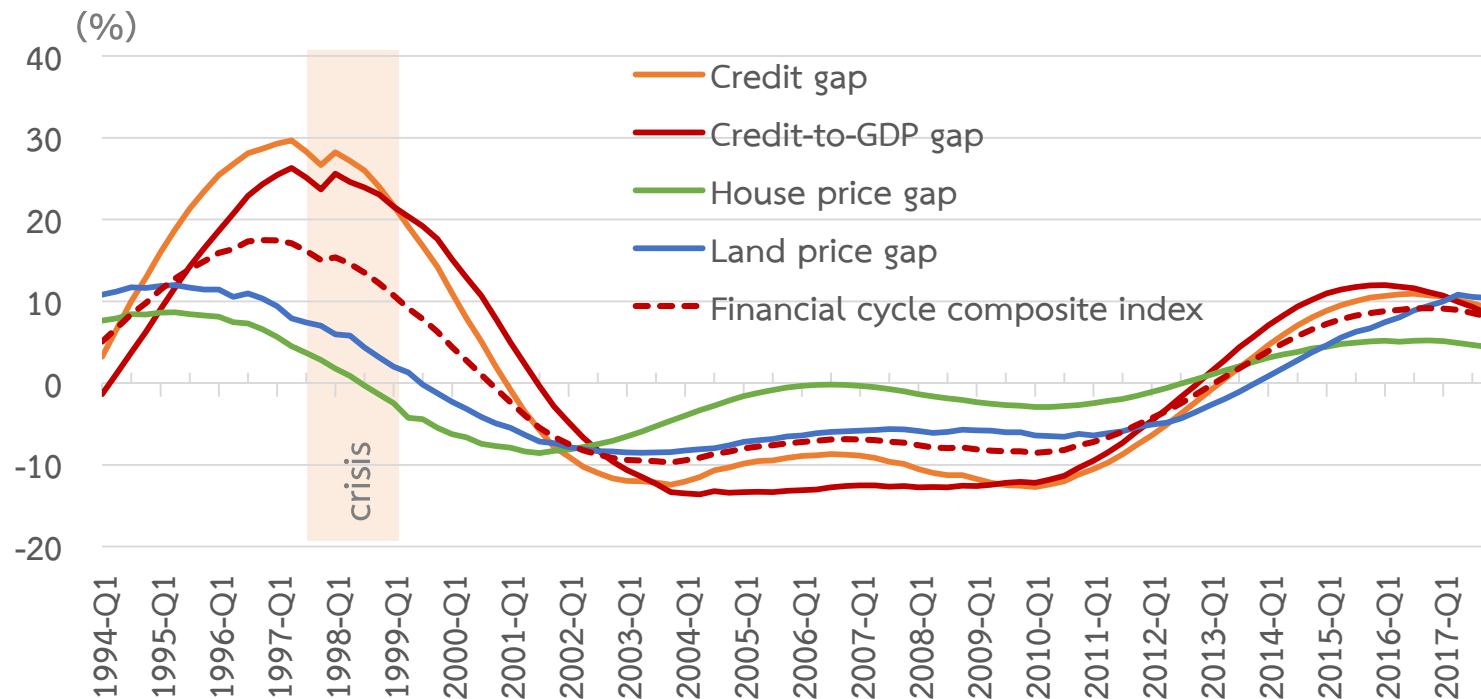
# Emerging MP Framework



- 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 Its Implications

# Thailand's Financial Cycle

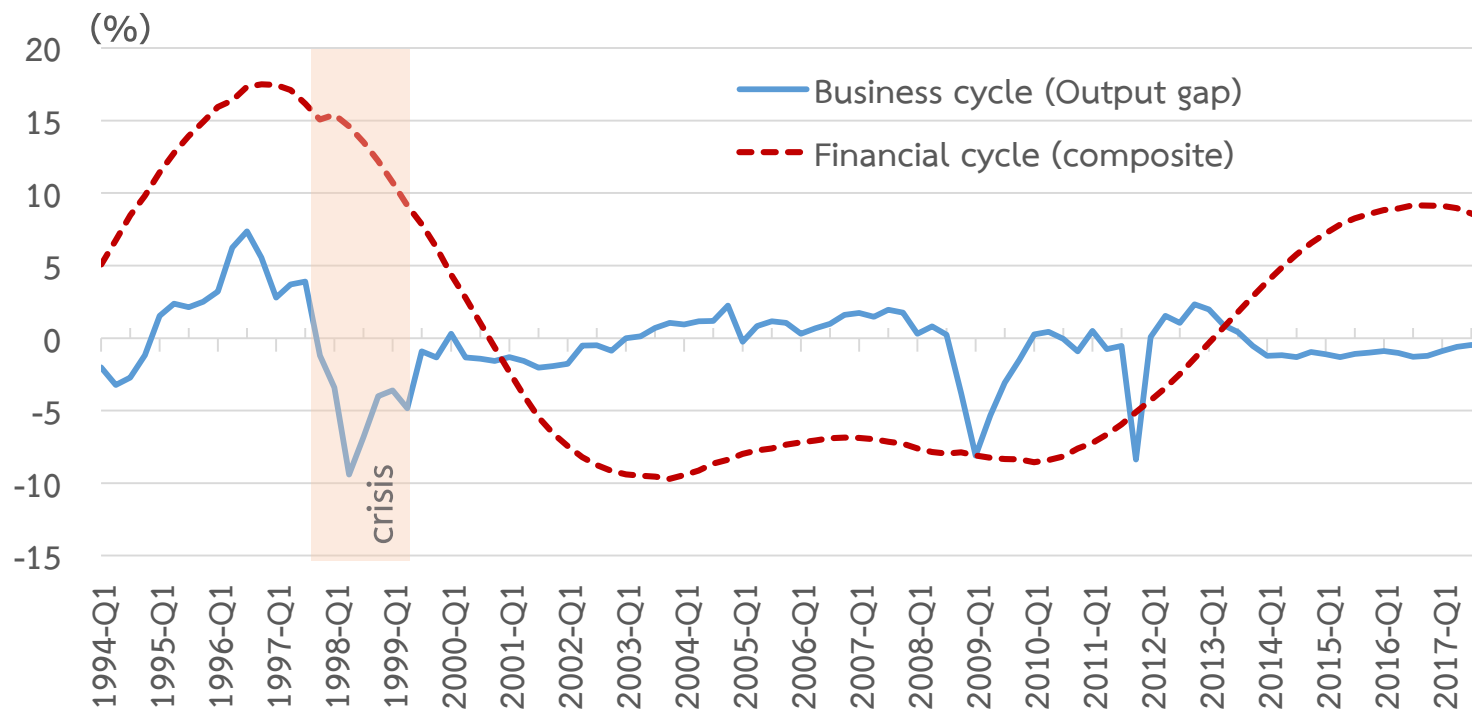


- FC is a summary measure of financial imbalances\*
- The determinants of FC are primarily cycles of credit\*\* and asset prices
- Peaks are used as a predictor of financial crisis

\* FC (composite) is calculated by averaging 4 sub-indices: credit gap, credit-to-GDP gap, land price index gap, and house price index gap, by using CF-filter, see Drehmann et al. (2012) "Characterising the financial cycle: don't lose sight of the medium term!".

\*\* Non-financial private credit (household + corporate) is used.

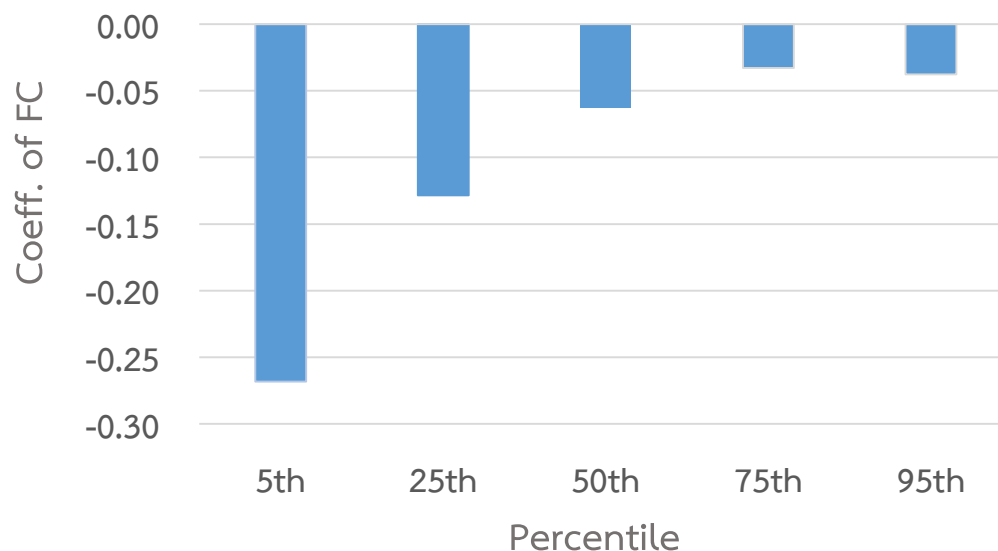
# Interaction Between FC and BC



- Duration and amplitude of FC (red) are higher than those of BC (blue)\*
- Economic recessions are more severe during the financial crises period

\* BC is measured by output gap.

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



- The magnitude of FC inversely impacts the magnitude of future GDP growth\*
- Example: Around the 5<sup>th</sup> percentile of (historical) GDP growth  
 FC increases by 1% → GDP growth (next year) decreases by 0.27%

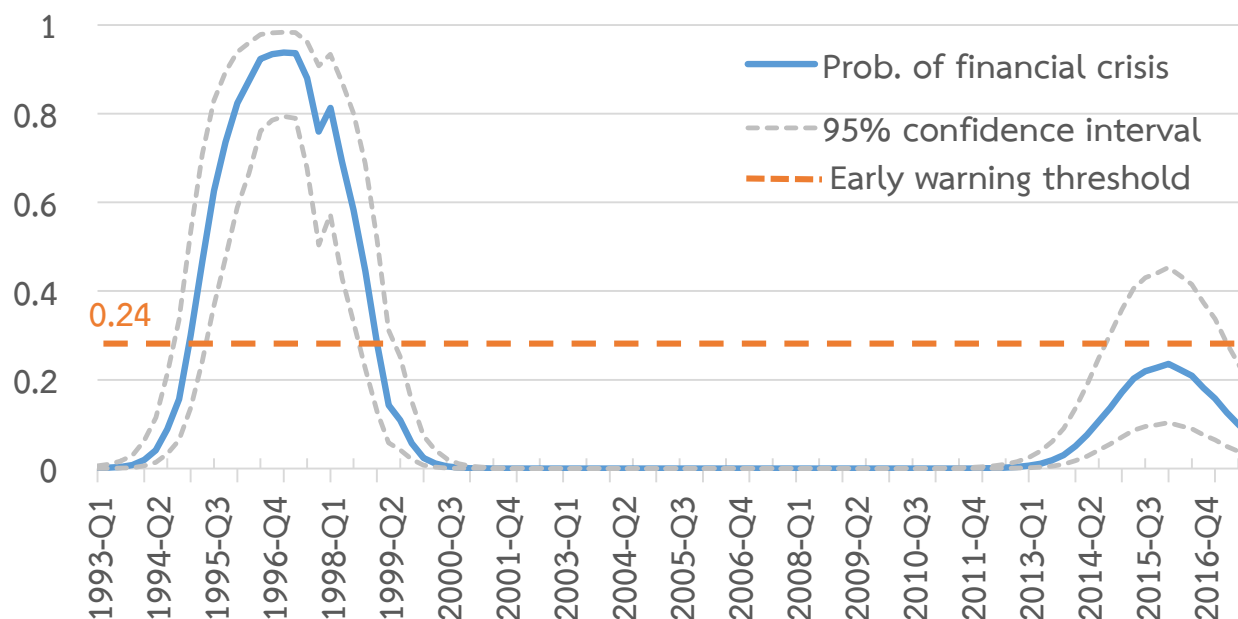
\* We use quantile regression for panel data (with country dummy variables) of 9 countries over the period of 1993-2017. Dependent variable is one-year ahead GDP growth while the independent variable is FC.

\*\* Data comprises 2 groups: (i) emerging economies (ii) advanced economies, gathered from BIS, OECD and CEIC.



# FC and Crisis Probability

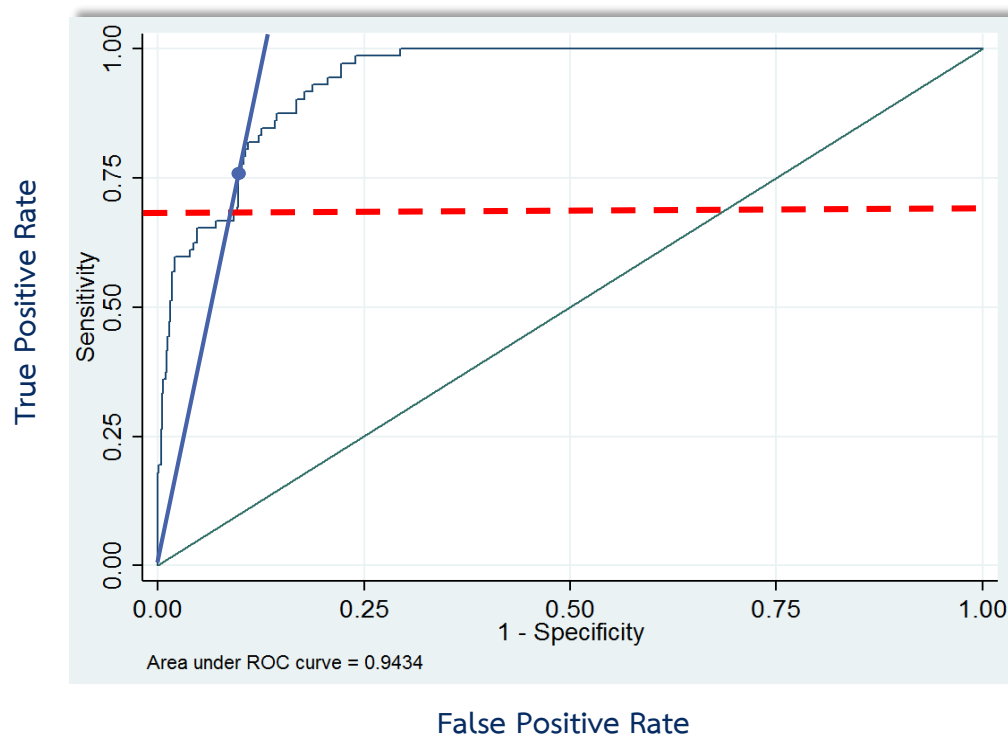
Forward-looking crisis probability in Thailand (1-3 years ahead)



- Crisis probability can be derived by mean of cross-country panel logistic regression\*
- This can be used as an early warning indicator for systemic crisis up to 1-3 years ahead
- A threshold of crisis probability enables policymakers to get an idea of an early warning state

\* See Anundsen et al. (2016) "Bubbles and crises: The role of house prices and credit". The same data set as in the quantile regression analysis is used and mapped to individual systemic crises (see crises database in Laeven and Valencia (2013), "Systemic banking crises database: An update").

# Derivation of Early Warning Threshold

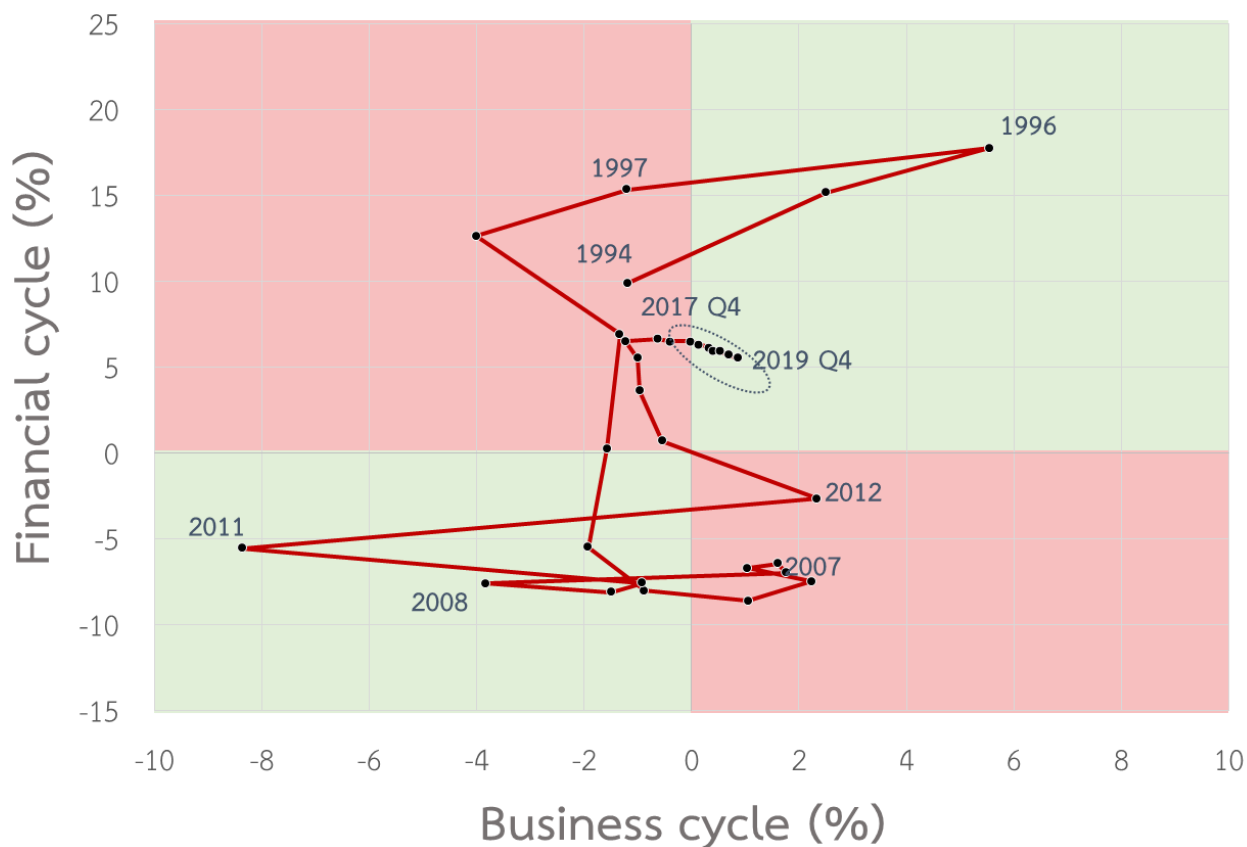


- Two criteria\* used to identify thresholds for an early warning state of financial crisis
  - i) Capturing 2/3 of the crises
  - ii) Minimizing the noise-to-signal ratio =  $\frac{FPR}{TPR}$

\* See Aldasoro et al. (2018), Early Warning Indicators of Banking Crises: Expanding the Family, BIS Quarterly Review, March 2018.

# FS-oriented Monetary Policy Decision

# A Simple MP Trade-off



- In 'complementary' zone (green), policy that addresses PS would also benefit FS
- In 'opposite' direction (red), we need to trade-off between PS and FS

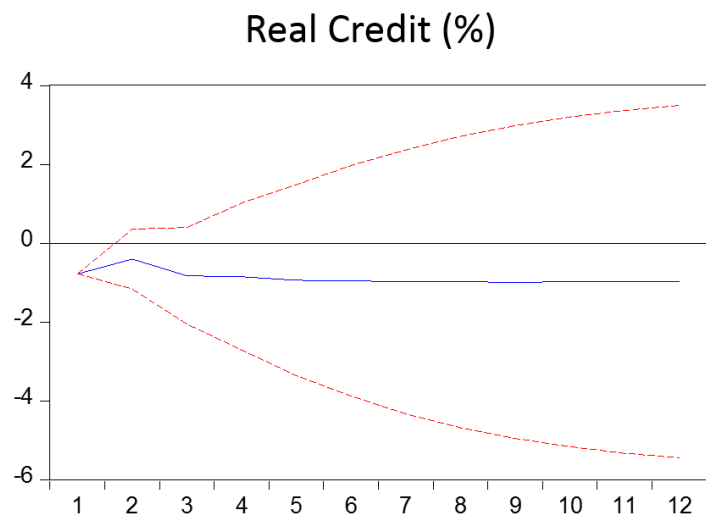
# A Core Model with Financial Variables

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

$$X_t = A_0 X_t + A_1 X_{t-1} + A_2 X_{t-2} + e_t + DUBAI_{1t} + REER_{1t}$$

where  $X_t = (CPI_{1t}, GDP_{1t}, RP1_{1t}, LAND_{1t}, CREDIT_{1t})'$

- The model is experimentally used to investigate the IRFs of policy rate shock on macro and financial variables.



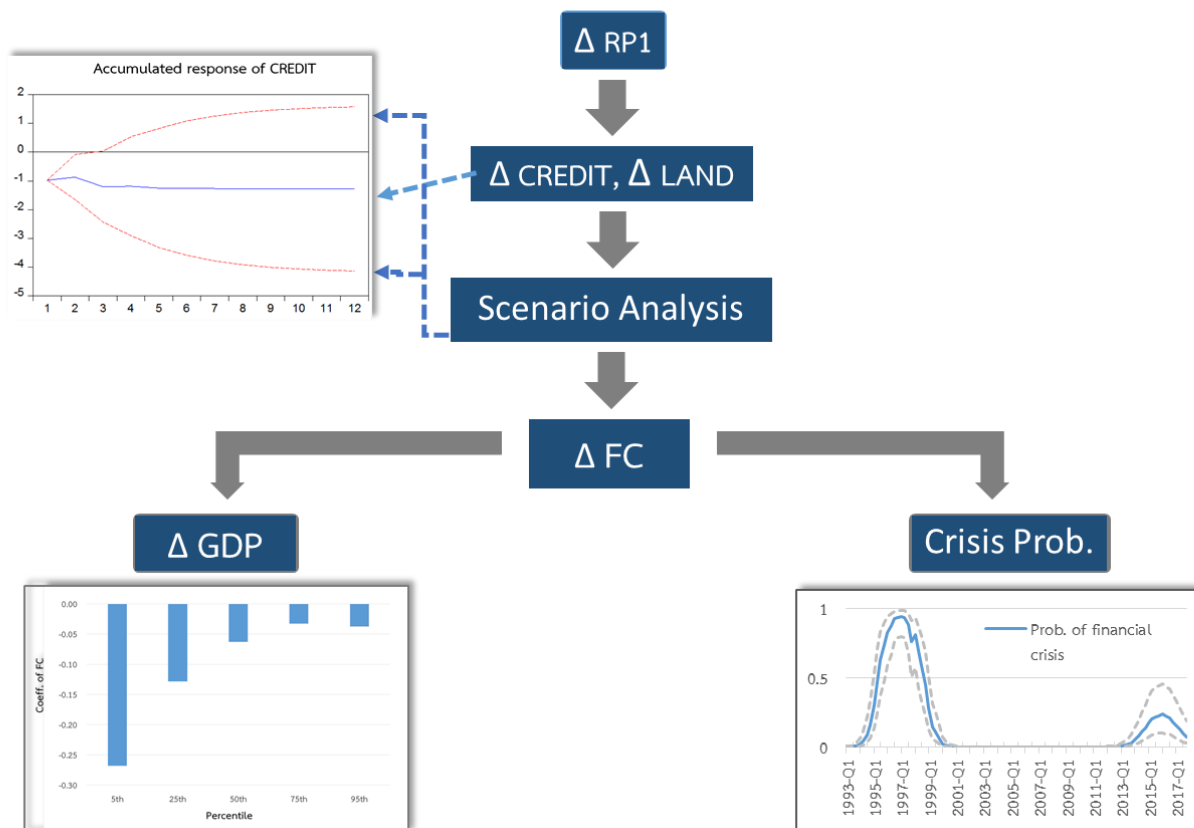
Ineffective LAW

Baseline

Effective LAW

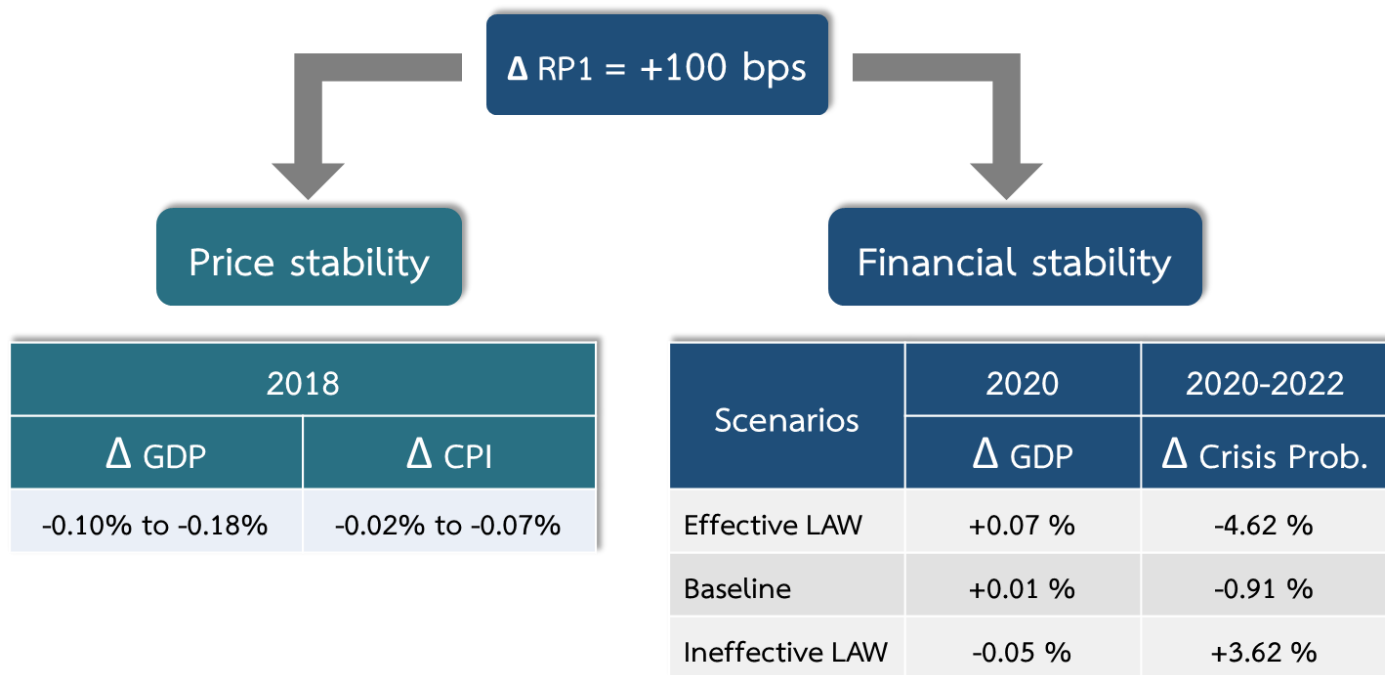
Increase policy  
 rate by 1%

# Analytical Framework



- $\Delta FC$  is calculated by impulse responses of CREDIT and LAND
- $\Delta FC$  impacts future GDP growth and probability of crisis

# A Policy Simulation

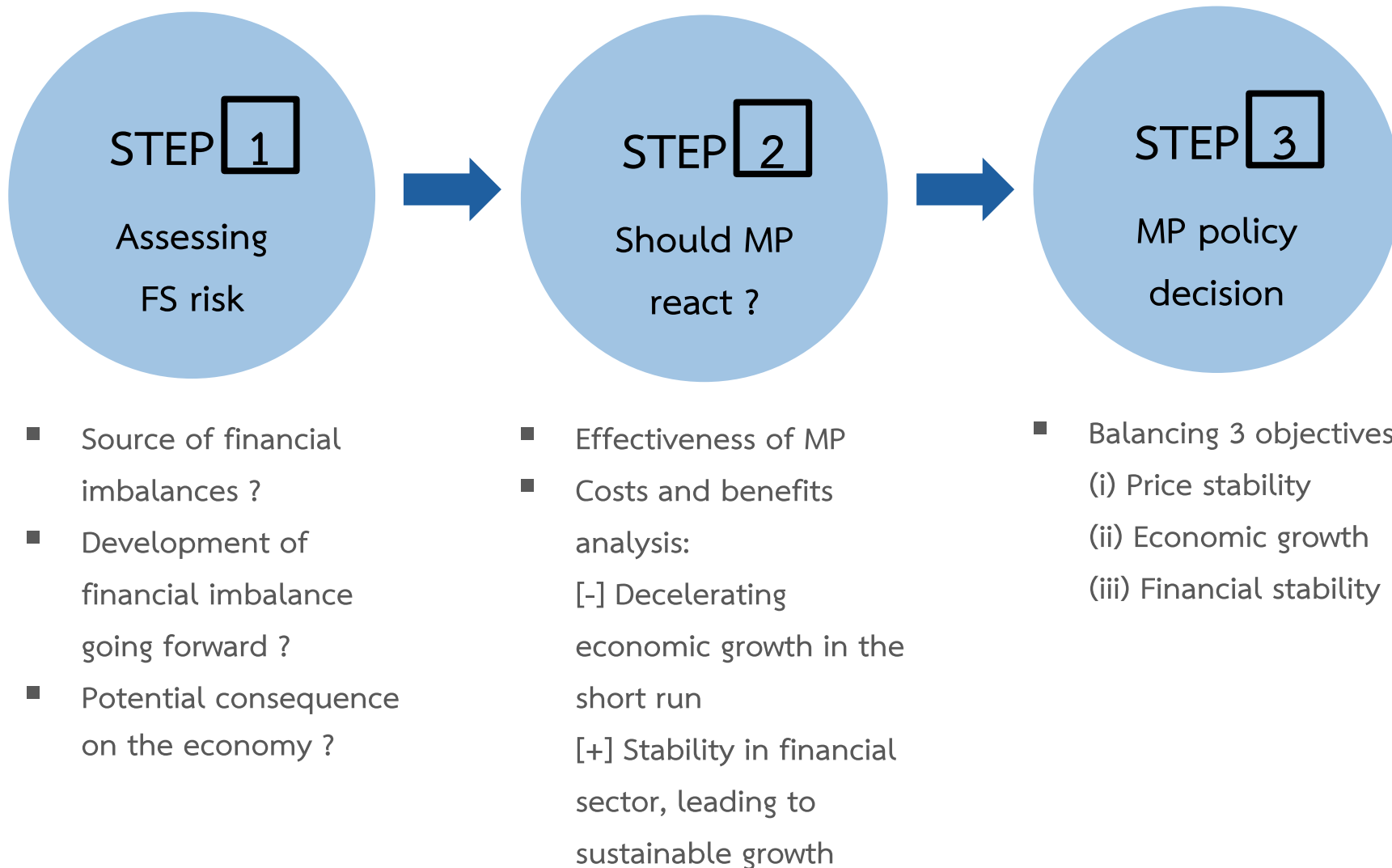


- The simulation exercise enables policymakers to evaluate costs and benefits of LAW
- Short run [cost]: Cut down GDP growth by 0.10% - 0.18% (via BOT's macro-model)
- Long run [benefit]: Improve future GDP growth by 0.01% (via quantile regression) and mitigate crisis prob. by 0.91 % (via panel logistic regression)

# Summary



# Steps to Incorporating FS into MP



## Conclusions

- FS becomes more important to the conduct of MP
- A systematic approach to incorporate FS into MP framework is considered:
  - Simple trade-off: Quadrant of BC vs. FC
  - Analytical trade-off: PS (short-run) vs. FS (long-run)
- FC is an overall measure for FS. It should be complemented with a set of disaggregate indicators to capture all pocket of vulnerabilities

## Forthcoming Research

- Developing macro-model (e.g. DSGE with financial frictions) to enhance quantitative analysis
- Analyzing macro-financial linkage using micro and balance sheet data
- The interaction between MP and MaP to design an optimal policy mix

Thank You