FORECASTING AT THE BANK OF MONGOLIA

MAY 2015

ENKHZAYA DEMID
MONETARY POLICY AND RESEARCH DEPARTMENT
BANK OF MONGOLIA

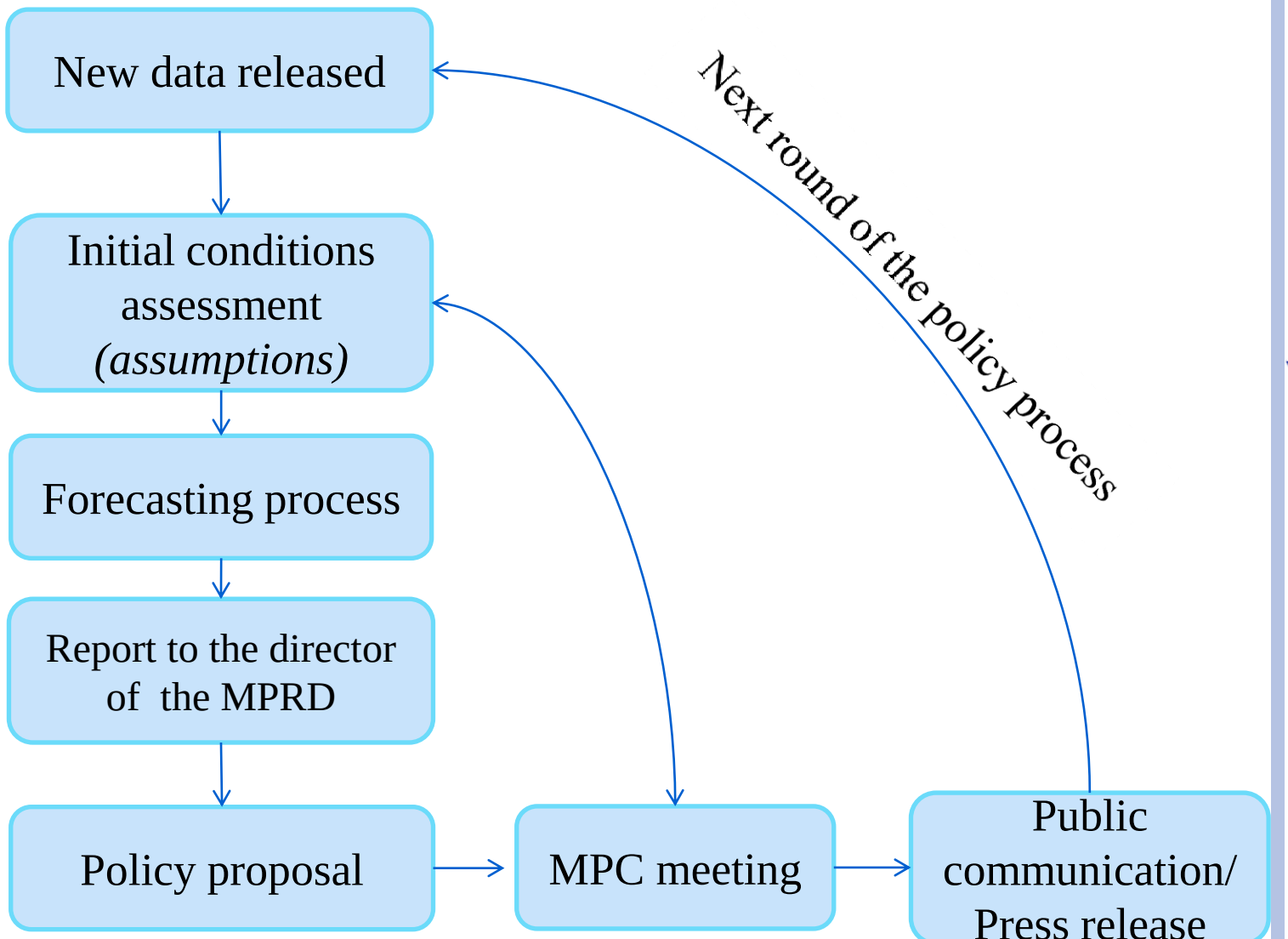
OUTLINE

- Overview
- Forecasting system in the Bank of Mongolia
- Forecasting methodology
- Economic statistics for forecasting
- Dissemination of forecasting
- Challenges for forecasting

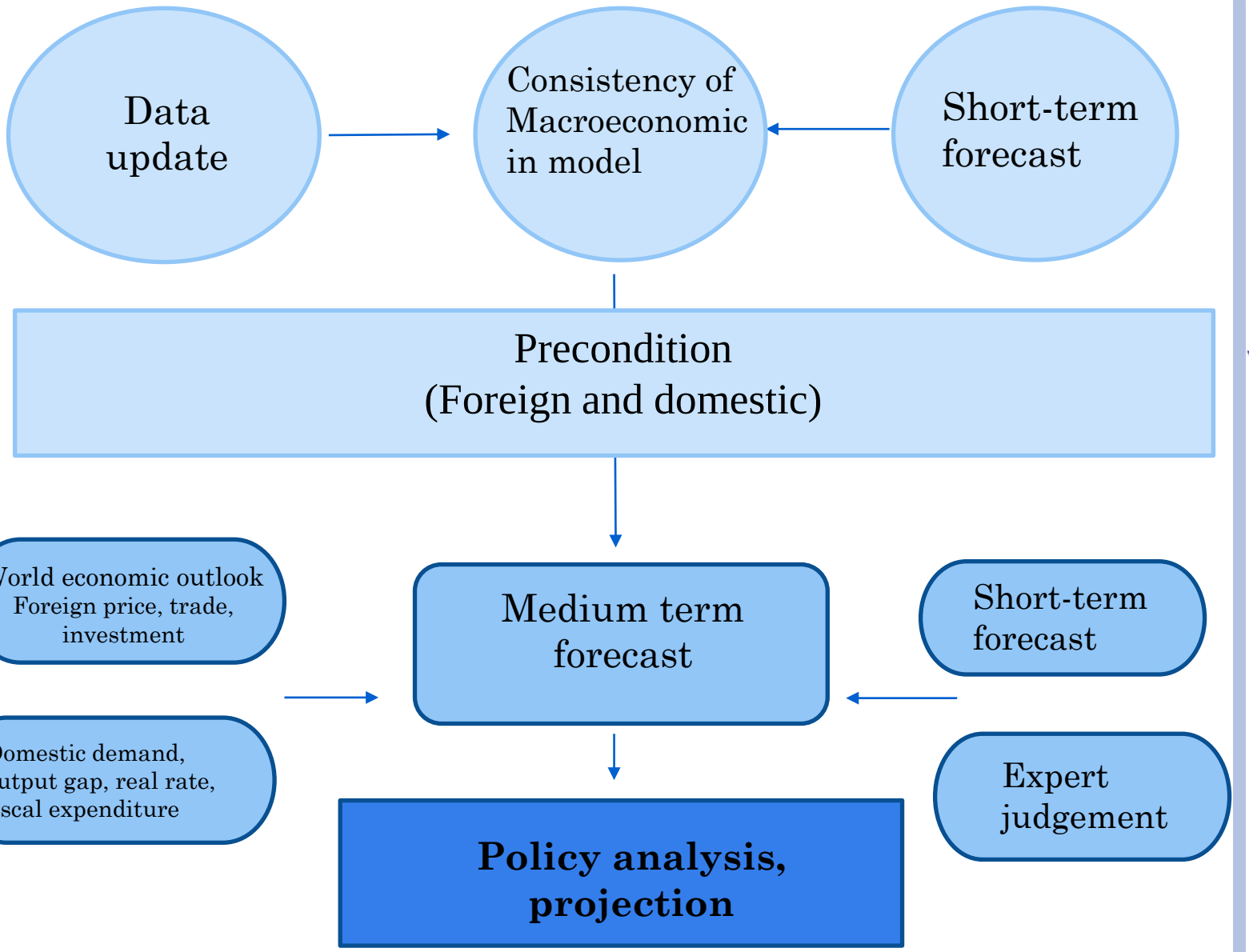
OVERVIEW

- The main objective of the Bank of Mongolia is focused at sustaining price stability.
    - For price stability the key indicator is inflation, measured by consumer prices index.
- Monetary policy-making is founded on a lots of theoretical assumptions and models, which needs to be verified using concrete statistical information.
- The information requirement covers the activities and behaviours of all economic agents within the economy, in the form of:
    - Bank and non-bank financial information
    - External sector developments (i.e. BOP statistics)
    - Fiscal sector statistics
    - The real economy (i.e. GDP, perceptions of real sector).
- Time series statistical data is importance in the exploration of the linkages economic activities and construction of forecast.
- The financial and external sector statistics are generated by the banks activities and NSO provide all other statistics not compiled by the bank.

Forecasting and Policy Analysis System



Forecasting process



OVERVIEW OF MACROECONOMIC FORECASTING

Base forecasting for the short and medium term:

- Short term: (Q1-Q4) – estimated monthly
  - Inflation
  - GDP

- Medium term: (Y1- Y3) – estimated quarterly

Economic forecasts predict the course of the aggregate economy and concentrate on variables such as GDP and inflation.

SHORT TERM FORECASTING

- GDP forecasting

There are two equivalent approaches to forecast the GDP in the short term.

- Supply side

GDP forecasts based on the production approach.

- Demand side

GDP forecasts based on the expenditure approach.

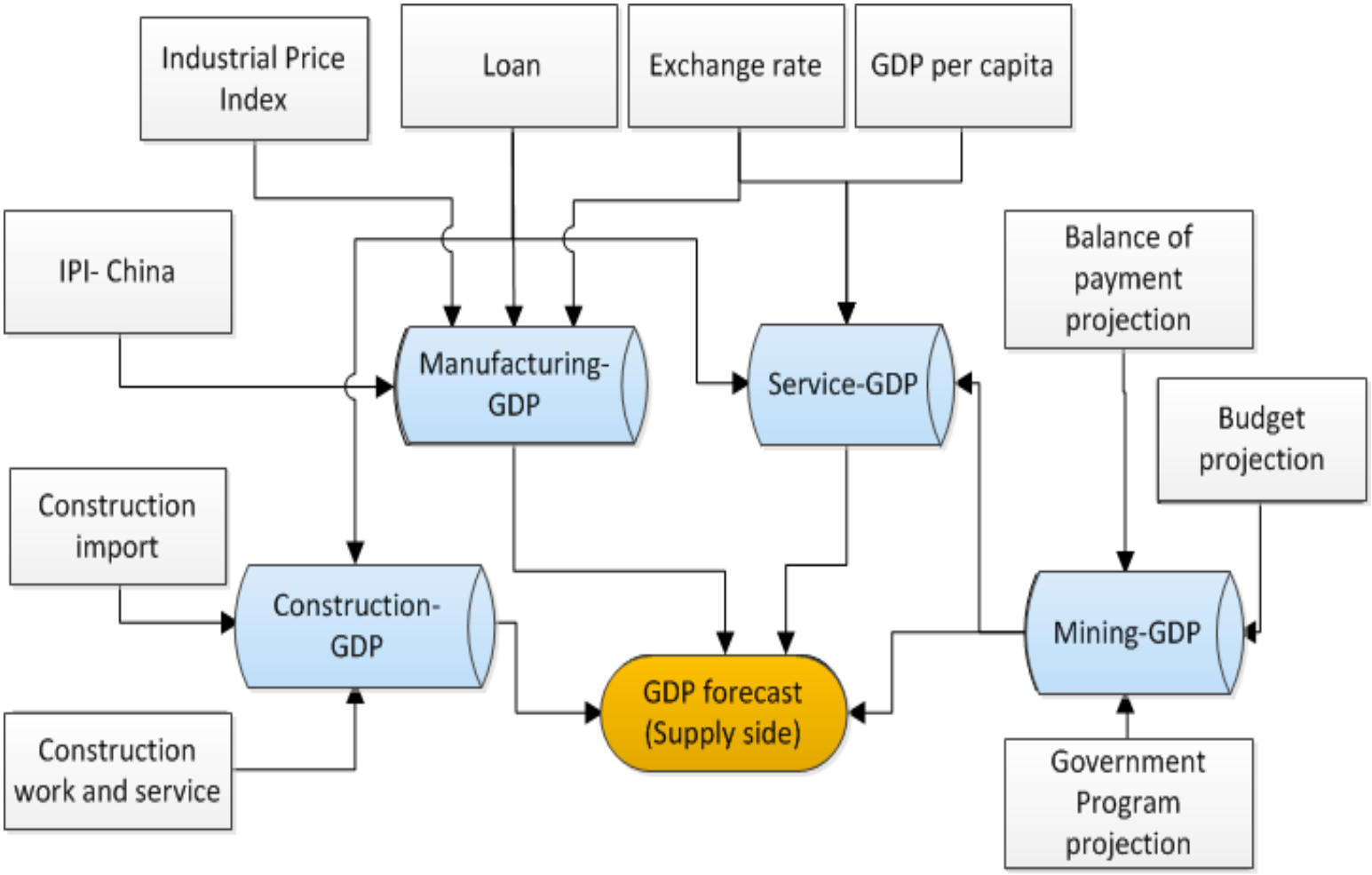
GDP FORECASTING (SUPPLY SIDE)

- GDP forecast, by classification of economic activities, which includes:

GDP, by production	
Mining	**6. Wholesale and retail trade**
Non-Mining	**7. Transportation and storage**
2. Agriculture	**8. Information and communication**
3. Manufacturing	**9. Other services**
4. Electricity, gas and water	**10. Net taxes on products**
5. Construction	

Estimate representative indicator → Estimate production of sectors → **Total GDP**

GDP FORECASTING (SUPPLY SIDE)

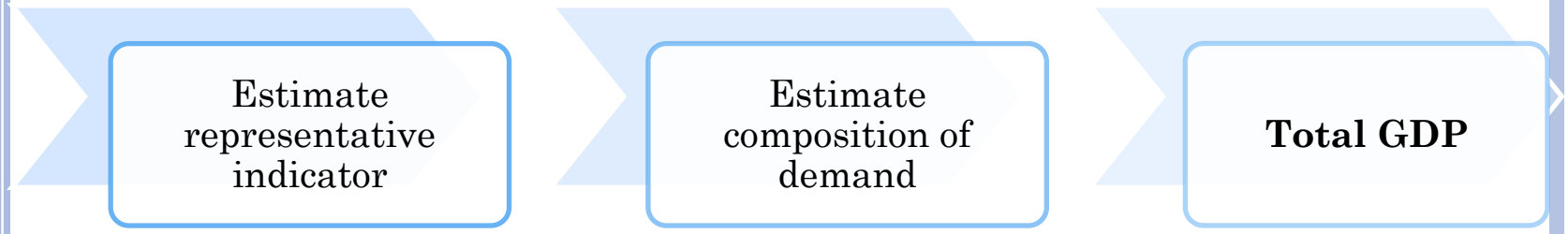


GDP FORECASTING (SUPPLY SIDE)

Branch	Representative indicators	Frequency of Data
Agriculture	- Livestock - Crop	Quarterly Semi-annually
Mining and quarrying	- Mining industrial index, - Quantity of production quarrying	Monthly
Transportation and storage	-Freight turnover -Service import	Monthly
Net taxes on production	Tax on domestic and import production	Monthly

GDP FORECASTING (DEMAND SIDE)

- GDP forecasting based on national accounts data:
  - Private consumption
  - Government expenditures
  - Investment
  - Export
  - Import



GDP FORECASTING (DEMAND SIDE)

Composition of GDP	Representative indicators	Methods	Frequency
Private consumption	- Import of consumer goods - Consumer loan	-Seasonal adjustment Cointegration -Vector autoregression	Monthly
Government expenditures	- Fiscal projection - Current expenditure - Capital expenditure		Quarterly
Investment	- Government domestic investment projection - FDI projection - Import of manufacturing products	- VAR	Monthly Quarterly
Net export	- Balance of payment projection		Quarterly

MEDIUM TERM FORECASTING

- Medium term forecasts predict the course of the aggregate economy and concentrate on variables such as GDP and inflation.

- Small inflation model of Mongolia consists of ten estimated equations

  - Total demand - IS curve
  - Price – Phillips curve
  - Purchasing power parity
  - Real money demand and supply
  - Terms of trade

- Each group contains approximately 15 time series. All series are transformed to achieve stationary time series.

MEDIUM TERM FORECASTING

A large number of macroeconomic data series have been applied to the model. The data set is grouped in ten categories, which are

- Monetary aggregates
- Interest rates
- Exchange rates
- PPP
- Commodity price index
- Fiscal expenditure
- Fuel price inflation
- Food price inflation
- Public wage
- Output gap
- Terms of trade

FORECASTING METHODOLOGIES

- We use following econometric modelling and methodologies for macroeconomic forecasting.

SHORT TERM

- BVAR
- SVAR
- SARIMA
- FINANCIAL PROGRAMMING

MEDIUM TERM

- SIMOM
- GAP
- DSGE

SHORT TERM STATISTICS FOR MACROECONOMIC FORECASTING

The following short-term economic key indicators used for forecasting:

- Consumer Price Index -Monthly
- Industrial Production Index -Quarterly
- Trade Turnover -Monthly
- Wages –Quarterly

DISSEMINATION OF MACROECONOMIC FORECASTING

- The monetary policy decision made by the MPC is disclosed to the public by holding a press conference. During the press conference, the Governors of Bank of Mongolia provide an explanation of their decision based on current situation and future forecasting.

- Monetary Policy Guideline

  - The forecasted inflation rate and GDP growth are set and included in the Monetary Policy Guidelines, each year.

- Inflation report

  - We are preparing quarterly inflation report which includes the inflation forecast.

THE USERS OF MACROECONOMIC FORECASTING

- Forecasting are critical to policy decision making because they provide the best information about future demand and therefore inflationary pressures on an economy.

- Macroeconomic forecasting are used in a wide range of areas, including:

  - Policy analysis

    - Forecasting are often used to develop and monitor macro-economic policies

  - Economic Research

Challenges for forecasting

Frequency	Disaggregation	Absent of some leading indicator data
▪ Some data produced with a lag of three months while monetary policy requires more frequent (monthly) and timely data to guide policy decisions. ▪ GDP ▪ Wage • Short quarterly GDP series for macroeconomic modelling.	▪ Disaggregation and coverage of national accounts data. ▪ Gross capital formation	• Labor market data • Unit Labor Cost • Productivity • Producer price index

- The data come with a three-month lag; forcing analysts to fill in the gaps using proxies. Forecasting is made difficult without timely & reliable data.
- Unreliable or absent some leading indicator data at high frequency means that often central bank forecasts will have errors.

THANK YOU FOR YOUR ATTENTION