



# INTRODUCTION TO MONETARY ACCOUNTS

## WORKSHOP ON MONETARY AND EXCHANGE RATE POLICY

BANGKOK, THAILAND

NOVEMBER 24 – DECEMBER 3, 2014

Bangkok  
November 25, 2014

Jan Gottschalk, TAOLAM

This activity is supported by a grant from Japan.

# Overview

2

- I. Introduction
- II. Central Bank Accounts
- III. Commercial Bank Accounts
- IV. Monetary Survey

# I Introduction—Monetary Statistics

3

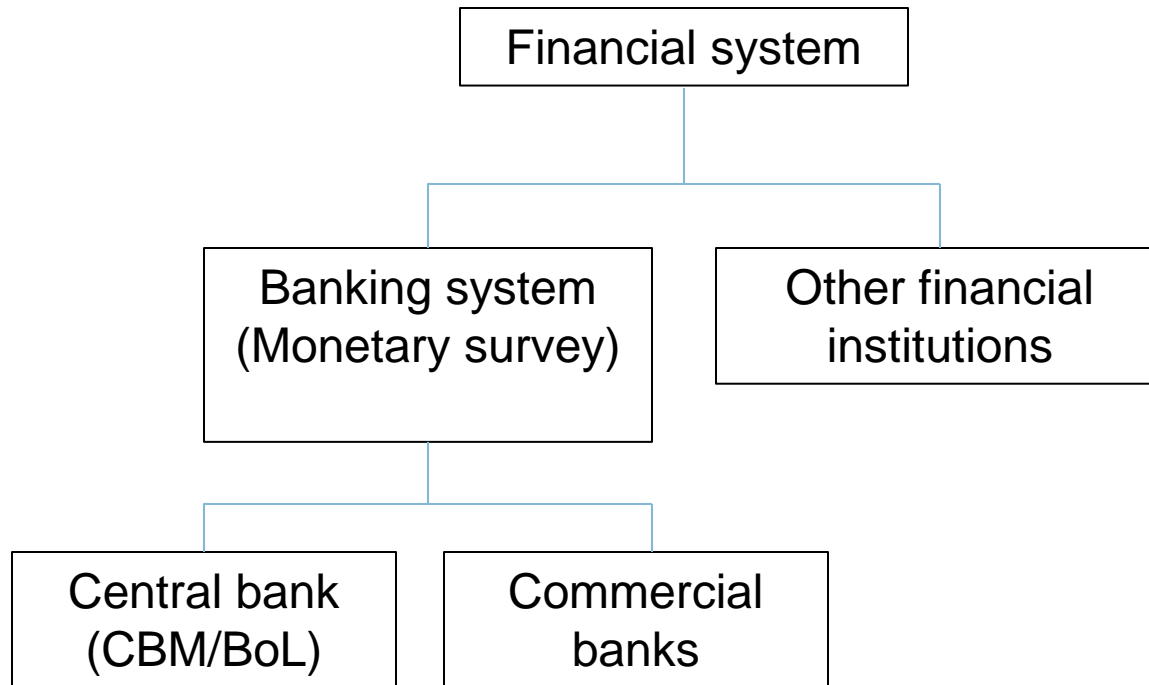


**Monetary statistics accounts are critical for analysis of monetary conditions and formulation as well as implementation of monetary policy**

**Understanding links between monetary policy and inflation, real economic activity, external account and foreign exchange rate will require going beyond monetary accounts**

# Introduction—Scope of the Financial System

4



# II Central Bank Accounts

5

Selected functions of the central bank that have a direct impact on its balance sheet include

- ✓ Issuing of currency
- ✓ regulating the money supply (monetary policy)
- ✓ acting as banker of the government
- ✓ holding the country's foreign reserves (exchange rate policy)

# Central Bank Accounts—Analytical Balance Sheet of Central Bank

6

$$RM = NFA + NDA$$

|                                    |   |
|------------------------------------|---|
|                                    |   |
| <b>Net foreign assets (NFA)</b>    | <b>Reserve money (RM)</b>                                 |
| <b>Net domestic assets (NDA)</b>   | Currency issued   |
| Net claims on the government (NCG) | Held in banks   |
| Claims on commercial banks         | Held outside banks  |
| Claims on other resident sectors   | Deposits (reserves) of commercial banks with central bank |
| Other items net                    |   |

# Central Bank Accounts—Analytical Balance Sheet of Central Bank

7

## Assets

- ▶ Net foreign assets

- holding the country's foreign reserves (exchange rate policy)

- ▶ Net claims on government

- acting as banker of the government

- ▶ Claims on commercial banks

- regulating the money supply (monetary policy)

# Central Bank Accounts—Analytical Balance Sheet of Central Bank

8

## Liabilities

### ▶ Currency issued

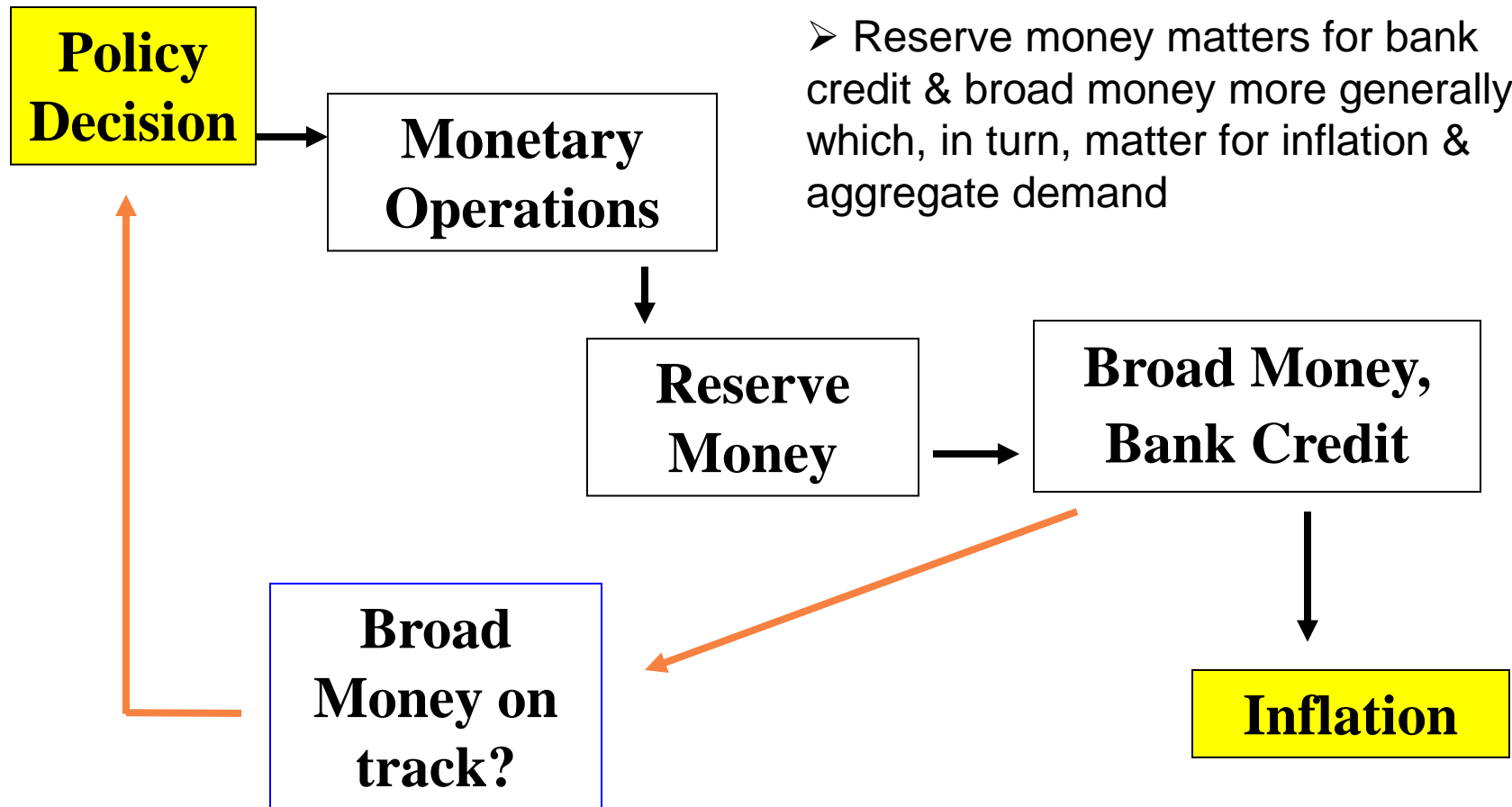
→ Issuing of currency

→ Deposits of commercial banks with central bank →  
regulating the money supply  
(monetary policy)



# Central Bank Accounts—Why is Reserve Money Important?

9



- The central bank can control reserve money because it is 'created' on its own balance sheet
- Reserve money matters for bank credit & broad money more generally, which, in turn, matter for inflation & aggregate demand

# Central Bank Accounts—Central Bank Balance Sheet Examples

10

- Example: On the first day of its operations, central bank decides to buy foreign currency worth Kyat 100 from commercial banks:

| <u>Assets</u>                   |            | <u>Liabilities</u>           |            |
|---------------------------------|------------|------------------------------|------------|
| <b>CB's Net Foreign Assets</b>  | <b>100</b> | <b>Reserve money</b>         | <b>100</b> |
| Foreign exchange                | 100        | Currency in circulation      | 0          |
| <b>CB's Net Domestic Assets</b> |            | Deposits of commercial banks | 100        |

- Example: Next, central bank provides credit of Kyat 100 to government, which uses this credit to pay its suppliers:

| <u>Assets</u>       |            | <u>Liabilities</u>           |            |
|---------------------|------------|------------------------------|------------|
| <b>CB's NFA</b>     | <b>100</b> | <b>Reserve money</b>         | <b>200</b> |
| Foreign exchange    | 100        | Currency in circulation      | 100        |
| <b>CB's NDA</b>     | <b>100</b> | Deposits of commercial banks | 100        |
| Net domestic credit | 100        |                              |            |

# Central Bank Accounts—Central Bank Balance Sheet Examples

11

- Example: central bank engages in open market operation to reduce base money supply and sells central bank securities of Kyat 100 to commercial banks:

| <u>Assets</u>                         |             | <u>Liabilities</u>           |            |
|---------------------------------------|-------------|------------------------------|------------|
| <b>CB's NFA</b>                       | <b>100</b>  | <b>Reserve money</b>         | <b>100</b> |
| Foreign exchange                      | 100         | Currency in circulation      | 100        |
| <b>CB's NDA</b>                       | <b>0</b>    | Deposits of commercial banks | 0          |
| Net domestic credit                   | 0           |                              |            |
| <i>NCG</i>                            | <i>100</i>  |                              |            |
| <i>Net Claims on commercial banks</i> | <i>-100</i> |                              |            |
| <i>Claims</i>                         | <i>0</i>    |                              |            |
| <i>Liabilities</i>                    | <i>100</i>  |                              |            |

# Central Bank Accounts—Effects of Monetary Operations on Balance Sheet

12

- ▶ Who can explain how monetary operations work in Myanmar, using the CBM balance sheet from February 2014 as an example?
  - ... to do so, you may want to create a balance sheet example and walk us through it.
- ▶ And how do monetary operations in Lao PDR work, using the balance sheet from December 2012 as an example?
  - ... again, you may want to use a balance sheet example to explain the workings of monetary operations.
- ▶ What do both operations have in common?
- ▶ And what is the difference?

# Central Bank Accounts—Monetary Operations in CBM Balance Sheet (2014-2)

13

|                                    | 2014-2 (February) |                                       |                 |
|------------------------------------|-------------------|---------------------------------------|-----------------|
| <b>Assets</b>                      | <b>10,176.1</b>   | <b>Liabilities</b>                    | <b>10,176.1</b> |
| <i>Net foreign assets</i>          | <i>2,972.9</i>    | <i>Reserve money</i>                  | <i>10,176.1</i> |
| Foreign assets                     | 3,976.4           | Currency in circulation               | 8,296.7         |
| Foreign liabilities                | 1,003.5           | Deposits of commercial banks with CBM | 1,879.4         |
| <i>Net domestic assets</i>         | <i>7,203.1</i>    | <i>Memorandum items:</i>              |                 |
| Domestic credit                    | 8,121.1           | Deposit auctions                      | 90.0            |
| Claims on central government (net) | 7,290.7           |                                       |                 |
| Claims on commercial banks (net)   | 830.4             |                                       |                 |
| Other                              | 0.0               |                                       |                 |
| Other items net                    | -918.0            |                                       |                 |

# Central Bank Accounts—Monetary Operations in BoL Balance Sheet (2012-12)

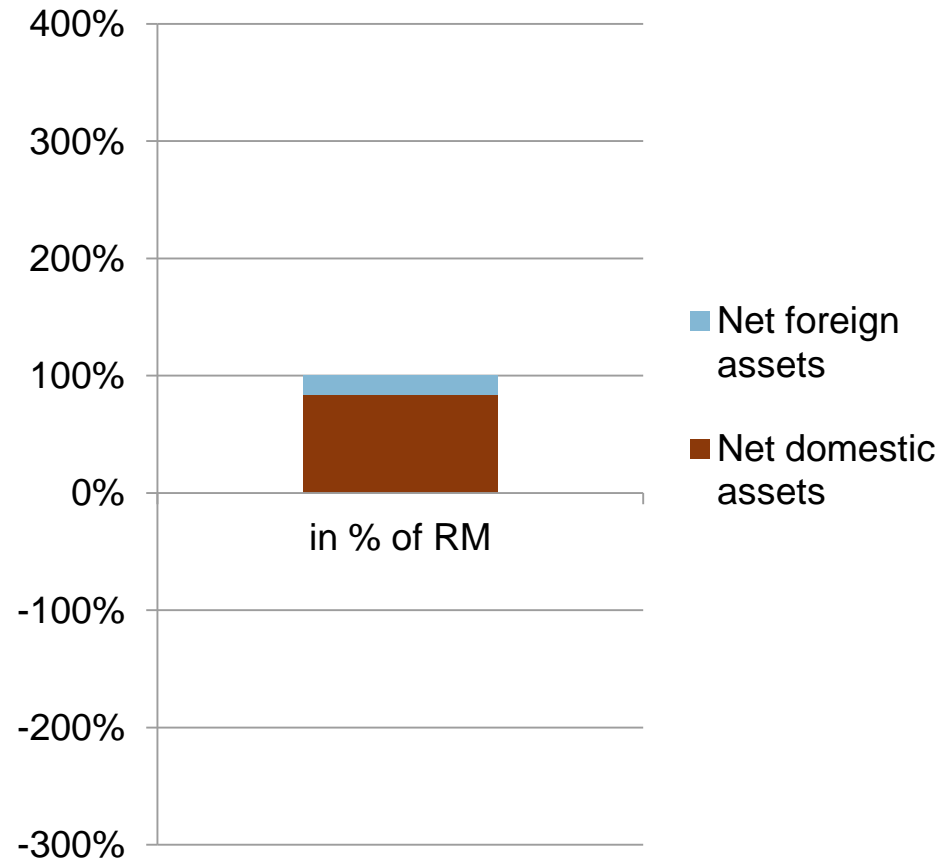
14

|                            | 2012-December   |                                       |                 |
|----------------------------|-----------------|---------------------------------------|-----------------|
| <b>Assets</b>              | <b>14,132.8</b> | <b>Liabilities</b>                    | <b>14,133.0</b> |
| <i>Net foreign assets</i>  | 5,254.8         | <i>Reserve money</i>                  | <i>14,133.0</i> |
| Foreign assets             |                 | Currency in circulation               | 7,169.0         |
| Foreign liabilities        |                 | Deposits of commercial banks with BoL | 6,964.0         |
| <i>Net domestic assets</i> | <i>8,878.0</i>  |                                       |                 |
| Claims on government (net) | 5,589.0         |                                       |                 |
| Claims on commercial banks | 3,647.0         |                                       |                 |
| BoL securities             | -1,786.0        |                                       |                 |
| Other items net            | 1,428.0         |                                       |                 |

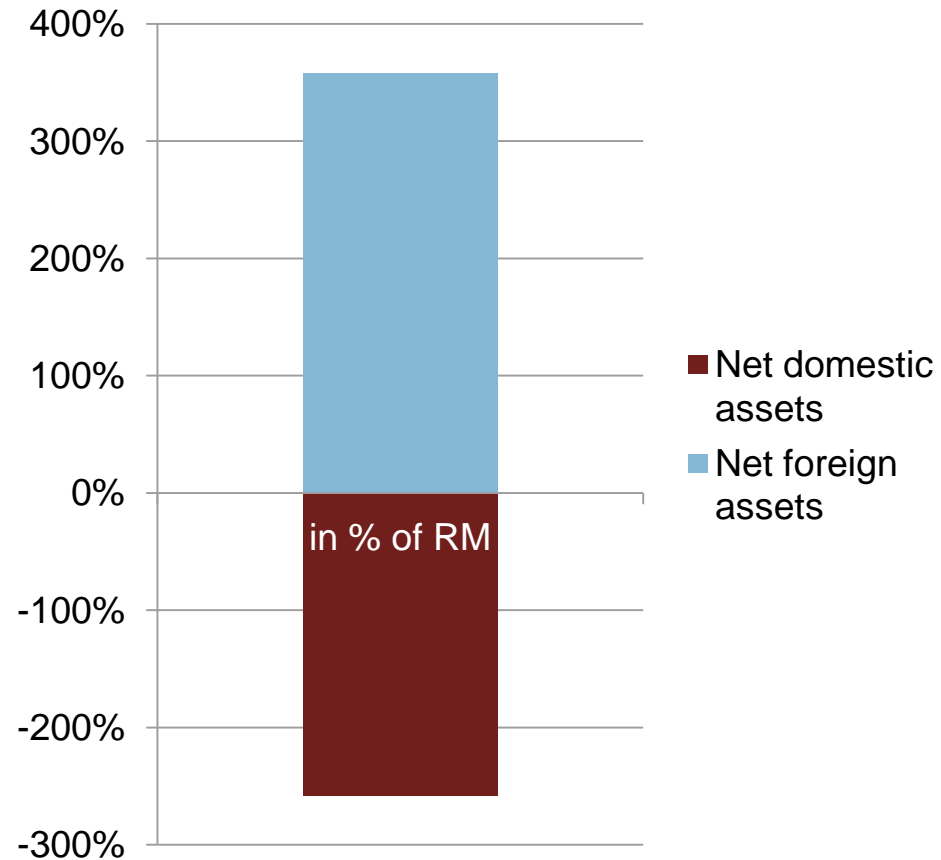
# Central Bank Accounts—Main Components of CBM Assets (2012/13)

15

### Composition of Reserve Money - CBM Assets (in % of RM)



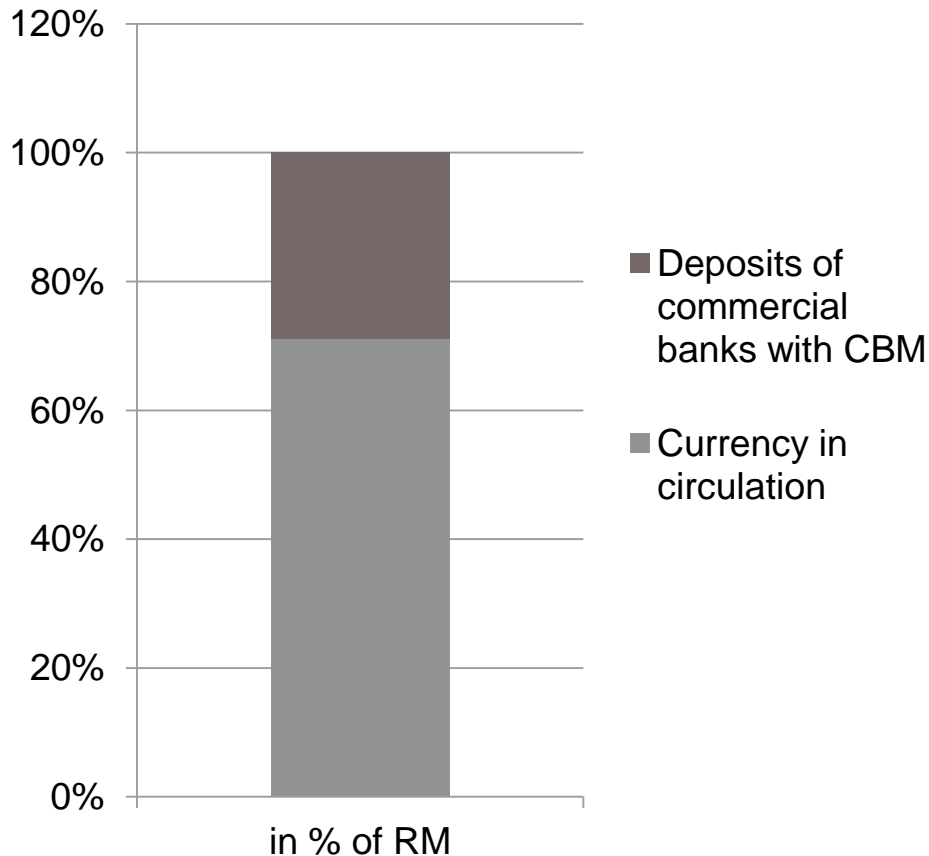
### Composition of Reserve Money - BoT Assets (in % of RM)



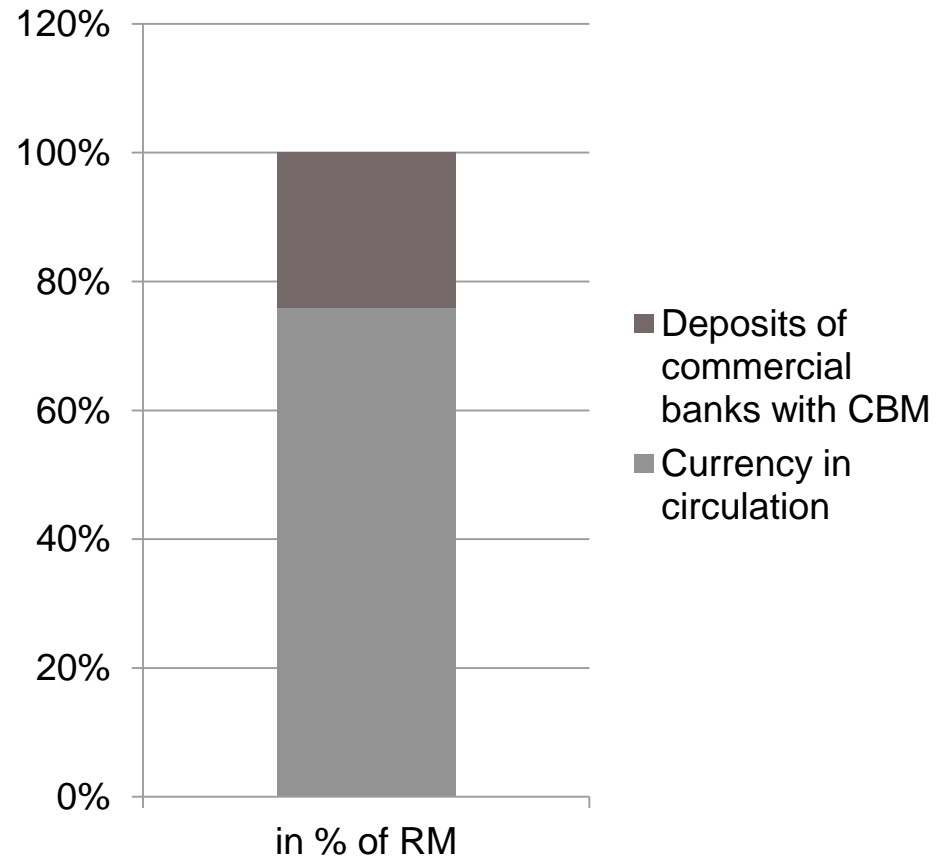
# Central Bank Accounts—Main Components of CBM Liabilities (2012/13)

16

### Composition of Reserve Money - CBM Liabilities (in % of RM)



### Composition of Reserve Money - BoT Liabilities (in % of RM)

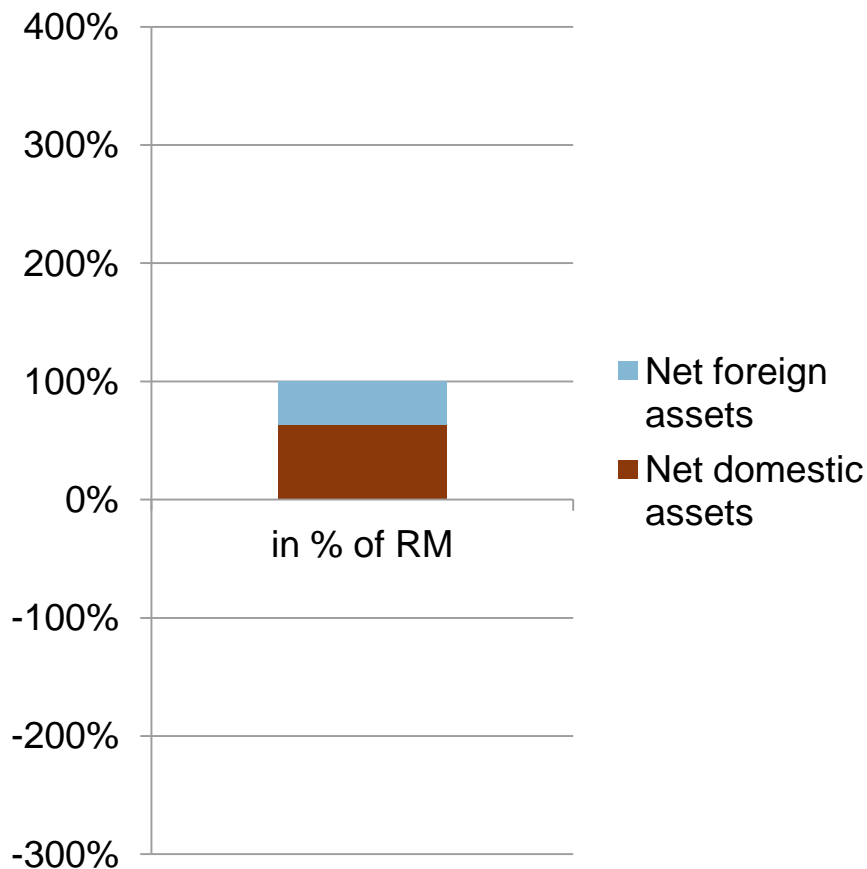




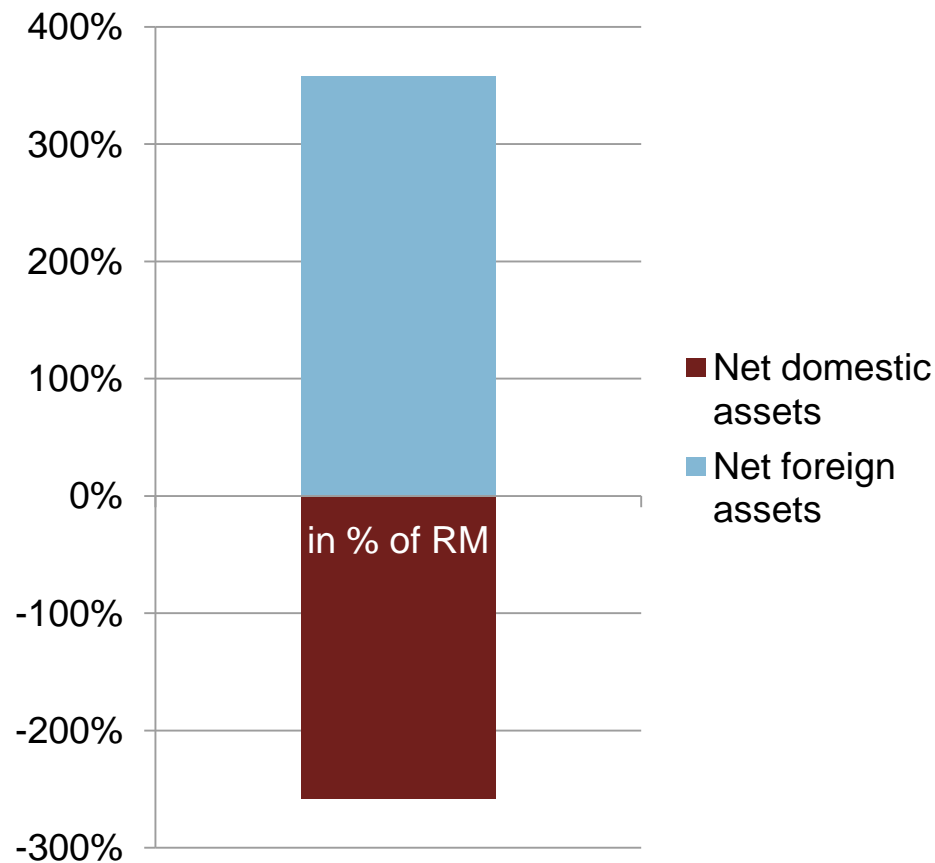
# Central Bank Accounts—Main Components of BoL Assets (2012)

17

### Composition of Reserve Money - BoL Assets (in % of RM)



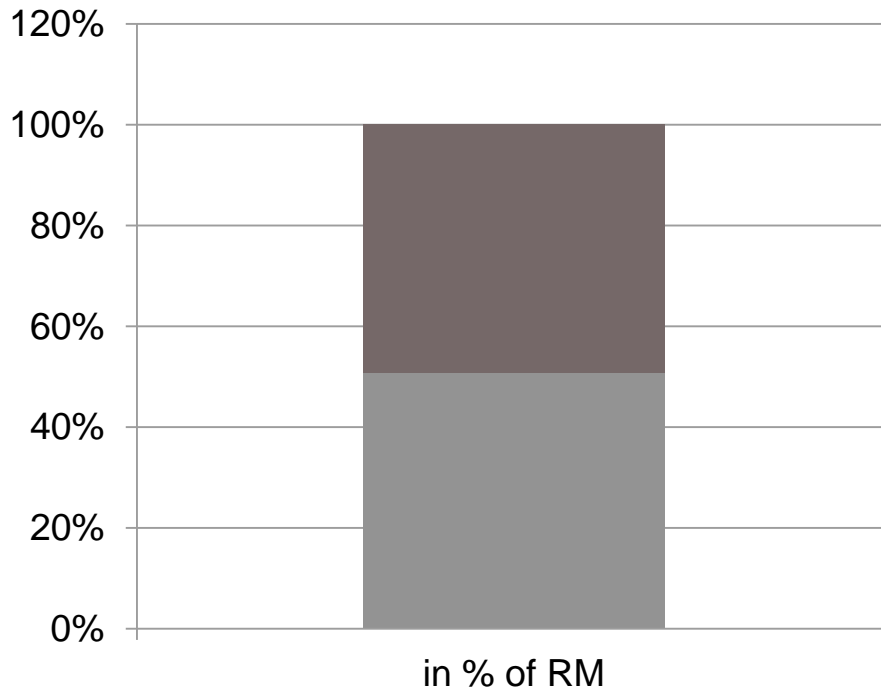
### Composition of Reserve Money - BoT Assets (in % of RM)



# Central Bank Accounts—Main Components of BoL Liabilities (2012)

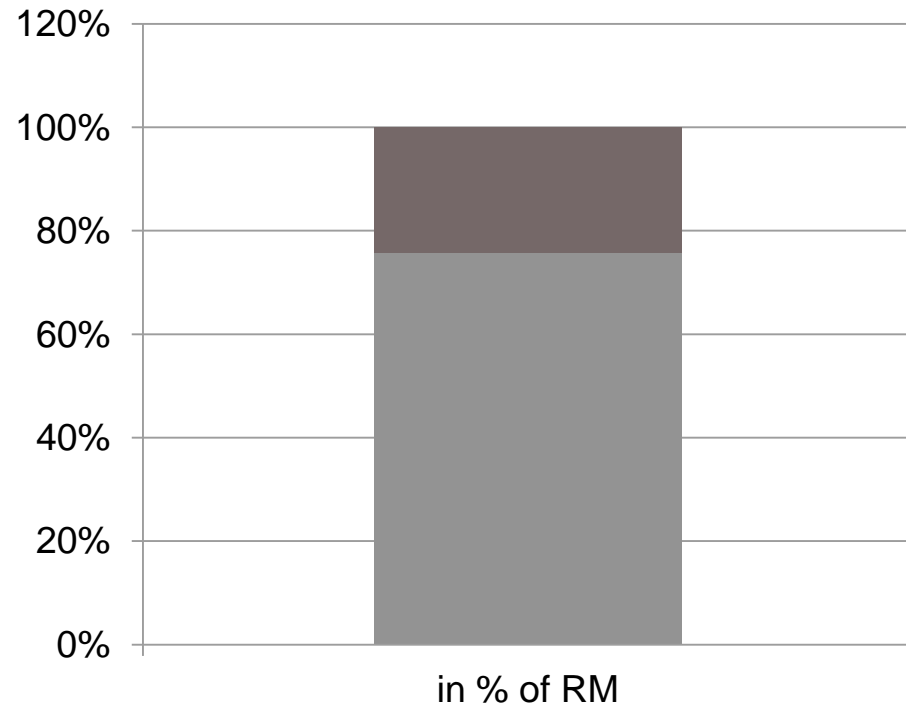
18

### Composition of Reserve Money - BoL Liabilities (in % of RM)



- Currency in circulation
- Deposits of commercial banks with BoL

### Composition of Reserve Money - BoT Liabilities (in % of RM)



- Currency in circulation
- Deposits of commercial banks with BoT

# Central Bank Accounts—Discussion

19

- ▶ What is the main source of NDA in your respective countries?
  - Take a look at the monetary table in the most recent published IMF staff report ...
  - ... and discuss it with your central bank colleagues.
- ▶ Looking at the balance sheet of your central bank, how would you characterize the money creation process in your country?

# Central Bank Accounts—Discussion

20

- ▶ Why is the asset side of the Bank of Thailand balance sheet so different from those of CBM and BoL?
  - Think in terms of the exchange rate regime and foreign exchange inflows ...
  - ... and sterilization.
  - Alternatively, could fiscal surpluses play a role, and if so, how?
- ▶ How did BoL respond to FDI inflows?

# III Commercial Bank Accounts

21

Selected functions:

- Facilitate savings by offering deposits
- Offer loans by transforming deposits into loans
- Commercial banks are an important channel for the transmission of monetary policy

# Commercial Bank Accounts—Analytical Balance Sheet of Commercial Bank

22

| Assets                            | Liabilities                            |
|-----------------------------------|--|
| <b>Net foreign assets (NFA)</b>   | <b>Deposits</b>                        |
| <b>Net domestic assets (NDA)</b>  | Demand deposits                        |
| <b>Claims on the central bank</b> | Time and saving deposits               |
| ○ Currency held in vaults         | Foreign currency deposits              |
| ○ Deposits at the central bank    | <b>Liabilities to the central bank</b> |
| ○ Holdings of central bank bills  |  |
| <b>Domestic credit</b>            |  |
| ○ Net credit to the government    |  |
| ○ Credit to private sector        |  |
| <b>Other items net</b>            |  |

# Commercial Bank Accounts—Impact of Monetary Operations

23

*Central bank sells Kip 100 in central bank bills to commercial banks:*

## Commercial Bank Balance Sheet

| Assets                     |          | Liabilities                            |     |
|----------------------------|----------|--|-----|
| <b>Net Foreign Assets</b>  | ...      | <b>Deposits</b>                        | ... |
| <b>Net Domestic Assets</b> | <b>0</b> | Demand deposits                        | ... |
| Claims on central bank     | 0        | Time and saving deposits               | ... |
| Currency held in vaults    |          | Foreign currency deposits              | ... |
| Deposits/Reserves          | -100     | <b>Liabilities to the central bank</b> | ... |
| Holdings of CB bills       | +100     |  |     |
| Domestic credit            | ...      |  |     |
| To the government          | ...      |  |     |
| To other resident sector   | ...      |  |     |
| Other items net            | ...      |  |     |

# Commercial Bank Accounts—Impact of Monetary Operations

24

*Central bank conducts deposit auction over Kyat 100:*

## Commercial Bank Balance Sheet

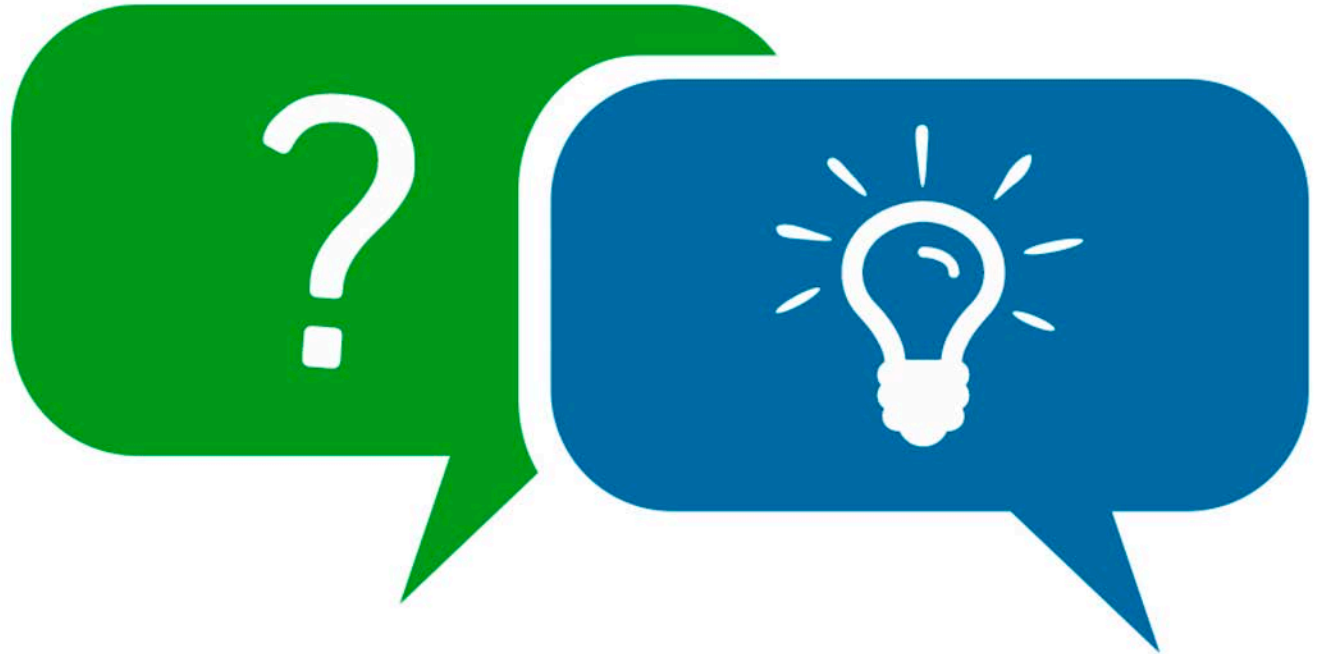
| Assets                     |          | Liabilities                            |     |
|----------------------------|----------|--|-----|
| <b>Net Foreign Assets</b>  | ...      | <b>Deposits</b>                        | ... |
| <b>Net Domestic Assets</b> | <b>0</b> | Demand deposits                        | ... |
| Claims on central bank     | 0        | Time and saving deposits               | ... |
| Currency held in vaults    |          | Foreign currency deposits              | ... |
| Reserves                   | 0        | <b>Liabilities to the central bank</b> | ... |
| Current CBM deposits       | -100     |  |     |
| Other CBM deposits         | +100     |  |     |
| Domestic credit            | ...      |  |     |
| To the government          | ...      |  |     |
| To other resident sector   | ...      |  |     |
| Other items net            | ...      |  |     |



# Commercial Bank Accounts—Impact of Monetary Operations

25

- ▶ What do these open market operations achieve?



# IV Monetary Survey

26

Consolidated balance sheet for the banking system:

- Add up balance sheets for the central bank and commercial banks, but ...
- ... before doing so, consolidate common items on the two balance sheets!

# Consolidation of Central Bank and Commercial Bank Balance Sheets

27

| Central Bank                    |  |
|---------------------------------|--|
| Assets                          | Liabilities                            |
| <b>Net Foreign Assets</b>       | <b>Reserve money (RM)</b>              |
| <b>Net Domestic Assets</b>      | Currency issued                        |
| Net claims on the government    | Held in banks                          |
| Claims on commercial banks      | Held outside banks                     |
| Claims on other resident sector | Deposits of commercial banks           |
| Other items net                 | Other deposits                         |
| Commercial Banks                |  |
| Assets                          | Liabilities                            |
| <b>Net Foreign Assets</b>       | <b>Deposits</b>                        |
| <b>Net Domestic Assets</b>      | Demand deposits                        |
| Claims on the central bank      | Time and saving deposits               |
| Currency held in vaults         | Foreign currency deposits              |
| Deposits at the central bank    | <b>Liabilities to the central bank</b> |
| Domestic credit                 |  |
| Other items net                 |  |

# Consolidation of Central Bank and Commercial Bank Balance Sheets

28

| Central Bank                         |  |
|--------------------------------------|--|
| Assets                               | Liabilities                            |
| <b>Net Foreign Assets</b>            | <b>Reserve money (RM)</b>              |
| <b>Monetary survey</b>               |  |
| Assets                               | Liabilities                            |
| <b>Net Foreign Assets</b>            | <b>Broad money (M2)</b>                |
| Claims on commercial banks           | Held outside banks                     |
| Claims on other residential sector   | Deposits of commercial banks           |
| Of the central bank                  | Narrow money (M1)                      |
| Other items net                      | Other deposits                         |
| Of the commercial banks              | Currency in circulation                |
| <b>Net Domestic Assets</b>           | <b>Commercial Banks</b>                |
| Net credit to the government         | Demand deposits                        |
| <b>Assets</b>                        | Quasi money                            |
| <b>Net Foreign Assets</b>            | <b>Liabilities</b>                     |
| Credit on the other resident sector  | Time and saving deposits               |
| <b>Deposits</b>                      | Foreign currency deposits              |
| <b>Net Domestic Assets</b>           | Demand deposits                        |
| Claims on the central bank           | Time and saving deposits               |
| Currency held in vaults              | Foreign currency deposits              |
| Reserve deposits at the central bank | <b>Liabilities to the central bank</b> |
| Domestic credit                      |  |
| Other items net                      |  |

# Monetary Survey—Why is M2 Money?

29

Why is M2 “**money**”?

Because it is what the economy can use to make payments and economic transactions:

- Currency in circulation: “**cash**”
- Deposits constitute a means of payment, as one can write checks (not so common in Myanmar), or make transfers, or withdraw cash against deposits



[dreamstime.com](http://dreamstime.com)

# Outlook

30

## What's next?

- In order to better understand **money supply**, we will take a closer look at the money creation process
- Then we will consider factors for **money demand**
- Relationship between money supply and money demand is a potential key driver of inflation

