



# INTRODUCTION TO MONEY CREATION

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# Overview

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- I. Impact of other sectors on monetary survey
  - a) External sector
  - b) Fiscal sector
- II. Endogenous money creation



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

# I Impact of Other Sectors on Monetary Survey—External Sector

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## External Sector

Monetary survey



# Impact of Other Sectors on Monetary Survey—Fiscal Sector

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## Fiscal Sector

### Monetary survey

#### Assets

#### Net domestic assets

E.g., increase in fiscal spending that is bank-financed

“government injects liquidity into economy by buying goods and services”



Net credit to government increases

→ NDA ↑

#### Liabilities

Currency in circulation

Deposits

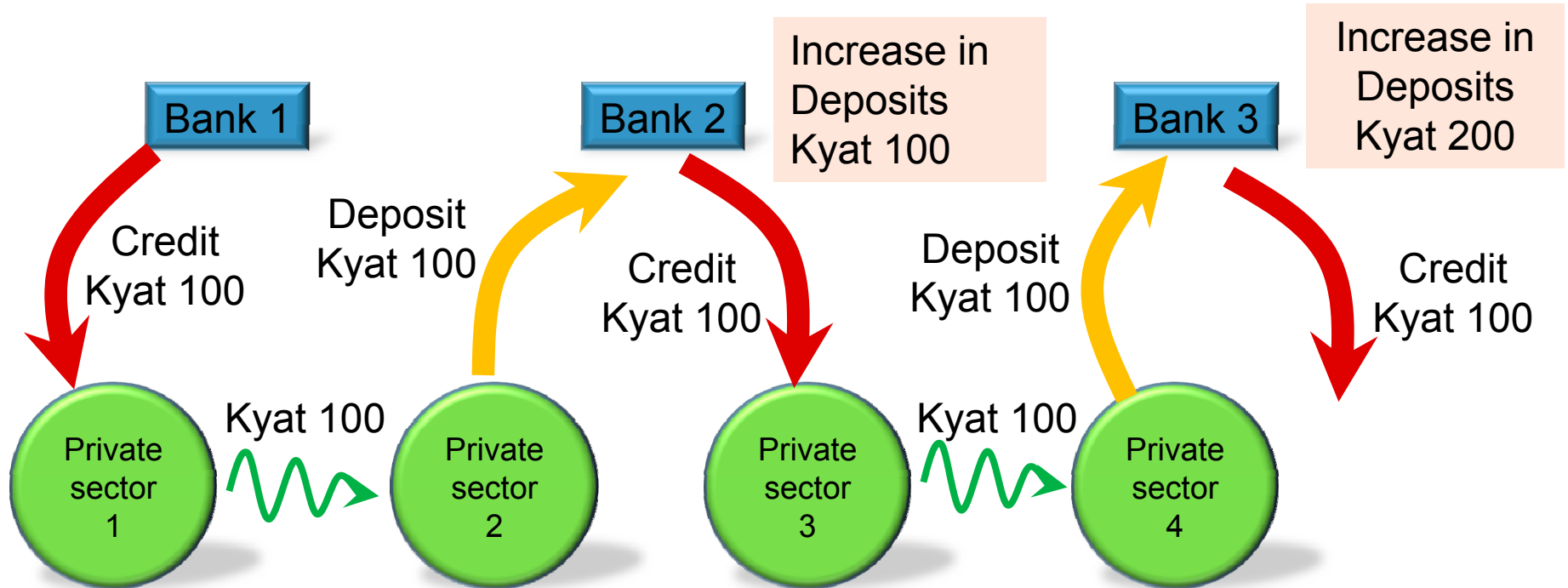
M1 & M2



# II Endogenous Money Creation

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*Example for boundless endogenous money creation: a bank extends credit of Kyat 100, which fuels further deposit and credit creation ...*



# Endogenous Money Creation—Reserve Requirements & Currency Demand

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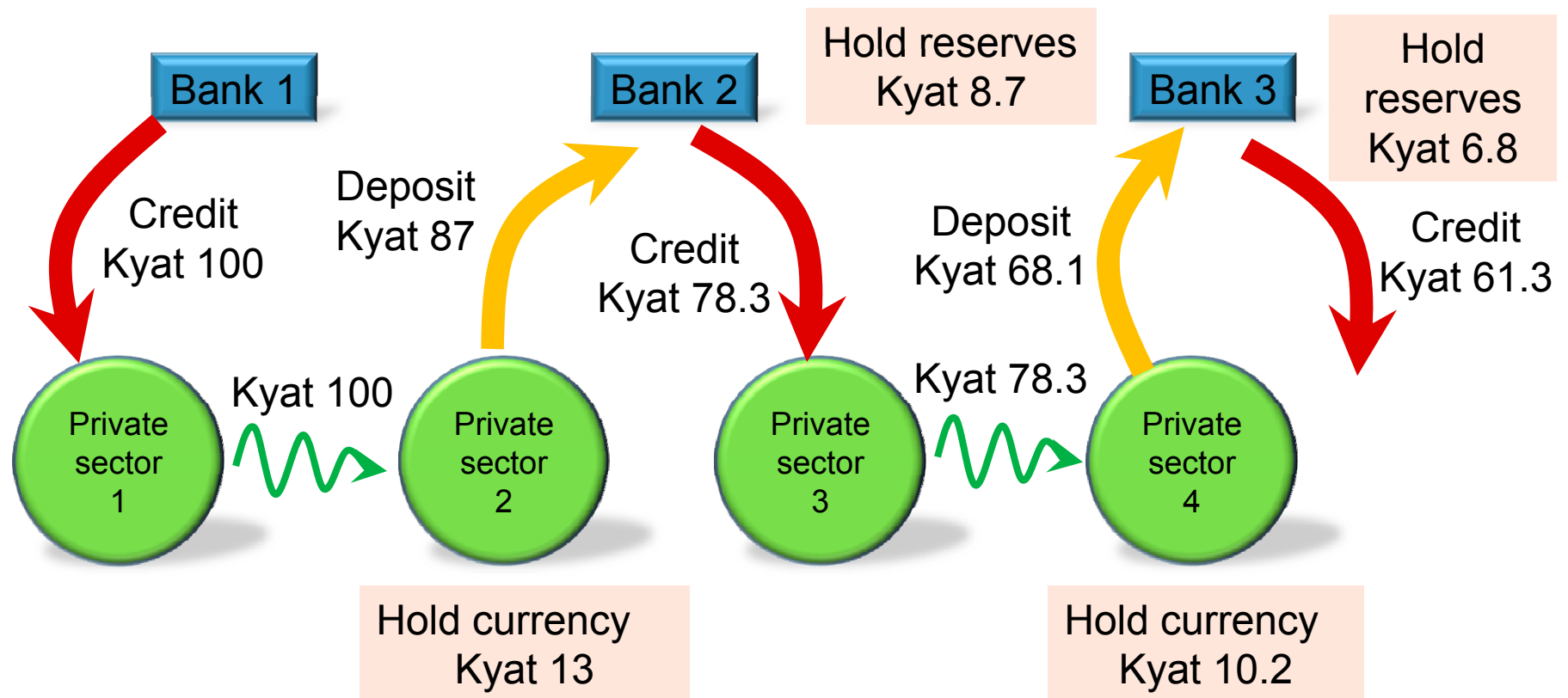
## Adding more detail to the Central Bank Balance Sheet:

Assets	Liabilities
Net foreign assets (NFA)	Reserve money (RM)
Net domestic assets (NDA)	Currency issued
Net claims on the government (NCG)	Reserves of commercial banks with central bank (deposits with CB)
Claims on commercial banks	Required reserves
Claims on other resident sectors	Excess reserves
Other items net	Other deposits

# Endogenous Money Creation—Reserve Requirements & Currency Demand

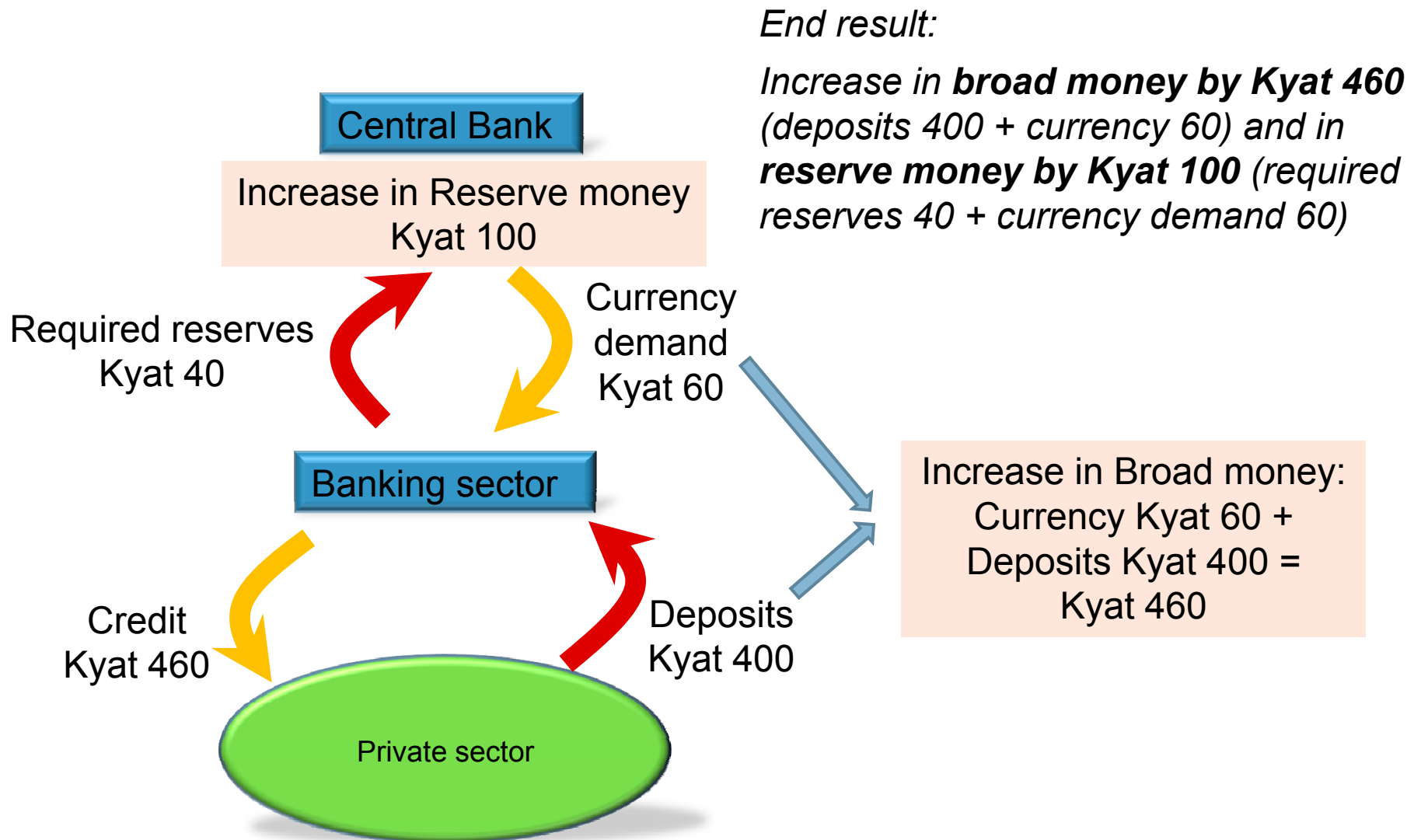
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*Now: a bank extends credit of Kyat 100 with 10% reserve requirements and currency-to-deposit ratio of 15 %*



# Endogenous Money Creation—Reserve Requirements & Currency Demand: End-Result

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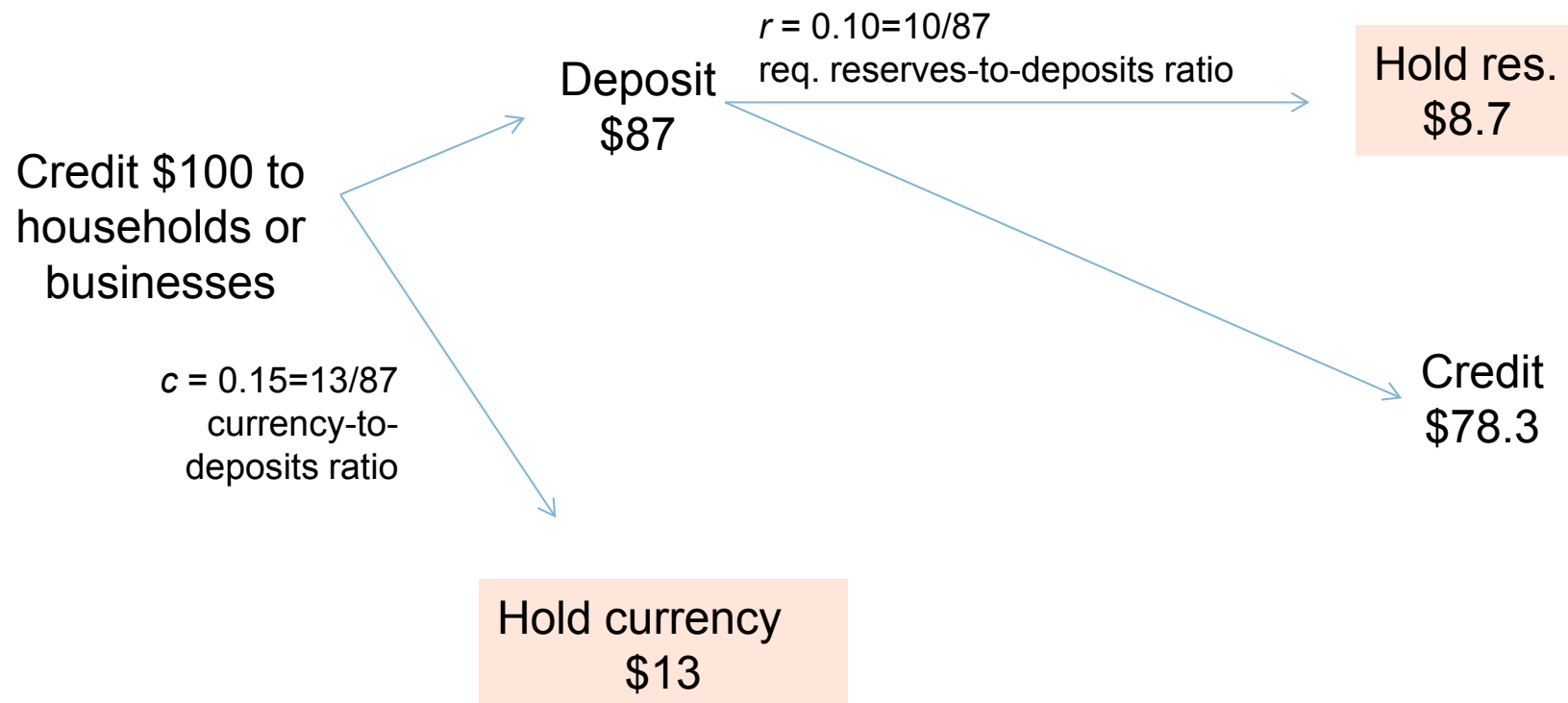


# Endogenous Money Creation—Reserve Requirements & Currency Demand

## Exercise 4

Replicate this process in the supplied Excel spreadsheet in order to verify that the end-result shown here is correct.

Start out with the first round:



# Endogenous Money Creation: Money Multiplier

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# Endogenous Money Creation—Deriving the Money Multiplier

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The extent of endogenous money creation can be analyzed via the money multiplier which links broad money (M2) to reserve money (RM):

$$M2 = m \cdot RM \quad \longrightarrow \quad m = \frac{M2}{RM}$$

$$m = \frac{M2}{RM} = \frac{C + D}{C + R} = \frac{\frac{C}{D} + \frac{D}{D}}{\frac{C}{D} + \frac{R}{D}} = \frac{c + 1}{c + r}$$

where  $C$  = currency in circulation,  $R$  = Reserves held at CB (commercial bank deposits at CB) and  $D$  = deposits of private sector with commercial banks).

The money multiplier is a function of

- $c$  = currency-to-deposits ratio (behavioral variable)
- $r$  = reserve-to-deposits ratio (policy variable)

# Endogenous Money Creation— Determinants of the Money Multiplier

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Fundamental determinants of the money multiplier:

- reserve requirements decided by the central bank → matters for reserve-to-deposits ratio
- Willingness of banks to hold excess reserves (liquidity risks, credit risk, foregone interest earnings) → matters for reserve-to-deposits ratio
- Willingness of households and firms to hold cash instead of deposits (liquidity risks, foregone interest earnings) → matters for currency-to-deposits ratio

# Endogenous Money Creation—Numerical Example for the Money Multiplier

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Consider our previous example for the money creation process:

Currency-to-deposit ratio  $c = 15\%$

Required reserves-to-deposit ratio = 10%

$$m = \frac{c+1}{c+r} = \frac{0.15+1}{0.15+0.1} = \frac{1.15}{0.25} = 4.6$$

Increase in reserve money by Kyat 100 leads to increase in broad money by Kyat 460.

# Endogenous Money Creation—Money Multiplier and Causality

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What about the direction of causality?

- The money multiplier concept suggests that creation of reserve money, which is under the control of the central bank, leads to an increase in broad money via the money multiplier. In essence, the central bank creates liquidity that then is lent out by banks, thereby starting the credit-deposit money creation process.
- But in our example, money creation started with increase in bank lending, not increase in reserve money. The money multiplier should still matter because banks need to satisfy reserve requirements; the supply of reserve money can become a binding constraints for bank lending by limiting the amount of liquidity available to meet reserve requirements, thereby tying reserve and broad money closely together.

# Endogenous Money Creation—Money Multiplier and Excess Reserves

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The presence of excess reserves can lead to variability in the money multiplier and undermine its usefulness:

- Imagine that banks hold excess reserves and the central bank increases these reserves further through open market operations. What happens to the money multiplier? What does this mean for the effectiveness of money policy for stimulating credit creation?
- Consider a situation where banks hold excess reserves and find new lending opportunities, leading to an increase in bank lending and rise in broad money. What happens to the money multiplier here?

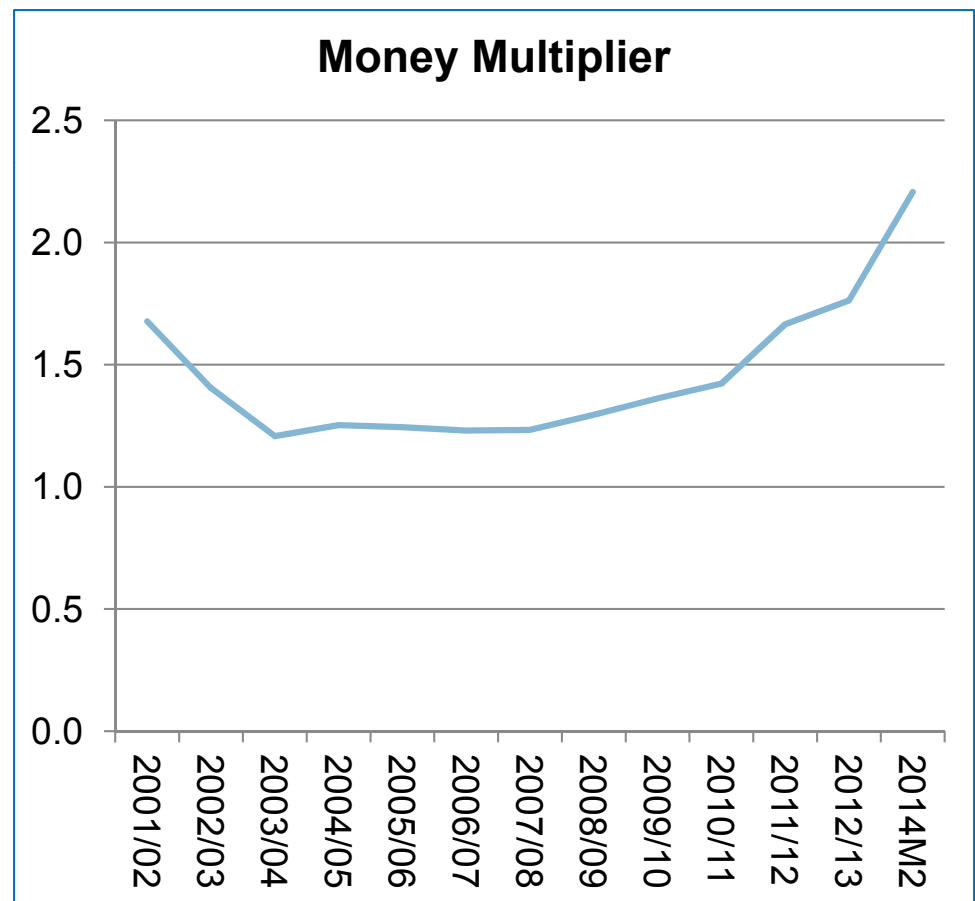
# Endogenous Money Creation—Money Multiplier in Myanmar

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## Exercise 5

Work out approximate currency-to-deposit and reserves-to-deposit ratios that could explain key movements of the money multiplier.

What kind of developments could have led to these changes in the money multiplier?



# III Summary

- Monetary accounts are critical for analysis of monetary conditions and formulation as well as implementation of monetary policy
- Money creation is partly linked to developments in other sectors and partly an endogenous process that can be influenced by monetary policy

# Thank You!

This presentation provides you with a basic introduction to the monetary accounts that we will put into practice soon tomorrow.